A Structurational Approach to the Use of Virtual Learning Environments in Multicultural Contexts

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ABSTRACT

A gap in the E-learning literature suggests that attempts to realize research into the design of learning technologies that are conducive to user modification and that support a global set of learners, are still fraught with numerous problems directly relating to the dichotomous view of "culture", "technology" and "pedagogy". The dichotomies are mainly between determinism and anti-determinism.

With regard to culture, determinists believe that "national culture" acts on everyone who shares the same physical and social environment, and it ignores diversity within cultural groups. On the contrary, seeing culture in terms of context and meaning, anti-determinists argue that people develop concepts, names and shared understanding and meanings linked to their actions and behaviour. They argue that individuals can act independently of their situated cultural contexts, and this provides a basis for intracultural diversity. Concerning pedagogy, determinists believe that knowledge is transferred from teacher to students and that instructions change students' behaviour in obvious and measurable ways. In contrast, anti-determinists believe that learning is constructed based on learners' understanding of the world and on their reflection and experiences. As such, results of learning are not easily measured and may not be the same for each learner. As it pertains to technology, determinists believe that the technology, such as the VLE, determines how learning will take place based on a didactic approach. Conversely, an anti-deterministic view is that social actions shape the technology to construct meaning and knowledge. Altogether, dichotomies present only a partial view of reality.

Anthony Giddens' [1984] Theory of Structuration overcomes these dichotomies. Therefore, the theory was used to develop a Structuration Conceptual and Theoretical Framework [SCTF] to guide the empirical study of VLE use in multicultural settings. The theory was adapted to reflect the duality of technological, cultural and educational models of structure and agency, as well as the resulting conflicts. An interpretive qualitative case study was conducted, involving thirty-two semi-

structured interviews with students [n=23] and lecturers [n=9] who used Blackboard and CABWEB VLEs for assessed and non-assessed activities. The results drew out main issues relating to VLE-supported pedagogy in multicultural contexts for staff and students; their expectations and perceptions of VLE; their overall pedagogical activities and VLE usage; and the technological, cultural/social and pedagogical issues that arose.

Following an analysis of the results, it was discovered that the SCT framework needed to be modified to incorporate a cycle of processes and structurational transformations which occurred in the multicultural setting. This modification led to a richer model of Structuration – SCTF2 – which differs from, but enhances Giddens' model.

Contributions of the study lie in the updated Structuration Conceptual and Theoretical Framework – SCTF2. As a contribution to theory, SCTF2 has developed a specific version of Structuration for Culture, Pedagogy and Technology, and has suggested enhancements to Giddens' Theory of Structuration. The SCTF2 model uses a cycle of arrows to portray a chronological sequence of processes such as individual action, interaction, conflict, reflexivity and the development and transformation of new structures. SCTF2 emphasizes the crucial role which conflict and reflexivity played in the development of new structures and in the understanding of how and why such structures were produced overtime. The model also highlights that structures of signification, legitimation and domination all overlapped and that each of these structures incorporated all three phenomena of culture, technology and pedagogy. Contributions to the methodology and practice of technology-enhanced learning in multicultural contexts are also discussed. This new framework can help to understand cultural issues surrounding the use of the VLE. It could guide the application and adoption of VLEs by staff and students in multicultural settings.

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For my little Cherubs,

Daniel and Joelle

TABLE OF CONTENTS

CHAPTER THREE: SOCIO-TECHNICAL THEORIES: SELECTION AND JUSTIFICATION OF A THEORETICAL FRAMEWORK

CHAPTER FOUR: RESEARCH METHODOLOGY

CHAPTER SEVEN: DISCUSSION OF THE STRUCTURATION CONCEPTUAL AND THEORETICAL FRAMEWORK

CHAPTER EIGHT: REFLECTIONS AND CONCLUSIONS

APPENDICES

APPENDIX A:
Basic Illustration of the Key Differences between High and Low VSM Indices
in Educational Systems or Learning Situations [p. 372]

APPENDIX B
The Use of Technology in Education: A Brief History [p. 373]

APPENDIX C
Student Interview Pro-Forma [p. 377]

APPENDIX D
Elements of Students' Cultural Background – Student Interviews [378]

REFERENCES

CHAPTER ONE

Introduction to the Research

> "*...It is inescapable that every culture must
> negotiate with technology, whether
> it does so intelligently or not*"
> [Postman, 1993; p. 5]

1.1   Introduction

The dichotomous conceptions of "technology", "culture" and "education" represented in the Learning Technology literature serve as a springboard for this study. The dichotomies are mainly between deterministic and anti-deterministic viewpoints. Given these limited underlying concepts, it is argued that research into the design of learning technologies that are conducive to user modification and that support a global set of learners, is problematic. This thesis concerns an exploration into how a structurational framework can help to understand the use of Virtual Learning Environments [VLEs] in multicultural settings.

The research was done back in the academic year of 2005-2006, but because of the interruptions the researcher has had to take, the research is being submitted now. The findings are still relevant in the current context a dozen years later, however. Even though technology might have advanced, the core functionality of the VLE studied here, especially with respect to educational activities, is still the same today. In addition, the cultural and educational issues have changed very little and are still largely relevant. Moreover, from that time and even up to now, scholars in the fields of Information Systems [IS] and Educational Technology have been calling for robust use of social theory within Learning Technology and IS research [Viberg and Gronlund, 2017; Halperin, 2016; Oliver, 2013].

In 2013, Oliver argued that "*the absence of any developed account of technology is a significant deficiency for research in the field of educational technology*" [p. 41]. He maintained that

> "*the lack of theorisation…suggests a radical taking stock of work in the field may be necessary: the explanations offered by existing research, at least for the last decade, rests on uncritical or oversimplified accounts of technology.*" [Oliver, 2013; p. 41].

Concurring with Oliver [2013], Viberg and Gronlund [2017] and Halperin [2016] particularly talked about the scarcity of Structurational accounts from the fields of Information Systems and Educational Technology. According to Viberg and Gronlund [2017], even though Structuration Theory acknowledges humans as highly autonomous in their actions, a review of this theory and Information Systems research showed that there was scarce attention paid to the continuous operation of agency, the mutuality of constitution or its pervasiveness. In a similar vein, Halperin [2016] purported:

> "*Interest has been noted in applying Giddens' structuration theory to the understanding of human interaction with technology in learning settings. However, only few such attempts have been published to date with recent reviews indicating the scarcity of structurational accounts from the educational technology field*" [Halperin, 2016; p. 279].

In the light of scholars calling for robust use of social theory within Learning Technology and IS research, it is affirmed that this research is still relevant. The research has been brought up to date and its contribution lie in the development of a Structuration Conceptual and Theoretical Framework [SCTF] which facilitates richer accounts of "technology", "culture" and "education".

1.2   An Overview of the Research Issues

In online environments composed of learners from different cultural backgrounds, learning technologies such as VLEs, serve as essential collaborative tools – 'reaching out' to students across cultural borders through web-based distance learning and 'reaching in' to culturally-diverse campus students who are mandated to access E-learning materials and participate in VLE activities.   It is recognized that the ability to personalize in E-learning environments is vital since they are used by a wide variety of students with different characteristics, in extremely dynamic contexts [Asino et al, 2017; Eyharabide et al, 2009; Wilson et al, 2006].   It is also widely acknowledged that designers need to be aware of learners' cultural backgrounds in order to develop or modify designs that will best suit their cultural learning frameworks [Campbell, 2011].   However, attempts to realize research into the design of learning technologies that support a global set of learners, is still fraught with numerous problems relating to the limited underlying concepts of "culture", "technology" and "education".

Although there are traditions of studying technology generally, which view it as the outcome, rather than the instigator, of complex interactions between people and the material world, such rich heritage of theories and concepts have been under-utilized in the field of educational technology [Halperin, 2016; Oliver, 2013; Creanor and Walker, 2010b].   Thus in the learning technology literature, it is assumed that E-Learning technologies will transform or determine the nature of pedagogical activities, the users and the wider institution.   Complementing this issue is the assumption that learning does not involve interpersonal and intrapersonal human interaction, and that the task of designing for learning is solely a matter of prediction, formalization and preparation of software-instructional processes to be used between learner and learning software [Sorensen and O'Murchú, 2006].   This is reflected in the learning technology design which is typically content-driven and ignores dialogue and interaction among users. Further, hinging on these shortcomings in the literature, is the issue of culture.   To date, "*when it comes to the design of tools and software that are heavily used to support and encourage learning, the role of culture is often*

13

treated as an afterthought, or is, at best, grossly undervalued" [Asino et al, 2017]. Much of the research into culture as it impacts the online class, situates itself within a paradigm that equates culture with membership in a particular nation state [Hewling, 2006]. Thus culture is viewed as being rooted in national or ethnic backgrounds which individual participants bring with them to the virtual learning environments, rather than as something that is produced out of interactions in virtual learning environments [Goodfellow and Hewling, 2005].

The shortcomings in the literature suggest that a need exists to study rich, holistic conceptions of "culture", "technology" and "education" that can be incorporated into the design of learning technologies. Learning Technology and Information Systems researchers are challenged to move beyond the concept of "national culture" to one that recognizes culture as being dynamic – one that sees culture as contested, temporal and emergent [Myers and Tan, 2002; Goodfellow and Hewling, 2005; Goodfellow, 2008; Fay and Larson, 2016; Asino et al, 2017]. Cook et al [2007] call for learning technologies that are designed for learning and not content transmission, while Young [2008] calls on designers and researchers for more guidance in the form of models or frameworks to incorporate culture and enhance the ICT design process. In addition, there have been repeated calls for approaches to conceptualising technology design and use that go beyond the mechanistic, technological determinism of much learning technology research [Halperin, 2016; Oliver, 2013; Creanor and Walker, 2010a].

Toward a contribution, this research aims to explore an alternative approach to re-conceptualizing culture, technology and pedagogy, to address the shortcomings in the literature. This alternative approach is founded on key conceptual tools, such as agency and structure, drawn from Anthony Giddens' [1984] Theory of Structuration. Agency refers to "human action" or "doing", while structure describes the factors enabling and constraining what human agents do [Giddens, 1984; Jones and Healing, 2010]. The ensuing section introduces the key themes which will guide the research study.

1.3 Research Themes and Context

As a research area, E-learning is both multi-disciplinary and inter-disciplinary, covering a vast range of research topics [Conole and Oliver, 2007]. Given this diversity, it is necessary from the onset to present the three major, interconnected themes that will serve as the central platform for this research endeavour. These themes are: Technology; Culture; and Pedagogy. The themes have been selected as they form the very pillar upon which E-learning stands. For instance, without the theme of pedagogy, it would be impossible to conceptualize teaching and learning activities. Likewise, without the theme of technology, it would not be possible to conceptualize electronic ["e"] learning activities. Also, culture as a theme reminds us that E-Learning transcends national and geographic borders, and forms the socio-cultural context within which E-Learning activities are occurring.

The three themes, together, shape this research and are used to frame the discussion in the subsequent chapters. *Subsections 1.3.1 – 1.3.3* provide an overview of how they are problematized in this thesis.

1.3.1 An Overview of Technology

For the purpose of this research, technology includes the broad range of Information and Communication Technologies [ICTs] termed as 'learning technologies', with reference to their use in teaching and learning [Conole and Oliver, 2007]. The past few decades have seen accelerated use of information technology to support learning, with new learning opportunities arising through the integration of digital media in the classroom [Huang and Liaw, 2018]. The use of the internet technology, in particular, has seen the emergence of Virtual Learning Environments [VLEs], which enrich conventional classroom activities, facilitate online communities and enable distance education and mobile learning. VLEs are now "*ubiquitous across the Higher Education sector, responsible for the heavy lifting of course management activities and the conventional structuring of lecture and reading materials in a shared online space*" [Walker et al, 2017; p. 3].

Following the introduction of VLEs, classrooms have become increasingly digitalized, with significant growth in access to computers, tablets/iPads and digital white boards. This, coupled with students' use of personal devices and multimedia-sharing technologies, such as smart phones, Web 2.0, wikis, blogs, chats, creates a Personal Learning Environment phenomenon, which support collaborative knowledge construction for teachers and students and enable individual learners to manage their own learning [Virtanen and Rasi, 2017; Haworth, 2016]. The capabilities of social media are influencing learning and teaching in ways previously unseen, and these capabilities offer a window into the future of education, in terms of new means of knowledge production and reception and new roles for learners and teachers [Greenhow et al, 2016].

In recent years, there has been a growing interest in computer games and the Virtual Worlds within the education community, and both educators and researchers have contributed to an understanding of how to best integrate real life activities into online learning [Huang and Liaw, 2018; Twining, 2010]. Significant improvements have been made to Virtual Reality [VR] technologies, which were invented in the 1960s with the flight simulators developed by military aerospace, allowing learners to interact with virtual worlds, [Huang and Liaw, 2018; Dede et al, 2017]. It is believed that within education, 'Gamification', "*the use of features of games and play in serious ICT artefacts to further some serious purpose*" [Basden, 2018; p. 331], can help to make learning 'enjoyable' as students accomplish educational tasks. It is claimed that a well-designed game in a Multi-user Virtual Environment [MUVE] draws viewers into the world portrayed on the screen – via richer stimuli, head-mounted or room-sized displays and can create sensory immersion to deepen the effect of virtual presence [place illusion], the feeling that you are at a location in the virtual world [Dede et al, 2017]. For example, Microsoft's HoloLens headset – dubbed the first holographic computing platform [the Headset] – blends physical and digital phenomena [Dede et al, 2017; McLaughlin, 2016]. It works by projecting 3D holographic content onto the physical world, using elements of augmented and virtual

reality to create a "mixed reality", and it also interacts with the user by picking up their voice and hand gestures [McLaughlin, 2016]. The holographic headset technology is being used during classes with medical students at Case Western Reserve University in Cleveland, Ohio, as a more hands on way for them to learn about the human anatomy. According to McLaughlin 2016:

> "*As the headset projects a hologram of the human body onto the room you are in, you are able to walk around it in order to see different body parts from various angles. It can also zoom in on body parts like an aortic valve working within a heart, which isn't even possible to view with other teaching methods, such as using an actual heart*" [McLaughlin, 2016].

Altogether, it is argued that the continued technological shift is highly likely to result in the development of more powerful, intuitive, interactive, and efficient communication modes, along with increased integration of rich media and the delivery of high quality learning content generated and managed by instructors [Huang and Liaw, 2018].

To discuss various types of technologies for learning would go beyond the scope of this PhD thesis. As such, focus is placed particularly on Virtual Learning Environments [VLEs] as a form of learning technology. While VLEs are not the most innovative educational technology to be found in use today [Weller, 2007], the author of this research is looking for systems that are tailored to learning and E-Learning. VLEs offer a managed learning environment in which students enrol on courses; access learning materials; submit assignments and communicate with university staff and peers, among other things. While social media, games, VR and other immersive technologies have been applied recently in education, VLEs have become pervasive in higher education institutions and other educational settings, particularly across the UK. Thus from the perspectives of this research, it is prudent to focus on the VLE as a technology that is incorporated into mainstream learning.

Although the research mentions the institutional perspective of VLEs, its main focus is on VLEs from the users' perspective.

1.3.1.1 Virtual Learning Environments

Since the mid-1990s the education community witnessed the appearance of software products labelled Virtual Learning Environments [VLEs] that aim to support teaching and learning activities across the Internet [Walker et al, 2017; O'Leary, 2002]. Such online course creation environments can be used to support web-based distance education or to enhance conventional classroom teaching and learning activities.

VLEs might also be called Electronic Learning Environment, Learning Management System [LMS], Course Management System [CMS], Learning Content Management System [LCMS], Learning Support System [LSS], Online Learning Centre [OLC] or Learning Platform [LP], each emphasizing different aspects of the software and reflecting regional differences [OFSTED, 2009; Littlejohn et al, 2007]. Within the context of UK education, for instance, the term VLE is used extensively [Wilson et al, 2006]. Other VLEs developed in-house are sometimes given customized labels or are labelled to reflect the actual names of their "host" institutions.

Regardless of the variations in terminology, VLE systems typically integrate a collection of e-tools and features that can be used to support a range of teaching and learning activities. Such tools and features, which are summarized in *Table 2.1* below, include: online discussion forums [through bulletin boards or chat facilities]; tools for submission of group work; assessment tools [such as computer-marked tests, computer-managed submission of essays and e-portfolios]; access to teaching resources [for instance course notes, handouts or simulations]; and administrative course information [Walker et al, 2017; Littlejohn et al, 2007].

Table 1.1: **Tools and Features that Comprise the Virtual Learning Environment**

[O'Leary, 2002]

VLE TOOLS AND FEATURES
Communication between tutors and students E.g. email, discussion boards and virtual chat facilities which support various types of communication: synchronous and asynchronous, one-to-one, one-to-many and many-to-many.
Self-assessment and Summative Assessment E.g. multiple-choice assessment with automated marking and immediate feedback.
Delivery of Learning Resources and Materials E.g. through the provision of learning and teaching materials, images and video clips, links to other web resources, online discussion and assessment activities.
Shared Work Group Areas Allows designated groups of students to upload and share files as well as communicate with each other.
Support for Students Could take the form of communication with tutors or other students, provision of supporting materials such as course information and Frequently Asked Questions [FAQs].
Student Tools E.g. individual student web pages, 'drop boxes' for the upload of course-work, electronic diaries and calendars.
Management and Tracking of Students E.g. usernames and passwords to ensure that only registered students can access the course; analysis of assessment undertaken by students or their use of materials within the VLE.
Consistent and Customizable look and feel A standard user interface that is easy for students to understand and use. Courses can be individualized with colours, graphics and logos – but the essential mode of use remains constant.
Navigation Structure Structured delivery of information supported by standard navigation toolbar. Most VLE software assumes that students will work their way through linear sequences of instructional material. Others are more flexible and will accommodate alternative information structures, e.g. multi-path case studies.

Two main types of VLEs are the commercial off-the-shelf systems such as Blackboard or WebCT, and open-source software versions, such as Moodle. VLEs are most heavily deployed in the education sector in developed countries, with the trend rapidly diffusing to developing countries. Particularly within the UK Higher Education [HE] institutions and Further Education [FE] colleges, the employment of VLE software has reached near saturation, with Blackboard being the most popular commercial system [Wilson et al, 2006; Littlejohn et al, 2007]. The past decade has

seen heavy E-learning investments; substantial VLE technology improvement; mergers and consolidation [e.g. the merger of WebCT and Blackboard]; standardization and conformance regimes [e.g. IMS, SCORM]; and major investments made in open-source versions of VLEs [e.g. Moodle] [Walker et al, 2017; Wilson et al, 2006]. For instance, in 2008, an evaluative survey of VLE development in a sample of educational settings[1] found evidence that the growing introduction of learning platforms by individual institutions and local authorities "may yet bring VLEs into mainstream learning" [OFSTED[2], 2009; p. 4]. In 2016, a UCISA Technology-enhanced Learning [TEL] survey reveals that 93% of responding institutions had deployed a VLE platform to support 50% or more of their total course delivery. The data also reflects the strong investment in e-assessment tools specifically for the automated marking of tests and electronic submission of assignments and plagiarism detection to assist students with their academic writing. In the light of these E-Learning developments, VLEs are described as the dominant design of educational systems [Walker et al, 2017; UCISA Surveys, 2012-2016; Wilson et al, 2006].

The implementation and use of VLEs in further and higher education have been somewhat contentious. Proponents argue that one of the advantages of institutional VLEs is that they reflect organizational reality, since such systems connect the user to university resources, regulations, help and individual, specific content such as modules and assessment [Anderson, 2007]. Within this vein, there is potential to tailor the interface and the learning environment [such as type of learning resources, complexity of material etc.] to the individual, particularly where E-Learning is taking place [Ibid]. Another advantage of an institutional implementation is that student enrolment is managed, and the teacher can concentrate on structuring the activity for pedagogic purposes [Bell and Rennie, 2010]. Also, arguably, the VLEs' greatest

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[1]   Between January and May 2008, Her Majesty's Inspectors and Additional Inspectors visited 18 colleges, six primary and two secondary schools, three work-based learning providers, three adult and community learning providers and one local authority.

[2]   Office for Standard in Education [OFSTED] in the United Kingdom.

selling-point when compared with the environments of yesteryear is their ease of use, which they achieve primarily through *reducing the choices* available to authors [Dron and Anderson, 2009].

Critics, on the other hand, have underscored the limitations of VLEs which can be summarized as follows: they present a homogenous experience of context [Wilson et al, 2006]; they are premised on limited pedagogical/educational models [Weller, 2007; Dyke et al, 2007; Rose and Lewis, 2001]; they provide limited opportunities for students to modify, personalize and effect learning [Dron and Anderson, 2009; Wilson et al; 2006]; they are not good at fostering social networks – they are content-driven and thus ignore dialogue and interaction among users [Bell and Rennie, 2010; Weller, 2007]; and the self-assessment and summative assessment are pre-determined, question-and-answer activities, based on the designers' foresight and culture [O'Leary, 2002; Goodfellow and Hewling, 2005; Ward et al, 2006; Hewling 2009]. Altogether, these design flaws have implications for pedagogical activities and multicultural contexts.

Generally speaking, one side-effect of rapid technological progress and the rhetoric that dominates policy directives and institutional strategic plans [Conole et al, 2007; Jones and Lau, 2009; Oliver, 2011], is that learning technologies can transform the ways we teach and learn [e.g. DfES, 2005] or that that E-Learning is the change universities need to stay competitive. The most publicly visible example of this is the heavy deployment of VLEs in the education sector, as noted earlier. A more recent example is the widespread embracement of new collaborative technologies such as mobile devices and Web 2.0 applications by educators, although they are not designed primarily for learning [Laurillard, 2009]. In either case, the heavy deployment of established VLE systems or the widespread embracement of Web 2.0 technologies in a manner that is not fit for purpose engenders a technology-led approach to E-Learning, an approach which is often implicit in the studies of learning technology.

1.3.1.2 Research into Learning Technology

Research into learning technology tends to mirror the current happenings of ICT implementation in higher education, taking a technologically rationalistic and deterministic view of E-Learning. The assumptions in these studies are that practitioners are instrumental problem solvers, who select technical means best suited to particular purposes [Schön, 1987]. Thus the task of designing for learning is solely a matter of prediction, formalization and preparation of software-instructional processes to be used between learner and learning software. The technology itself is conceptually straightforward: "*a particular technology largely determines the kind of use that happens once it is introduced*" [Creanor and Walker, 2010; p. 3]. In these instances, learning technologies are not seen as tools which educators and students actively shape as they use the technology in collaborative teaching and learning activities. They are not viewed as involving interpersonal and intrapersonal human interaction. Rather, technology is considered to be the independent variable, the factor that would have deterministic impacts, while elements such as institutional structures, pedagogy, students, academic staff and so forth, are seen as the dependent variables, those that are expected to be affected or "transformed" by technology.

A technology-centred approach to learning is wrapped up in the conception of "technological determinism". This concept ignores social, cultural, institutional and societal contexts within which the systems are used. Although there are rich, alternative theories and concepts which view technology as being produced through the shaping of human interactions and other contextual factors, research into learning technology still tends to portray a technologically deterministic approach.

Anti-deterministic theories of social constructivism, holding the greatest sway in the learning technology field in the 1990s [Oliver, 2004], incorporate principles of the social shaping of technology [SST] [e.g. McKenzie and Wajcman, 1985; 1999], which assert that technology is shaped by social actions and strategic, qualitative

choices which are supported by socio-economic factors [Bijker and Law, 1992]. SST, in turn, incorporates technological models such as the Social Construction of Technology [SCOT] and the Actor-Network Theory [ANT], which share common features in problem setting and definitions; social networks; and interpretive flexibility in technological artefacts. Interpretive flexibility refers to "*the capacity of a specific technology to sustain divergent opinions*" [Doherty et al, 2006].

Social constructivists are interested in how learners shape the technology to construct and develop knowledge. They acknowledge that the social interpretations and actions of the relevant users may modify the impact of particular software systems or hardware configurations [Orlikowski and Robey, 1991; p. 6], and that they may not use the technology as it was intended by the technology's creator or by the institutions in which the technology is deployed. In fact, many studies conducted under the social constructivist paradigm [e.g. Barley, 1986; Robey and Sahay, 1996], have shown that the application of identical technologies, in very similar organizational contexts, can result in very different organizational impacts.

While constructivist theories continue to dominate the learning technology field today [Creanor and Walker, 2010; Oliver et al, 2007], one of the ironies – or perhaps paradoxes – in the E-Learning literature is that there still exists a technologically deterministic assumption within this paradigm. Contemporary collaborative mobile and social technologies are promoted as tools that will enable learners to learn and construct knowledge collaboratively by shaping different technologies in their learning activities based on their different views, interpretations and experience. Within this context, some researchers and academics [e.g. Wilson et al, 2006] call for the streamlining of personal devices, social technologies and other Web 2.0 applications in higher education, to be collectively part of a Personal Learning Environment [PLE] [Dron and Anderson, 2007]. Others question whether the idea of a VLE even makes sense in the Web 2.0 world [Anderson, 2007]. Implicit in these arguments, altogether, is that new collaborative technologies, such as personal devices as well as mobile and Web 2.0 applications, provide a panacea for the

problems surrounding existing VLEs. In other words, the arguments suggest that new collaborative technologies and personal devices provide a true representation of the world, and that they simply can be applied to practice and bring about the intended learning approach implicit in their models [Dyke et al, 2007].

1.3.1.3 *Technological Perspectives in this Research Programme*

From the perspective of this doctoral thesis, although personal tools and new collaborative technologies provide a wealth of opportunities and choices for learners, they are not the solution to the deterministic issues surrounding VLE systems design. Moreover, the arguments for the use of personal tools and new digital technologies are also based on technological determinism. For instance, while advocating for the use of these technologies, there have been many instances in which researchers and academics claim to draw upon theoretical positions, such as constructivism, without explaining how they embody the principles and values of that approach [Oliver, 2002; Oliver, 2013]. What is needed is a greater appreciation of the need for appropriate structurational frameworks which can make sense of structure, agency and interactions within a technological context, such as the VLE. Structure describes the factors enabling and constraining what human agents do, while agency is concerned with the shaping of processes by the intentions and projects of humans [Jones and Healing, 2010].

As the first step toward counteracting both technologically and socially deterministic assumptions in the literature and offering solutions for practice, this research thesis has taken a duality conception of technology. In this thesis, technology is viewed both in terms its *constituted nature* and its *constitutive role*. In terms of its *constituted nature* or *scope*, this aspect of technology concerns its *design mode*. Technology is comprised not only of the "hard", physical end-product which individuals use in productive activities, but also of "soft", intangible properties, such as the designers' cultural values, norms and intentions for its use across time and space. Technology is built and used within certain social and historical

circumstances and its form and functioning will bear the imprint of those conditions [Orlikowski, 1992; p. 411].

In terms of its *constitutive role*, this aspect of technology concerns its role and *use mode* following its development and deployment. Technology, in this regard, is seen as an objective set of rules and resources involved in mediating – facilitating and constraining – human action, contributing to the creation, recreation and transformation of social and cultural contexts. As previously explained, technological artefacts embody intangible properties, such as the designers' intentions for its use across time and space. Each type of technological artefact is imbued with certain features and properties which characterize the typical or expected set of activities associated with our understanding of the technology and its use. The artefact, however, is open to many different interpretations by its users, and reactions to the same configurations of hardware and software might differ accordingly [Orlikowski and Robey, 1991]. Thus it is recognized in this research that following the initial production and implementation of technology by developers, users contribute to an ongoing social and physical construction of the technological artefact. This provides an opportunity to re-conceptualize technology in terms of structure and agency.

In summary, viewing technology in terms of its constituted properties and constitutive role 'underscores its socio-historical context, and its dual nature as objective reality and as socially constructed product' [Orlikowski, 1992; p. 423]. It also facilitates a deeper understanding of the interplay between technology, culture and education surrounding organized social practices such as teaching and learning.

1.3.2 An Overview of Education/Pedagogy

There are many different schools of thought for teaching and learning. Although there have been new orientations towards inclusive learning and teaching as a pedagogical approach in Higher Education in recent times, behaviourism, cognitivism and constructivism are the three broad pedagogical approaches most often utilized in

the creation of instructional environments [Dyke et al, 2007; Siemens, 2005]. In order to understand the concept of education or pedagogy, it is necessary to understand these underlying theories of teaching and learning. This is particularly important for E-Learning models, given that learning technologies embody the principles and values of a particular theory or more than one theories. An outline of each theory is presented in the following subsections.

1.3.2.1 *Key Pedagogical Theories*

Behaviourism is premised on a single objective reality. It focuses on behaviour modification based on response to external stimuli. It takes a didactic approach, in which knowledge is seen as transmitted from teacher to student, and student learning is achieved through association and reinforcement. Thus the pedagogical focus is on control and adaptive response [Conole et al, 2004]. Learning outcomes can be observed and measured, for example, through test/essay grades or quiz scores.

Cognitivism is founded on pragmatism. It views learning as transformation in students' internal cognitive structures. Whereas behaviourists see knowledge as being transmitted from teacher to student, cognitivism gives priority to the cognitive powers of the individual. Learning involves the development of concepts which build on existing information structures. The pedagogical focus is on the processing and transmission of information through communication, explanation, recombination, contrast, inference and problem solving [Conole et al, 2004]. For cognitivists, knowledge is negotiated through experience and thinking.

Social Constructivism is based on multiple subjective realities. It focuses on the processes by which learners build their own mental structures, through collaborative construction of knowledge when interacting with peers or an environment [Conole et al, 2004]. The pedagogical focus of social constructivism is task-oriented, and this approach favours hands-on, self-directed activities orientated towards design and discovery. Constructivism supports situated and activity-based learning. Situated learning focuses on collaborative learning, and takes social interactions into account

and learning as social participation [Dyke, Conole, et al, 2007]. Thus social interaction and collaboration are essential components of situated learning – learners become involved in a "community of practice" which embodies certain beliefs and behaviours to be acquired [Lave, 1988]. Activity-based learning focuses on the structures of activities as historically constituted entities and on action through mediating artefacts within a framework of activity within a wider socio-cultural context of rules and community [Lave and Wenger,1991]. Constructivism has dominated conventional pedagogy and the learning technology field since the 1990s and continues to do so today [Oliver, 2004; Dyke et al, 2007; Creanor and Walker, 2010].

Inclusive Learning and Teaching. There has been new orientations toward inclusive learning and teaching as a pedagogical approach in the Higher Education sector. Inclusive learning and teaching, as defined by Hockings [2010], refers to:

> "*the ways in which pedagogy, curricula and assessment are designed and delivered to engage students in learning that is meaningful, relevant and accessible to all. It embraces a view of the individual and individual difference as the source of diversity that can enrich the lives and learning of others*" [Hockings 2010; p. 1].

Within the UK, the view of inclusive pedagogy embraces a wide range of differences and explores their effects on individual learning [Hockings, 2010]. According to Hockings, it is being used more widely with reference to learners of all ages who come from different social classes and ethnic backgrounds. It embraces disabled students, students from different faith backgrounds, different cultural identities and sexual orientations. It refers to full time and part time students who come into HE with different entry qualifications, work and life experiences, different life styles and different approaches to learning [Ibid, 2010; p. 2].

Each of the groups mentioned above has different assumptions which can influence their learning and the wider educational setting. Thus the message of inclusivity is that all these "cultures" should be taken into consideration in teaching and learning,

and that there should be social justice and rights for all groups of people. This is very similar to the concerns of cultural diversity or multiculturalism, which is being studied in this thesis. There are obvious differences in details, but those can be discussed in future research. Various areas of inclusive pedagogy have been researched in the UK and other countries, such as disability [e.g. Hewett et al, 2017; Morina and Carballo, 2017], socio-economic background/poverty [e.g. Rademaker, 2015; Crozier et al, 2010] and ethnic minority [e.g. Thomas, 2016], among others. This research focuses mainly on multiculturalism and how learning technologies can be designed to support a global set of learners. The findings of this research about multiculturalism can then be applied or adapted to inclusive learning in future research.

1.3.2.2 *Pedagogical Theories and E-Learning*

Behaviourist E-Learning models are based on a content-centred, teacher-led pedagogy, with focus on structured and pre-determined activities, as opposed to constructivist E-Learning programmes which are student-centred, with a variety of instructional contexts that focus on situated activities and social negotiation as an integral part of learning [Oliver, 2002]. Cognitivist E-Learning model often involves programming a computer to "think" like a person, as in the case of artificial intelligence [Mergel, 1998]. Thus the computer supplies appropriate responses to student input from the computer's data base [e.g. trouble-shooting programs]. In terms of inclusive learning and teaching, for many institutions, E-learning [all forms of Technology-Enhanced Learning [TEL], including online or Web-based learning] has become an essential tool for the learning and teaching of large numbers of diverse students [Hockings, 2010].

The purpose of a VLE is to facilitate E-Learning [Weller, 2007]. Well-established VLE systems are generally premised on a behaviourist model. The main criticisms and limitations of VLEs, summarized in *section 1.2.1.1*, stem largely from the behaviourist model being used to inform the design of VLE systems. Given the design flaws inherent in current VLE platforms, it is reported that few practitioners

use these systems to support active forms of learning. It is also claimed that such flaws place constraints on students in terms of their ability to exercise agency and autonomy, since the systems are rigid and hierarchical. Against this background, critics have called for E-learning approaches that extend beyond behaviourist/instructivist principles, and for those that reflect the current technological age. Within this vein, some have called for the move away from VLE systems to contemporary collaborative applications such as Web 2.0.

1.3.2.3 *Pedagogical Perspectives in this Research Programme*

Regardless of the subject matter, the nature of the setting or teaching methods, shared meaning lies at the heart of the interaction between teachers and students [Edmondson, 2000; p. 15]. Implicit in the goal of shared meaning, according to Edmondson, is the assumption that teachers and students must work together to construct knowledge and negotiate meaning. For this to be realized, students must be regarded as active participants in the process of knowledge construction – not as passive recipients of knowledge that is "transferred" by the teacher – and as being capable of generating meaning which may then be shared.

In order to counteract dichotomous views of teaching and learning, this research has taken a duality conception of pedagogy. In this thesis, pedagogy is viewed both in terms of its didactic and pragmatic principles and its social, learner-centred approach. In terms of its didactic principle, it is argued herein that a behaviourist model, with its focus on pedagogical control – where students rely on teachers for instruction and educational materials – is useful for providing a degree of organization to activities and direction for students in the physical and virtual classroom. The thesis also recognizes that, cognitively and pragmatically, students are encouraged by teachers to appraise their own beliefs and challenge them in the light of new evidence and facts.

In terms of its social, learner-centred principles based on constructivism, it is argued herein, that human action and interaction are important ingredients in the progression of pedagogy in terms of how knowledge is produced, reproduced and shared in

conventional or virtual environments. Knowledge is not created merely by imposed or transmitted instructions, but students have the liberty to apply their cognitive powers to construct knowledge along with learning from their teacher and their peers.

The terms education and pedagogy is used interchangeably in this thesis. Altogether, teaching and learning, herein, are conceptualized as social, action-based, situated activities, centred particularly around the VLE technology in the construction of meaning and knowledge. Behaviourist principles set the context or structure for individual action and social activities to take place whether in the classroom or online. Simultaneously, human action and interaction [e.g. teacher-student and student-peer] help to shape the way in which knowledge is produced, co-produced and reproduced [individually and socially] and they transform the existing classroom and virtual contexts.

1.3.3 An Overview of Culture

This subsection highlights the key concepts of culture in our knowledge of societies, and discusses how the term "culture" is mainly understood within the context of E-Learning. The definition of culture, adopted by this research thesis is then presented.

1.3.3.1 Culture and Cultural Differences

To a large degree, culture shapes how members of a society think and feel, as it is guided by *norms* which direct actions and define acceptable and appropriate behaviour in particular situations [Haralambos and Holborn, 2004]. Many norms can be seen as reflections of *values*, the belief that something is good and desirable. "*While norms, consciously or subconsciously give us a feeling of "this is how I normally should behave", values give us a feeling of "this is how I aspire or desire to behave*"" [Trompenaars and Hampden-Turner, 2001; p. 22]. Particular symbols and meanings are developed and used to communicate these values within each social collectivity, such as a country or a society. As such, the norms and values are shared and enforced among members of each social grouping.

Different groups of people or social collectivities consciously or unconsciously, have chosen different definitions of good or bad, right or wrong. These assumptions account for the basic differences in norms and values between and across cultures, resulting in *cultural differences* or *cultural diversity*. It is precisely some of these differences in norms and values that can cause conflict and contradictions in cross-cultural working and collaboration [Walsham, 2002].

1.3.3.2 *Multiculturalism and Cultural Transformation*

Although the cultural forms and practices produced in any society are shaped by the structures of that society, they are also shaped by the subjectivities of individual men and women in their roles as social actors [Giles and Middleton, 2008]. As such, each individual as a unique human being with personal interests and experiences has the ability to act autonomously – *exercise agency* – despite the cultural and social structures within which they are located. This ability of individuals to act autonomously or independently of situated social structures, means that people can behave in ways which are different from the norms and values of a particular society, resulting in *intra-cultural diversity*. Intercultural contacts occurring among the residents of a culturally diverse nation or society are being increasingly termed '*multiculturalism*' or '*cultural pluralism*' [Ward et al, 2001]. Intra-cultural diversity and multiculturalism point to the fact that no particular culture is homogenous, as diversity also exists within cultural groups. For example, people within the same society may share the same language and nationality but maintain their unique moral and religious values, practices, identities and lifestyle, all of which influence their actions and attitude towards life. Such differences, can lead to conflict and contradiction – "divisions of interest" – within different groupings or societies [Giddens, 1984; Giddens, 2001]. Nonetheless, while no particular culture is homogenous, 'the structural properties of cultures often display enough systemness for us to speak about shared symbols, norms and values, while recognizing that there will remain considerable intra-cultural variety' [Walsham, 2002; p. 362].

As well as contributing to cultural diversity and, inevitably, multiculturalism, the

ability of individuals to exercise agency lays the foundation for the transformation of a society's culture. This is because individuals are knowledgeable and can reflect upon or reflexively monitor their own actions, those of others, the wider context within which these actions occur, and the consequences [both intended and unintended] of these actions. Reflexivity provides the basis for social change as well as social stability [Walsham, 2002]. For example, individuals within a society may reflect upon what has happened in the past and upon an anticipation of what might happen in the future [Scott, 1995]. On this basis, according to Scott, individuals are able to modify their current actions in the light of the results of their past actions. Individuals may socialize in different ways, and norms and values may change, and with them the social and cultural structure. Furthermore, it is not difficult to change culture when people are aware that the survival of the community is at stake, where survival is considered desirable [Trompenaars and Hampden-Turner, 2001; p. 23]. Such survival though, depends on the collective individuals to negotiate and "agree" on new directions. Thus, while there is continuity in life-ways across generations of a particular cultural group, the culture of a society does not remain fixed or static. Rather, cultures transform overtime, because each human individual holds the power to be active and reflexive. Cultural change not only points to culture as an emergent, dynamic phenomenon, but also to the role of active, reflexive human agents in the transformation process. Altogether, the notion of culture and the role of human agency in bringing about cultural diversity, multiculturalism and cultural transformation have been unfolded.

1.3.3.3 *New Cultural Environments*

Members of society usually take their culture for granted, as it has become so much a part of them that they are unaware of its existence [Haralambos and Holborn, 2004]. This claim concurs with a simple analogy which Trompenaars and Hampden-Turner [2001] use to convey the concept of culture: '*A fish only discovers its need for water when it is no longer in it. Our culture is like water to a fish. It sustains us. We live and breathe through it*' [p. 20]. Here, the word "discover" suggests previous unawareness or unconsciousness. It implies that a person realizes or becomes aware

of his or her own culture when he or she is in a new cultural environment. This is usually the experience of any student entering unfamiliar environments. For example, a student who has been transferred to a new school; a student who has just made the transition from secondary school or college to university; or a student who has left his home country to study abroad.   This is also the experience of a student who is studying within a virtual learning community, created by advances in Internet technologies and applications [Parrish and Lidern-VanBerschot, 2010].

Biggs [2003] points out that "*a major problem experienced by international students is the stress created by adjusting to a new culture*" [p. 121].   This adjustment to a new culture also has implications for the teachers. According to Biggs [2003], many university teachers report difficulties in teaching international students:

> "*These complaints refer not only to deficient language skills, but to learning-related problems that are seen as 'cultural' in origin, such as reliance on rote learning, passivity, teacher dependence, lacking creativity and so on*" [Biggs, 2003; p. 120].

It is suggested that these cultural issues also exist in online classrooms and E-Learning programmes, where the community of learners is increasingly globally distributed and learning is increasingly cross-cultural. For example, UCISA [2003] highlights that a number of issues relating to VLEs represent cultural challenges for both academic staff and students in how they engage with their learning and teaching.

There is a broad consensus in the literature that the growing multicultural nature of educational environments makes it critical that instructors and instructional designers, especially those working in online learning environments, develop skills to deliver culturally-sensitive and culturally-adaptive instruction. It is purported that designers need to be aware of learners' cultural backgrounds and contexts in order to develop or modify designs that will best suit their cultural learning frameworks. This is because technology is perceived differently in different kinds of cultural environments in terms of its "fit for purpose", and such cultural perception influences its adoption and

use. The ensuing subsection briefly discusses the culture-technology fit, including the adoption and use of technologies by some cultures.

1.3.3.4 *Culture and Technology: Technology Fit, Adoption and Use*

The growing tendency of markets towards globalization is making the influence of culture critical, especially in internationalized sectors like the mobile phone industry and the Higher Education sector whose learning audience is dispersed in numerous locations across the globe [Asino, 2017; Hernandez-Ortega et al, 2017].   It is important to recognize that technology can evoke different reactions among individuals with different cultural orientations [Irick, 2008]. As mentioned earlier, each social collectivity or society has different assumptions, which account for the basic differences in norms and values between and across cultures. These cultural assumptions also influence perceptions of the fit, adoption and use of technologies by a particular society.   The fit of the technology to tasks is the degree to which the technology features match the task requirements, while the acceptance of the technology – its adoption – is concerned with user's perceptions, beliefs and attitudes about the technology [Basden, 2018; Lu and Yang, 2014; Irick, 2008]. Both task characteristics and technology characteristics can affect the task-technology fit, which in turn determines users' performance and utilization [Lu and Yang, 2014]. Given that cultural orientation is a powerful force in forming individual attitudes and behaviours, understanding cultural differences is important because they affect how people use and adopt new services and technologies [Hernandez-Ortega, 2017]. Cultural perceptions of fit, therefore, are an important aspect of task-technology fit and information systems evaluation [Irick, 2008].

It is argued that countries that exhibit distinct cultural traditions find it difficult to embrace change, which hinders them from embracing new technology [Albugami and Ahmed, 2016]. For instance, Albugami and Ahmed point out that the Kingdom of Saudi Arabia is a monarchy with a constitution based on the Quran and Sharia Law, where Islam puts a particular emphasis on education, which is considered to be a religious duty for all male and female citizens.   One of the main features of Saudi

society is the dichotomy between the preservation of beliefs and religious values and modern technology. They further point out that an important issue is the conservative segregation of women, whereby women are separated from men on the streets, in restaurants, at work, and even at home. Also, in accordance with the Islamic law of the country, girls and boys are strictly separated from each other at all levels, including school buildings and teaching staff. Although the Saudi government sees E-learning at all levels as the key to the development of skills and knowledge for its citizens, many authorities in the country believe that numerous social skills are associated with adopting the internet, which make them reluctant to incorporate ICT into their education system. It is concluded that gender segregation and a focus on religion are the characteristic features of Saudi Arabia culture and education, and the consideration of ICT implementation in Saudi Arabia should be regarded inseparably from these cultural features [Albugami and Ahmed, 2016; AlMunajjed, 2009].

From an intercultural and cross-cultural perspective, cultural differences also have important implications for task-technology fit [Irick, 2008]. For example, Massey et al [2001] studied two global organizations to determine how technology facilitated communication tasks. The experiment involved using groupware technology to convey information and make decisions among 150 participants located in the United States [US], Japan, and Europe. Significant cultural differences were found in perceptions of task-technology fit. Participants of US origin perceived less difficulty in conveying opinions than did the Asian or European participants. However, those of Asian origin perceived groupware to be a better fit for explaining themselves. The results also indicated that Asian and European participants viewed groupware to be a better fit for convergence-oriented communications than the participants of US origin. Cultural differences became evident when the team disagreed and conflict emerged. Overall, the technology both enabled and hindered certain culturally driven communication behaviours [Irick, 2008; Massey et al, 2001].

While it is important to make comparisons on the fit, adoption and use of technology by cultures who are considered to be very different, such as China and the USA, it is

equally important to study the differences between countries that are considered to be similar – such as countries within Europe or the Caribbean. Hernandez-Ortega et al [2017], for example, argued that most cross-cultural studies on information technologies have centred on very different cultures, such as Korea and the USA, but that the differences between apparently similar European countries, such as Spain and Greece, have scarcely been studied. The authors claimed that "*for this reason, mobile operators that direct their services to these countries have generally made very little effort to adapt their offering, assuming that services can be standardized*" [p. 325]. The authors developed a cross-cultural research, the first of its kind, to analyse the role of perceived value on post-acceptance behaviour for users of advanced mobile messaging services [AMMS]. Their work compared differences in the influence of perceived value on satisfaction and of satisfaction on loyalty to AMMS in Spain and Greece – two countries generally considered too similar to be compared – to test the moderating effect of culture. The authors found that the influence of perceived value on satisfaction was higher in Greece than in Spain, with similar findings for the effect of satisfaction on loyalty. From the results they explained that Greek users have a higher degree of aversion to change, are more results oriented and value those technologies that allow them to interact and feel a sense of belonging to a group. These users do not desire to try new alternatives with unknown risks, so perceived value is a guarantee of the expected results that they can obtain. A practical implication of their cross-cultural comparison was that it has enabled mobile phone companies to understand how to provide the greatest value with AMMS in each country in order to increase user satisfaction and loyalty to the service.

Altogether, with increased technological diffusion, it is important that internationalized sectors which sell technological devices or provide service via technology in a country where they conduct business should be aware of the characteristics of users' culture. This is because these characteristics may be the source of differences in the customers' usage of the services offered [Hernandez-Ortega, 2017].

1.3.3.5 Research into Culture and E-Learning

E-Learning/ICT researchers and designers tend to borrow definitions of culture to theoretically and practically inform their work [Young, 2008; Myers and Tan, 2002]. In so doing, most rely on the work of Dutch anthropologist Geert Hofstede, whose model is premised on a paradigm that equates culture with membership in a particular nation state [Myers and Tan, 2002; Hewling, 2009; Hewling, 2006; Walsham, 2002]. Thus, to date, much of the existing research is framed by a conceptualisation of culture solely as being an attribute individuals inherited from national characteristics [Goodfellow, 2008]. In other words, for researchers and designers adopting Hofstede's model, culture is viewed as being rooted in national or ethnic backgrounds or identities which give rise to characteristic ways of thinking or behaving that can be misinterpreted by people brought up in different national or ethnic contexts [Goodfellow and Hewling, 2005]. In adopting such view, focus is placed on the need to remedy inequities brought about by the application of pedagogical approaches arising from one cultural context [i.e. social-constructivism in European and North American educational thinking] to groups or individuals whose thinking and behaviour is shaped by wholly different philosophical traditions [ibid]. No attention is drawn to participants' active and continuing role in constructing and reconstructing culture within the context of online learning environments.

While not without value, Hofstede's model of "national culture" and cultural differences is problematic on several grounds [Myers and Tan, 2002; Hewling, 2006; Walsham, 2002; Goodfellow and Hewling, 2005].   Among other things, the concept has been heavily criticized for: [a] ignoring heterogeneity within nation states and thus within online settings; [b] disregarding history, and thus presenting difficulty in understanding the socio-historical factors that shape the perceptions, behaviours and actions of diverse participants in online learning settings; [c] being deterministic in nature, treating culture as static and predictable rather than as emergent and dynamic, and thus presenting difficulty in understanding how culture is negotiated and reproduced in online environments; and [d] being inadequate for explaining relationship between "national" cultural values and work-related values.

Exploring culture in a multicultural classroom with a lens that equates culture only with nationality does not give priority to the exploration of interaction across cultural differences and despite cultural differences – rather priority is given to the delineation of those dimensions of cultural difference [Hewling, 2006]. Cross-national similarities and shared understandings disappear from view, and consequently our understanding of the classroom fails to demonstrate any activity that may foster cohesion [ibid]. It is concluded, therefore, that Hofstede's framework of "national culture" and cultural differences provides only a simplified way of examining cultures.

More interpretive and dynamic concepts of culture exist, but these are seldom utilized in the E-Learning literature. One such concept is offered by American anthropologist, Clifford Geertz [1973], whose work does not merely look at "national culture" but emphasizes the role of "context" within cultures, in understanding individual's behaviour and actions. Geertz's work is premised on a semiotic, historical and contextual concept of culture, which treats human behaviour as symbolic action. Geertz's interpretive concept of culture is multidimensional, incorporating history, semiotics [construable signs and symbols], reflexivity, knowledge and agency. These elements are implicated in the notion of "*thick description*", which Geertz uses to illustrate the complexity of the concept of culture and its analysis. Geertz [1973] contends that "the essential task of theory-building is not to codify abstract regularities but to make thick description possible, not to generalize across cases, but to generalize within them" [p. 26]

While Geertz's work offers a richer alternative to the concept of "national culture", his cultural model is also criticized for having few guidelines for assessing and evaluating cultural interpretations and for being difficult to proceed in terms of cumulative knowledge since the essential task of theory-building is not to generalize across cases, but to generalize within them [Shankman, 1984].

Generally speaking, within information systems, the Technology Acceptance Model [TAM] and the Task-Technology-Fit [TTF] have become the main points of reference for studying technology acceptance and utilization [Basden, 2018; Lu and Yang, 2014]. The culture-task-fit shows the effect of culture on users, but from a users' perspective. A perspective is needed that covers both culture as a collectivity and as individuals, in terms of technology adoption and use. There are various socio-technical theories that do this to some extent. This research uses Giddens' Theory of Structuration to achieve this. Some socio-technical perspectives are discussed in *Chapter Three* along with a justification of the Structuration Theory.

1.3.3.6 *Cultural Perspectives in this Research Programme*

As see earlier, from a deterministic viewpoint, "national culture" acts on everyone who shares the same physical and social environment. This view of culture is one-sided and the individuals are down-played as just a product of culture. On the other hand, seeing culture in terms of context and meaning, an anti-deterministic viewpoint argues that people develop concepts, names and shared understanding and meanings linked to their actions and behaviour. Such view also provides an unbalanced account of culture, as it focuses on the individual's knowledge and action, but loses sight of the totalities of the individuals' knowledge and actions within the same cultural context. As well as culture shape individuals, individuals shape culture. Thus a holistic account of technology and culture is needed.

In counteracting cultural dualisms, this thesis has taken a duality conception of culture. In this thesis, culture is viewed both in terms of its contextual nature as being influencing [enabling and constraining], and its constructive role in developing shared meaning, concepts and knowledge, linked to action and behaviour of individuals in a particular cultural collectivity [e.g. society]. In terms of its influential nature, this research argues that some aspects of Hofstede's notion of "national culture" provide a basis for discussing the role of structure or mutual stocks of knowledge within a given society and how they enable and constrain human agency

and social interaction. His framework also serves as a platform for examining how national culture, which might appear to be static, can become dynamic. Hofstede's notion of "national culture" also help us to understand cultural differences across cultures and cultural similarities within cultures.

In terms of its constructive role, this thesis has committed to an emergent, semiotic view of culture which, like technology, highlights its socio-historical context and the role of human agency. Thus in moving beyond the concept of "national culture", the research draws on Geertz's definition of culture:

> "*a historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate and develop their knowledge about and attitudes toward life*" [Geertz, 1973: 89].

As mentioned earlier, people have the ability to reflect on the circumstances within their given context and change their culture [including their assumptions, behaviours and actions], especially if the survival of the community is at stake. This lays the foundation for transformation to take place. Thus in a new educational setting – conventional or virtual – people have the ability to compensate for their cultural influences when they find themselves participating in another culture, by adopting behaviours they begin to see as appropriate to that culture [Parrish and Lidern-VanBerschot, 2010]. Therefore, in one sense, cultural assumptions may constrain people's actions, but these assumptions also enable them to overcome issues and challenges associated with new cultural environments. Given that individuals can exercise agency and have the ability to be reflexive, new actions, behaviours and ways of thinking will be produced and reproduced as they interact in virtual environments. Understanding individual's assumptions, behaviour and actions within a particular context are important for providing insight into the evolving nature of culture generally and in virtual learning settings, particularly.

1.4 Objectives of the Research

The aim of this research is to explore how a Structurational framework can help to understand the use of Virtual Learning Environments [VLEs] in multicultural settings. This raises an important question, central to the research:

How Can Structuration Frameworks Provide an Understanding into the use of Virtual Learning Environments in Multicultural Settings?

To realize the research aim, five objectives will be fulfilled:

Objective One: To investigate the main limitations of current pedagogical, E-learning and cultural theories, and how these limitations impact on E-Learning practice and multicultural settings. This is to be achieved by reviewing the literature on "dominant" theories of Culture, Pedagogy and E-learning [Technology] in *Chapter Two*.

Objective Two: To discuss and select an appropriate theoretical framework to address the limitations identified in *Objective One*. [The theoretical framework selected was the Theory of Structuration].

Objective Three: To formulate a Structuration Conceptual and Theoretical Framework [SCTF], using core concepts such as structure and agency, to reconceptualise Culture, Technology and Pedagogy. This is to be achieved by developing a Structuration Conceptual and Theoretical Framework [SCTF] based on the theories of Structuration, Culture, Technology and Pedagogy.

Objective Four: To apply the SCT framework to empirical situations involving VLEs used by people of diverse cultures, so that we can understand more deeply the use of VLEs in multicultural contexts. This is to be achieved by conducting an interpretive qualitative case study surrounding the use of VLEs by groups of culturally-diverse postgraduate students and lecturers, and by examining the different structures enacted as they use the VLE to facilitate teaching and learning.

Objective Five: From this empirical research, to develop a second version of the Framework [SCTF2].

1.5   The Research Procedure

Firstly, a Structuration Conceptual and Theoretical [SCT] framework was developed from the literature germane to this research. Incorporated into the SCT framework were key themes drawn from Culture, Technology and Pedagogy, with the Theory of Structuration as the primary theoretical basis. In order to demonstrate how a Structurational configuration of VLEs can accommodate cultural diversity and enrich the learning experience of all students, the research employed an in-depth, interpretive qualitative case study to examine the use of VLEs by a culturally-diverse group of individuals. The study involved semi-structured interviews with a group of postgraduate students from different cultures and academics who used the VLE for particular modules. The SCT framework guided the analysis.

An analysis of the findings showed that the SCT framework has practical relevance for re-conceptualizing culture, technology and pedagogy, in exploring the use of VLEs in multicultural settings. However, the SCT framework needed to be modified to incorporate a cycle of processes and structural transformations that occurred in the multicultural setting. This modification led to a richer model of Structuration – SCTF2 – which reflected the crucial role that conflict and reflexivity played in the development of new structures and for understanding how and why structures were reproduced and transformed. Such richer model also took into account the dynamic nature of cultural, technological and pedagogical structures and how they mutually evolved within a relatively short timescale. The model also showed that structures of signification, legitimation and domination all overlapped and that each structure incorporated the phenomena of culture, technology and pedagogy.

1.6   Organization of the Research Thesis

This opening chapter has presented an overview of the research issues. It has introduced the key themes and concepts which inform the study, and has highlighted the research aims and objectives. It has proposed that further investigation into the area of E-learning covering holistic, emergent concepts of "culture", "technology" and "education" – premised on agency and structure – is required.

Chapter Two reviews key theories of Technology, Culture and Pedagogy in relation to E-Learning, and discusses their implications for multicultural settings.   The literature review provides detailed background to the issues that have been introduced in this chapter. It highlights that the conceptual gaps in the IS/E-learning literature, relate largely to the dichotomy or dualism between determinism and anti-determinism assumed by each theory. There is a lack of understanding of how the objective and the subjective, the physical and the social, structure and agency mutually influence each other. The chapter concludes that a rich theoretical framework is needed to overcome the dichotomies.

Chapter Three discusses and selects a suitable theoretical framework to address the conceptual gaps in the literature. In order to understand the concepts of structure and agency, the chapter initially reflects on the mutually emergent phenomena of technology, culture and education within a socio-historical context. It discusses a few socio-technical perspectives which combine both the technical and the social, the objective and the subjective, context/structure and action/agency, in an attempt to overcome the dichotomies. Anthony Giddens' Theory of Structuration is then highlighted as a suitable theoretical framework for overcoming dichotomies and dualisms. The chapter discusses its key element – the duality of structure – and explores its practical relevance to this research. The analysis and conclusions drawn from the socio-historical reflections are also discussed in relation to the Structuration Theory. The chapter concludes with the establishment of a *Structuration Conceptual and Theoretical* [SCT] framework, based on an analysis of the literature. A penultimate conclusion drawn is that the SCT framework is shown to have practical relevance   for   reconceptualising   culture,   technology   and   education,   and   for

conceptualizing the use of VLEs in multicultural settings. It is therefore used to guide an empirical exploration into the understanding of the use of VLEs in multicultural settings.

Chapter Four discusses the philosophical paradigms of positivism and interpretivism in IS research, and assesses the ontological, epistemological and methodological positions that are most appropriate for this research. The choice of an interpretive case study methodology is justified, congruent with the researcher's subjective ontological assumptions. The chapter subsequently describes the research design, and presents the criteria for evaluating the research.

Chapter Five presents the results of the empirical case study, which examined the use of VLEs by a group of culturally-diverse postgraduate students and their lecturers.

Chapter Six analyzes the data to show how the findings emerged from the results. The SCT framework guided the empirical data generated from staff and student interviews. The chapter exposes a few shortcomings with the SCT framework, and discusses why and how the SCTF was modified. Key findings are discussed and incorporated into the SCT framework, resulting in a richer model – SCTF2. The chapter also discusses the new version of the SCT framework.

Chapter Seven discusses the findings in relation to the literature and shows how the findings address the problems and issues that the literature has thrown up. It provides a platform upon which to discuss the contribution to knowledge this research has made.

Chapter Eight recapitulates all the research activities that have been covered in the thesis of this research and reflects upon the overall research process with a view to assessing the research achievements. It discusses how the main findings of the empirical study contribute to the body of knowledge in the fields of Information Systems and Educational Technology, and provides recommendations for future study.

CHAPTER TWO

Key Conceptions of Technology, Culture and Education/Pedagogy

"*Research into Effective Teaching and Learning with Technology focuses on practice, approaches and activities, rather than the learning technology as an environment*"
[Banks and Salmon, 2010]

2.1   Introduction

The issues, aims, objectives and key themes of this research were introduced in the opening chapter. This chapter provides the context for the issues highlighted in that chapter.   It investigates the main limitations of cultural, pedagogical and technological [E-Learning] theories and discusses their implications for practice.

Section 2.2 reviews established approaches to pedagogy and their application to E-Learning.   The shortcomings of these approaches are highlighted, and their implications for practice and multicultural settings are then discussed, using the main design flaws of VLE systems as illustrations. *Section 2.3* discusses Hofstede's Model of Culture as the predominant theory in the study of E-Learning or virtual environments. It also discusses Geertz's [1973] cultural theory of "Thick Description", and discusses the limitations and implications for practice of both theories.   *Section 2.4* provides a summary of the discussion, while *Section 2.5* summarizes the chapter.

2.2   Pedagogical and E-Learning Theories

While there are many different schools of thought for teaching and learning, theories such as behaviourism, cognitivism and constructivism are the three broad learning approaches most often utilized in the creation of instructional environments [Dyke et al, 2007; Siemens, 2005].   This section reviews these approaches with respect to

conventional pedagogy and E-Learning. Their limitations and impact on E-Learning practice are then discussed, and the implications for multicultural settings are highlighted.

2.2.1 Behaviourist Theories: Conventional Pedagogy and E-Learning

2.2.1.1 Behaviourism

Behaviourists view all behaviour as a response to external stimuli. Thus learning, for behaviourists, is essentially a passive process where one learns as a response to external factors in the environment, not necessarily because of any specific mental activity. Applications of behaviourism in education are based on the principle that instruction should be designed to produce observable and quantifiable behaviours in the learner [Simpson, 2010]. Learning is seen as pre-planned – determined by a teacher or an educator – and knowledge is understood as something that can be transmitted from teacher to student [Bell and Rennie, 2010]. For instance, for some time the prevailing view was that university teaching was about imparting knowledge to students, and there was an implicit requirement of the lecturer to be in possession of that knowledge [Laurillard, 2002].

Behaviourist type of learning is particularly evident in subjects, such as languages and aspects of sciences, where rote learning is essential as a building block to higher-level learning [Dyke et al, 2007]. All students are provided with the same learning activities and instructions, and learning is achieved through association and reinforcement. The learner acquires behaviours, skills and knowledge in response to the rewards, punishments, or withheld responses associated with them. Behaviourists expect any effective instructional activity to change the students' behaviour in some obvious and measurable way [Simpson, 2010]. Thus the degree of learning is assessed through observable measures such as tests, assignments and examinations [Ward et al, 2006]. For instance, based on the extent to which students are able to reproduce, in their exams or essay papers, the knowledge which their lecturers "transmitted" to them, then students are given a corresponding grade/score [e.g. 90% or 45/50]. Since rewards determine the likelihood that the behaviour will be

46

repeated, students who score highly will feel encouraged to continue on this stead, repeating this study behaviour and yielding similar grades for other exams or essay papers.   However, for students who do not reproduce the knowledge they have acquired on exam/course papers, they simply fail.   Altogether, the desire to learn emerges from the experience of the learner, either arising from an existing commitment or from the challenge of a new situation [Boud et al., 2002]. Originators and important contributors to the behaviourism approach are: John Watson, Ivan Pavlov, Burrhus Skinner, Edward Thorndike, Albert Bandura, Edward Tolman.

2.2.1.2   *Behaviourism and E-Learning*

Early applications of technology for learning were characterized by the adoption of behaviourist ideas about the development of 'teaching machines', using Skinner's [1954] notions of operant conditioning and programmed instruction [Dyke et al, 2007; p. 88].   Early E-Learning initiatives also took a systems approach. In everyday language, 'system' is usually a label-word for part of the world – such as legal system, education system, transport system, and so forth – which reinforces the assumptions of 'hard' systems paradigm.   Hard systems thinking has a "*taken-as-given assumption that the world can be taken to be a set of interacting systems, some of which do not work very well and can be engineered to work better*" [Checkland and Scholes, 2005; p. A10].

Indicated by *Figure 2.1* below, the systems approach to E-Learning involved setting goals and objectives, analyzing resources, devising a plan of action and continuous evaluation/modification of the program [Adopted from: Mergel, 1998].   The emphasis was on designing an environment that shaped behaviour through learner-system interactions.   The approach was aimed at facilitating individualized learning processes [Mason, 1998].   Typically, small chunks of information were presented, followed by questions and feedback that positively reinforced correct responses [Dyke et al, 2007].   The methods generally used to support such models of E-learning rested on "stand-alone concepts" involving the notion of learning as a phenomenon which takes place individually and cognitively in a mental space without social

impediments [Sorensen and Ó Murchú, 2006].   However, applying methods for delivery without social inputs have strong implications for the nature of the design task and challenge: the quality of the design depends on the ability of the designer to support the pedagogic-didactic methods of the learning process through foresight, prediction and formalization [Sorensen, 1993]. Furthermore, this method is based on an assumption of technical rationalism, which holds that practitioners are instrumental problem solvers, who select technical means best suited to particular purposes, by applying theory and technique derived from systematic, preferably, scientific knowledge [Schön, 1987].

Figure 2.1: **A Systems Approach: Early Behaviourist Model of E-Learning [e.g. 'Teaching Machines'**]

Standard Systems View of Instructional Systems Design

| Conduct Needs Assessment | Establish Overall Goal | Conduct Task Analysis | Specify Objectives | Develop Assessment Strategies |

| Select Media | Produce Materials | Conduct Formative Evaluation | Conduct Summative Evaluation |

Revise as Required

Shirl S. Schiffman, Instructional Systems Design, <u>Instructional Technology: Past, Present and Future</u>. Anglin, 1995.

The systems approach involved setting goals and objectives, analyzing resources, devising a plan of action and continuous evaluation/modification of the program [Adopted from: Mergel, 1998].

'Teaching machines' and programmed learning opened the doors to computer-aided instruction, such as teaching with simulation and other immersive technologies.   In an instructional simulation approach, which applies three-dimensional [3D] computer graphics to mimic the real world, the learning experience is an immersive simulation

of an artefact, environment or situation that exists in real life [Huang and Liaw, 2018; Slater, 2017; Dede et al, 2017]. An example of such technology which offers opportunities for enhancing both motivation and learning across a range of subject areas, student developmental levels, and educational settings is Virtual Reality [VR] [Dede et al, 2017]. Virtual Reality can also be described as Mixed Reality [MR] given that the interfaces combine real and virtual settings in various ways, to enable psychological immersion in a setting that blends physical and digital phenomena. For example, an outdoor Augmented Reality [AR] experience using mobile devices can superimpose information, simulations, and videos on a through-the-camera-lens view of natural phenomena [Dunleavy and Dede, 2013].

"*Training is the oldest and most studied use for Virtual Reality*" [Jacobson, 2017; p. 50], and "*VR was shown to be very effective for learning procedural tasks, in which students learn a sequence of steps to accomplish a task requiring maneuvers in three-dimensional space*" [Dede et al, 2017; p. 2]. These procedural tasks include operating a vehicle [e.g. an aircraft], fixing on a complex piece of machinery, and finding one's way around an otherwise unfamiliar landscape [Ibid, p. 2]. In addition, Simulation allows learners to do a few things they could not do in real life, such as change the season of a virtual forest with the touch of a button, or move along a timeline for historical change or operate dangerous machinery that would be too risky to learn how to use [at first] in real life [Dede et al, 2017; National Research Council, 2011].

Altogether, the behaviourist approach to E-Learning is evident today in the vast majority of learning technology designs, and is regarded as an economically feasible solution [Sorensen and Ó Murchú, 2006]. This model of E-Learning is premised on a content-driven, individual, self-paced approach to learning, which promotes a didactic approach [Weller, 2007; Dyke et al, 2007]. Content replaces the educator and it can be re-used and accessed by many [Weller, 2007]. It is argued that this facilitates a more cost-effective way into the design of learning technologies, making such technologies appealing as a means of delivering learning. VR and other immersive media are well suited for teaching students real-life activities that require procedural knowledge. They require students to use skills to help them accomplish

tasks involving sequence of actions, such as medical training; firefighting first-responder to disasters, and so on. Simulations are quick to deploy, compared to developing more complex experiential environments, and relatively straightforward to understand. Behaviourist approach to E-learning can inform and improve learning particularly in times when learning through association and positive reinforcement has a role, such as drill and practice scenarios, revision or memory recall [Dyke et al, 2007]. The application of the technology can be seen as an essential enabler for learning by reinforcing correct behaviour and responses. Since students receive immediate feedback on their success as soon as they complete their on-line tests, teachers and students involved in the teaching and learning process in the classroom are immediately notified of the students' current position in the knowledge space [Boticki et al, 2006].

While behaviourism has made a contribution to the field of E-Learning, because it is governed by an objective view of the nature of knowledge, learning technologies premised on this model typically take an objective, technology-led approach. A technological approach to E-Learning is wrapped up in the notions of "technological determinism", the assumption that the technology itself is conceptually straightforward: "*a particular technology largely determines the kind of use that happens once it is introduced*" [Creanor and Walker, 2010; p. 3]. Such determinism is evident in E-Learning policy rhetoric and in the learning technology literature, where many believe that technological developments and applications will determine the shape and nature of pedagogy and the wider institution. Such determinism is also illustrated in the arguments that ICTs are *the* major driving force of change to institutional structures and pedagogic practices [UNESCO, 2004] and that learning technologies can transform the ways we teach and learn [DfES, 2005]. In these instances, learning technologies are not seen as tools which educators and students actively shape as they use the technology in collaborative teaching and learning activities. Rather, technology is considered to be the independent variable, the factor that would have deterministic impacts, while elements such as institutional structures, pedagogy, students, academic staff and so forth, are seen as the dependent variables,

those that are expected to be affected or "transformed" by technology. For example, recent developments of VR technologies for creating learning environments hold great promise but also many challenges and limitations [Basden, 2018; Fowler, 2015; Twinning, 2010]. One of the challenges is understanding the pedagogical underpinning that should inform the design and use of these VR systems [Fowler, 2015]. In addition, issues like realism in virtual reality are usually reduced to the physico-sensory phenomenon of immersiveness of the technology and ignore the quality of the virtual world itself [Basden, 2018; p. 158]. Furthermore, the field is currently under-theorised, with much of the initial work being exploratory, descriptive and often technologically driven [Twining, 2010].

Although technology-led approaches have value, they contain only a partial truth. Banks and Salmon [2010], for instance, pointed out that there are significant cases where IT and online learning environments have enabled new approaches to learning, which would be difficult or impossible without the technology. Thus it is maintained that in these cases, the online learning environment is an essential enabler for the learning. However, the technological deterministic perspective on E-Learning "overstates the importance of the technology's material characteristics and ignores the social interpretations and actions that may modify the impact of particular software systems or hardware configurations" [Orlikowski and Robey, 1991; p. 6].

As it further relates to behaviourism, there has been significant criticism about learning technologies that foster a content-driven approach which promotes and therefore limits learning to a didactic approach. These criticisms are geared largely toward commercial virtual learning environments [VLEs], which are most heavily deployed in the education sector, despite the approach these systems foster [Weller, 2007]. The next subsection discusses the limitations of behaviourist, technology-led models and highlights their implications for E-Learning design and multiculturalism.

2.2.2 Limitations of Behaviourism: Implications for E-Learning and Multicultural Settings

Altogether, behaviourism is founded on the epistemological orientation of objectivism, which assumes that reality is external and separate from the knower. As such this approach has contributed to much of the technologically deterministic and rationalistic assumptions in the learning technology literature and has resulted in several flaws in E-Learning practice. Objective, technology-led approaches are largely criticized for paying inadequate attention to institutional and socio-cultural contexts. This section reviews how the behaviourist/instructivist approach impacts on E-Learning practice and discusses the implication for multicultural learning settings. Design flaws of current VLE systems, in particular, are used as illustrations.

- *Homogenous Experience of Context*

It is recognized that students all learn in different ways. Students are heterogeneous with different prior experiences, and so may learn quite differently from similarly designed learning activities [Dyke et al, 2007]. However, it is claimed that VLE systems replicate the general pattern of education that places emphasis on the common experience of learners within a context [Wilson et al, 2006]. According to Wilson et al [2006], such course-centric model and the limits on learner's ability to organize the VLE space, altogether creates a context which is greatly homogenous. "*All learners have the same experience of the system, see the same content, organized in the same fashion, with the same tools*" [Wilson et al, 2006; p. 174]. Thus, similar to the conventional behaviourist classroom, students have no autonomy of choosing their activities or ability to be creative and independent. The unpredictable, uncertain and heterogeneous contexts within which the system is used is therefore not considered. This has implications for multicultural contexts. It is purported that culture profoundly affects how people see and understand the world and it guides their actions within the world – all of which are intrinsic to learning [Campbell, 2011]. "*How one learns, what one learns, and what one perceives as important to learn are intrinsically cultural*" [Campbell, 2011]. One of the implications for

multiculturalism, is that teaching and communication styles vary cross-culturally among students taking the same E-Learning programme. A homogenous experience of context, therefore, not only ignores students' individual learning styles and personal preferences, but also their cultural differences. It is argued that in order to ensure the best learning outcomes for all learners – not just those who share the same cultural background as the designer – E-Learning programmes must include alternatives for action, such as multiple ways of participating [Vatrapu, 2008].

- *Limited Conceptual Model of Pedagogy and the Wider Institutional Context*

As mentioned previously, the behaviourist approach to E-learning is premised on a content-driven didactic orientation, which promotes and therefore limits learning to a didactic approach [Weller, 2007; Dyke et al, 2007]. As such, educational systems premised on behaviourism have been criticized for following a dominant, linear design which reflects traditional entrenched views of teaching and course management [Wilson et al., 2006; Rose and Lewis, 2001]. Much of current E-Learning development represents little more than transfer of didactic approaches online, with the 'web page turning mentality' linked directly to assessment and feedback [Dyke et al, 2007]. The tracking tools of the VLE allow teachers to see who has participated much like they have scanned faces in the campus classroom [Dron and Anderson, 2009]. Altogether, the general design of a VLE follows a consistent model of integrating a set of tools [forums, quizzes] and data [students, content] within a context of a course or module, which in turn follows the general educational organizational pattern of modularization of courses and the isolation of learning into discrete units [Wilson et al, 2006]. Resulting from this, many current VLEs offer limited opportunity for the development of courses based on more diverse pedagogical models or which enable multiple course model. Consequently, using VLEs to support 'active' forms of learning, such as problem-based learning, may require imagination and skill on the part of the academic [Littlejohn et al, 2007]. Altogether, VLEs do not contextualize the learning experience and wider institutional contexts.

These limitations have similar implications for multiculturalism, to the one highlighted above. Students arrive at university already schooled in a variety of practices related to learning and technology [Jones and Healing, 2010]. It is argued that effective education in multicultural settings can lead to changes in participants' worldviews and dispositions, and help students gain knowledge, attitudes, and skills needed to take part in cross-cultural interactions [Hossain and Aydin, 2010]. However, VLE systems which are hierarchical, rigid and premised on limited educational models will not facilitate this. It is therefore recognized that teachers will need to use pedagogical diversity as a resource to bring more meaning, tolerance, and opportunity to a multicultural classroom" [Littlejohn et al, 2007; Ocak – see Hossain and Aydin, 2010].

- *Limited Opportunity for Students to Modify, Personalize and Effect Learning*

It is suggested that the incorporation of behaviourist model – premised on an assymetric relationship between teacher and student – into the VLE design, limits learners ability to organize and personalize the space. For instance, within current learning systems, there is often a very clear distinction between the capabilities of learners and of teachers, since the tools to organize and create are richer for the teacher than for the learner [Wilson et al, 2006]. Students are expected to use the VLE to be creative, to participate and to take control of their learning, but at the same time they are restricted to a primarily passive role, with their contributions being limited to small group contexts, discussion forums and, occasionally, tightly constrained activities defined by the course designer [Dron and Anderson, 2009; Wilson et al; 2006]. Consequently, it is maintained that VLEs can be "*uncompromising in allowing students to actively negotiate assessments, set up online discussions, or develop and upload their own learning resources*" [Littlejohn et al, 2007; p. 136]. These limitations, altogether, have implications for the use of VLEs to support multicultural settings. The ability to personalize or exercise agency in E-learning environments is vital since they are used by a wide variety of students with different characteristics, in extremely dynamic and heterogeneous contexts

[Eyharabide et al, 2009]. If VLEs are not conducive to personalization, they will not accommodate personal preferences and cultural diversity.

- *Content-Driven, Thus Ignores Dialogue and Interaction among Users*

It is purported that learning technologies which are designed around the behaviourist mode of teaching and learning, are being viewed primarily as tools for the dissemination of content. This viewpoint is premised on a broadcast or an instructivist approach. Such approach has been characterized as a belief that 'content is king', and it ignores the educational importance of dialogue or conversational interaction, both between students and with an educator, in online learning settings [Weller, 2007; Bell and Rennie, 2010]. According to Bell and Rennie [2010], any VLE is likely to support conversational interaction through email and discussion forums, within class cohorts and other groups, as defined by the institution. Students may use multiple channels to support social and work-related communication, each occupying its niche, e.g. forums for class-wide discussion, private messaging for personal contact, and email for intra-team communication [Haythornthwaite, 2001; Bell and Rennie, 2010]. However, well-established VLEs, predicated on top-down control and organization, will need to make radical changes to their architectures to accommodate true learner-led groupings like personal social networking features and social feedback. As a result of the lack of consideration of the interaction between social agency and learning artefacts, a major criticism levelled at VLEs is that they are not good at fostering conversational interaction, social feedback and social networks [Sclater, 2010; Bell and Rennie, 2010]. Furthermore, the instructivist model inherent in VLE systems assumes that there is one-way communication – from teachers to students. The implications for multiculturalism are that, since social networks include intercultural and cross-cultural collaborative networks, this means that such collaborations are not well-accommodated or fostered by the VLE.

- *Pre-determined Assessment Activities Based on Designers' Foresight and Culture.*

It was mentioned earlier that the nature and quality of the design task depends on the ability of the learning technology designer to support the pedagogic-didactic methods

of the learning process through foresight, prediction and formalization [Sorensen, 1993]. Thus self-assessment and summative assessment activities are based on structured, pre-determined, activities with automated feedback. For example, the typical VLE integrates a set of tools, such as quizzes and multiple-choice assessment with automated marking and immediate feedback [O'Leary, 2002; Wilson et al, 2006]. The general knowledge delivery and assessment often imply pre-determined question-and-answer exercises with gradual increases in difficulty and frequent feedback, mainly positive and encouraging [O'Leary, 2002, Ward et al, 2006]. This has implications for multiculturalism. For instance, since the basic design structure and specifications of many systems are modelled on a particular version of face-to-face learning environment familiar to many North American and European users, this means that the needs of groups or individuals whose thinking and behaviour are shaped by wholly different philosophical traditions, are not accommodated [Hewling 2009; Goodfellow and Hewling 2005].

Given the design flaws inherent in current VLE platforms, it is argued that few practitioners use these systems to support active forms of learning. For instance, studies have shown that VLEs are mainly used to 'deliver' lecture materials and slides to students [Oleg and Britain, 2004]. The design flaws have also placed constraints on students in terms of their ability to exercise agency and autonomy, since the systems are rigid and hierarchical. Against this background, critics have called for E-learning approaches that extend beyond behaviourist, technology-led principles, while others have challenged the dominant status of VLEs in higher education.

Having discussed the conventional behaviourist principles and E-Learning models, the next subsection provides an overview of cognitive theory and its use in E-Learning.

2.2.3 Cognitive Theories: Conventional Pedagogy and E-Learning

2.2.3.1 *Cognitivism*

Cognitivism views learning as the development of concepts which build on existing information structures. In contrast to the behaviourists view, cognitivists argue that learning is more complex than a simplistic reduction to controllable, observable responses to observable stimuli. They believe that external stimuli should be actively used, but that learners should turn such stimuli into knowledge and not be controlled by them [Beutelspacher and Stock, 2011]. Cognitivists posit that opening the "black box" of the human mind is valuable and necessary for understanding how people learn [Siemens, 2004]. Cognitivism, therefore, gives priority to the cognitive powers of an individual along with cognitive participation from the teacher [Nawaz and Kundi, 2010]. The pedagogical focus is on the processing and transmission of information through communication, explanation, recombination, contrast, inference and problem solving [Conole et al, 2004]. Focus is also placed on the learning environment, which should be set in such a way to stimulate individual's learning.

Like behaviourism, cognitivism views the goal of instruction as the transfer of knowledge to learners. However, learning is viewed as transformations in cognitive structures: as individuals learn, their conceptions of phenomena change, and they see the world differently. Changes in behaviour that are observed are reflections of what is occurring in the learner's mind. In terms of instruction, while there is still a requirement for memorizing and behavioural activities, great emphasis is placed on the teacher encouraging learners to appraise their own beliefs, challenge them in the light of new evidence and acquire new theories of the world which better fit the facts presented [Ward et al, 2006; Kundi and Nawaz, 2010].

Since cognitivism and behaviourism are both governed by an objective view of the nature of knowledge and what it means to know something, the transition from behavioural instructional design principles to those of a cognitive style was not entirely difficult [Mergel, 1998]. However, while behaviourism is premised on

objectivism, cognitivism is founded on pragmatism, which states that reality is interpreted and knowledge is negotiated through experience and thinking [Siemens, 2004]. Cognitivist models are useful for designing sequences of conceptual material which build on existing information structures [Conole et al, 2004].

2.2.3.2 *Cognitivism and E-Learning*

Over the years, "principles of best practices" of cognitive E-Learning or online education have been designed from approaches that are concerned with the production of human competencies or that involve inter-human processes [Sorensen and Ó Murchú, 2006]. Cognitivism often takes a computer information processing model based on how cognitive scientists believe humans process information: learning is viewed as a process of inputs [receive], managed in short term memory [store], and coded for long-term recall [retrieve] [Mergel, 1998; Siemens, 2004]. This analogy makes the possibility of programming a computer to "think" like a person conceivable, as in the case of artificial intelligence [Mergel, 1998]. Artificial intelligence involves the computer working to supply appropriate responses to student input from the computer's database. Few examples of this approach are seen in trouble-shooting programs; the development of intelligent and learning systems; and the notion of developmental personalized agents [Dyke et al, 2007].

In recent years, significant improvements have been made to virtual reality technologies, allowing learners to interact with virtual worlds [Huang and Liaw, 2018]. Virtual worlds are "environments within which users are represented by and operate through an avatar and can interact with others over the internet or local area network" [Twining, 2010; p. 117]. Some technologies try to incorporate autonomously acting entities in immersive settings that are based on artificial intelligence [Kramer, 2017]. These so-called pedagogical agents autonomously interact with and support the learner as tutor or peer [Ibid]. From a cognitive stance, an embodied cognition learning experience with academically important situations and phenomena is often limited, both by personal circumstances and by limitations of the real world [Dede et al, 2017. However, it is argued that digitally immersive

learning experiences can bridge these gaps for formal and informal education. According to Dede et al [2017], an embodied cognition learning experience via VR, MUVE, or MR can develop a mental perceptual simulation, especially when facilitated by curricular and instructional support. This approach to learning is useful when retrieving a concept or reasoning about it. For example, Dede et al pointed out an impoverished inner city student may never visit a farm, and no one now can have a physically embodied experience of living in the 17th century, or seeing relativistic effects when moving close to the speed of light. However, digitally immersive learning experiences can bridge these gaps. The authors maintained that with the emergence of multi-modal interfaces that include gestures and similar physical movements, new forms of digitally enhanced embodied cognition are now possible and practical.

2.2.4 *Limitations of Cognitivism: Implications for E-Learning and Multicultural Settings*

While cognitive approaches to the design of computer-based learning environments have moved learners away from instruction that promoted technical rationality grounded in objectivism, cognitivism also has its own shortcomings. Cognitivism primarily focuses on the learner's cognitive powers and on the learning environment as a stimulant for learning, both of which have implications for E-Learning and multicultural settings. This section reviews the limitations and discusses the implications of cognitive approach.

- *Disregards Cultural Influences on the Design/Development of Learning Models*

Cognitivists believe that since learners learn much through interaction, the curricula should be designed to emphasize interaction between learners and learning tasks. Thompson et al [2007], however, argue that learning tasks do not have agency; they do not stimulate thinking any more than a paragraph of text does. The authors maintain that tasks affect learners, or not, because the learners accept what is offered, or not, in the context of his or her own meanings, goals, interests and commitments. Furthermore, the belief that learning takes place through interaction with

environmental stimuli alone, disregards culture which influences the design and development of the learning models [Ward et al., 2006; Kundi and Nawaz, 2010]. For example, social constructivists believe that learning cannot be separated from its social context, and that culture and language heavily influence the way the learners update their world models [Ward et al., 2006; Mednick, 2006; Kundi and Nawaz, 2010]. Through culture, learners acquire much of the content of their thinking and knowledge, and the surrounding culture provides a learner with the processes or means of their thinking and problem-solving [Mednick, 2006].

Interacting with learning tasks designed around a particular cultural curriculum has implications for learners of different cultures, which are similar to the "homogenous experience of context" discussed earlier under Behaviourism. Since culture influences how learners update their mental models – and thus influences their cognitive or learning styles – learners will require teaching and learning techniques that appeal to their individual styles. There is a need, therefore, to move from a one-size-fits-all curriculum to learning tasks where learners are given the liberty to apply their cognitive powers to construct knowledge in a social way. From a technological perspective, it is necessary to move E-Learning beyond learning management systems and engage students in an active use of the web as a resource for their self-governed, problem-based and collaborative activities [Dalsgaard, 2006; Kundi and Nawaz, 2010].

- *Focuses too much on the cognitive powers of individual student and focuses too little on the social context and diversity*

It is argued that a cognitive approach to learning focuses too much on the individual learner and his or her cognitive powers, and focuses too little on the social context. It thus ignores the role of social practices on the individual's learning process and ignores collective learning, where the role of teachers, parents, peers and other community members help learners [Kundi and Nawaz, 2010]. Focusing too little on the social context has implications for multiculturalism, as it ignores the process of how a group of learners from different cultural backgrounds help to update one

another's mental models. For example, Twining [2010] pointed out that it is interesting to speculate how members of the Kalasha, a society in which an individual's gender and social status determine access to social spaces, might respond to virtual worlds [p. 119]. Thus one of the implications of Virtual Worlds for Culture, as maintained by Twining [2010] is that we need to be conscious of the cultural disjuncture that can occur across physical world spaces as well as between physical and virtual worlds [Twining 2010; p. 119].

A cognitive approach to E-learning disregards cultural diversity as it ignores the way in which each learner of different cultures contributes to the knowledge base in the wider social and multicultural learning environment. From an E-Learning perspective, it is argued that human-computer interaction [HCI] is social [users treat computers as other human beings] and not para-social [users covertly interact with imagined others through the computer terminals as they do with the characters in mass media] [Kundi and Nawaz, 2010].

Given the above shortcomings of cognitivism, there has been a call for a more social approach to learning. For instance, social constructivists emphasize that learning is active, contextual and social, therefore the best method is 'group-learning' where the teacher is a facilitator and guide [Kundi and Nawaz, 2010]. In such approach, teaching and learning can be undertaken as a social and community activity, thereby propagating collective learning [social] along with individual [cognitive], with the help of traditional email/chatting and modern wikis, blogs and Web 2.0 technologies [Kundi and Nawaz, 2010; Bondarouk, 2006; Klamma et al., 2007]. The next subsection discusses social constructivist theory and its use in E-Learning.

2.2.5 *Social Constructivist Theories: Conventional Pedagogy and E-Learning*

2.2.5.1 *Social Constructivism*

While behaviourism and cognitivism view knowledge as external to the learner and the learning process as the act of internalizing knowledge, social constructivism view knowledge as a constructed entity made by each and every learner through a learning

process [Simpson, 2010]. The strengths of constructivism lie in its emphasis on learning as a process of personal understanding and the development of meaning [Kundi and Nawaz, 2010]. All learners construct their own understanding of the world they live in, through reflection on their experiences, and they build mental models as their internal representation of this knowledge [Simpson, 2010]. As we learn, our conceptions of phenomena change, and we see the world differently [Biggs, 2003]. Thus learning is an adjustment of these conceptions to accommodate new experiences [Simpson, 2010]. The acquisition of information in itself does not bring about such a change, but the way we structure that information and think with it does [Biggs, 2003; p. 13]. For constructivist, learning is viewed as the construction of meaning rather than as the memorization of facts [Kundi and Nawaz, 2010]. Constructivist-oriented learning, therefore, is dependent upon "*learners ability to analyze, synthesize and evaluate information to create meaningful, personalized knowledge*" [Phillips et al, 2008; p. 7].

Social constructivism includes a cluster of related positions, some emphasizing learning through active experimentation [e.g. Papert, 1980] or learning through social interaction [e.g. Vygotsky, 1986; Wenger, 1998]. Whereas the behaviourist classroom is teacher-centred in nature, the constructivist classroom creates a learner-centered environment. Constructivism promotes a more open-ended learning experience where the methods and results of learning are not easily measured and may not be the same for each learner [Mergel, 1998]. The main similarity between cognitivist and constructivist approaches is that the student creates knowledge ['constructing knowledge' or 'constituting knowledge'] so that knowledge is not imposed or transmitted by direct instruction [Biggs, 2003]. However, while cognitivists believe that learning takes place through interaction with environmental stimuli alone, social constructivists argue that culture and language also heavily influence the way the learners update and develop their world models [Ward et al., 2006; Nawaz and Kundi, 2010].

Early constructivist work emphasized the individual, but interest grew in social constructivism [Bell and Rennie, 2010]. Social constructivism emphasizes 'collective-learning' where the role of teachers, parents, peers and other community members in helping learners becomes prominent [Nawaz and Kundi, 2010; p. 32]. Teachers still play the dominant role but the student is given the liberty of applying his or her cognitive powers to construct knowledge along with learning from teacher [ibid]. The roots of constructivism are traced to the long history in cognitive psychology, based on the notable theory of Jean Piaget. The approach is based on 'phenomenology', that places a greater emphasis on the importance of social interactions in affecting the individual's generation of knowledge or facts about the world [Bell and Rennie, 2010].

2.2.5.2 *Social Constructivism and E-Learning*

One of the main trends that have emerged in learning, particularly within the context of technology use, is one towards the social construction of knowledge [Bell and Rennie, 2010]. Unlike behaviourist E-Learning models which are based on objectivism and takes a technological approach to learning, social constructivist approach to E-learning is premised on interpretivism, which focuses on the social nature of learning technologies and their use in helping to construct meaning and knowledge. This E-Learning model primarily includes principles of social shaping of technology [SST] [MacKenzie and Wajcman, 1985; 1999], which incorporates the Social Construction of Technology [SCOT] and the Actor-Network Theory [ANT] models. Given that these technological models share common features in problem setting and definitions; relevant social actors; social networks; and interpretive flexibility in technological artefacts, it is argued that they are suitable for facilitating constructivist classroom activities. Pannabecker [1991], for example, argues that diverse social groups all contribute their own values and concerns to the design process. The author provides a demonstration of the constructivist classroom activities using technology:

"*students could be divided into groups representing relevant social groups associated with a given technology or its environment. They would then develop competing designs based on the groups' dominant values or concerns. The competing designs would then be debated in large group sessions. Naturally, such a process would not replicate social behavior and its complexity but would emphasize how widely different variables, conflict, resolution, success, and failure interact in the design and the development of technology*" [Pannabecker, 1991].

Altogether, it is claimed that E-learning, premised on social constructivist environments, creates engaging and content-relevant experiences by utilizing ICTs and resources to support unique learning goals and knowledge construction [Young, 2003]. From the viewpoint of constructivism, the evolution of the Web has had far-reaching impacts in supporting these engaging environments and experiences. For example, it is purported that teachers have been fascinated by the pedagogical possibilities of hypertext since the 1980s, given that "Web 1.0, as it were, allowed students to read and create static hypertext documents" [Banks and Salmon, 2010]. However, the growth of the Web and the open nature of Web 2.0 platforms, extended this, helping learners pursue connections across multiple lines of thought [O'Reilly, 2005; Anderson, 2007; Banks and Salmon, 2010]. Thus the previous Web 1.0 application evolved into the Web 2.0 phenomenon which is a more interactive and multimedia-driven application.

The Web 2.0 phenomenon is best characterized by its deep association with the terms: blogs, wikis, podcasts, multimedia sharing services, content tagging services, content syndication and RSS feeds. Such applications facilitate a socially connected Web where everyone is able to add to and edit the information space, and therefore encourage interaction and sharing between users and producing user-generated content [Ortega and Bell, 2008; Anderson, 2007]. Users are not seen as passive actors who collect information without evaluating or interpreting it, but rather as actors who play a key role in creating, sharing, modifying and contributing to information [Ortega and Bell, 2008; O'Reilly, 2005]. This social construction of knowledge, using technology, often takes place in formal group work or informal study groups or associations that may extend way beyond a class cohort [Bell and Rennie, 2010]. The line between the creation and consumption of content in these

environments, however, is blurred in that users create the content on these sites as much as they consume it [Maness, 2006].

Given the limitations of VLE systems, discussed earlier, it is purported that some educators bypass their institutional systems to avoid the restrictions placed on users [Sclater, 2010]. They find tools which are freely available on the Internet and provide more up-to-date, "fun" facilities for students to collaborate and to create, store and share their own content [ibid; p. 10]. Moreover, with the growing interest in virtual worlds within the education community [Twining, 2010], there has been recent application of advanced VR technologies, such as Multi-user Virtual Environment [MUVE]. This is being done alongside claims that such immersive media have affordances that can enhance learning, given that students are able to build personal interpretations of reality based on experiences and interactions with others [Dede et al, 2018].

Within a constructivist paradigm, the virtual reality technology focuses on the learner's active and interactive learning processes, and attempts to reduce the gap between the learner's knowledge and a real-life experience [Huang and Liaw, 2018]. Some technologies incorporate pedagogical agents, which autonomously interact with and support the learner as tutor or peer, and such agents are conceivable to enhance social learning in Virtual Reality and Augmented Reality environments [Kramer, 2018]. It is further argued that Massively Multiplayer Online Roleplaying Games [MMOs] offer an environment that supports social learning and exploration around increasingly challenging problems [Klopfer, 2018].

In summary, social constructivists are interested in how learners shape the technology to construct and develop knowledge, and they recognize that technologies are not necessarily used in a way that it is intended to be used and thus may result in various unintended outcomes. They acknowledge that different social interpretations and actions, along with other issues such as conflict and reluctance to use the technology, may modify how the software and hardware systems are used or configured. With

the emergence of universal connectivity through ICTs in the 1990s, constructivists suggest that collaborative learning is the most effective means of facilitating teaching and learning in digital environments [Wima and Lawler, 2007; Phillips et al, 2008; Kundi and Nawaz, 2010]. As such, many theorists see social constructivism as a solution to the limitations of behaviourism and technological determinism.

Based on the discussions in this subsection, constructivist E-Learning models could help to overcome the limitations of behaviourism and the technology-led view of learning in the following ways:

- *Overcoming the Homogenous Context: More Choice of Activities*

It was discussed earlier under Behaviourism, that the course-centric model of the VLE and the limits on learner's ability to organize the VLE space, altogether creates a context which is greatly homogenous. It was also discussed under Cognitivism that interacting with environmental stimuli alone – such as a particular cultural curriculum – creates a "homogenous experience of context" for learners of different cultures. It is argued that social constructivism makes students more responsible for their education and requires them to be more independent, giving them more freedom to choose their activities and determine the pace at which they want to work. This therefore suggests that a constructivist approach to E-Learning could help to overcome the homogenous experience of context, by presenting a variety of activities. From the viewpoint of E-Learning, this provides students with the opportunity to construct or shape the technologies in their learning activities based on their different views and interpretations.

- *Richer Conceptual Models of Educational/Pedagogical*

It has been recognized that E-Learning changes the relationship between the teacher or trainer and learner, as it requires new skills, competencies and attitudes amongst those planners, managers, teachers and trainers who are going to design and develop materials to support learners online [Kundi and Nawaz, 2010]. According to Kundi and Nawaz, social software tools like blogs, wikis and social-bookmarking, offer

fields of knowledge to harvest according to the requirements of the users [teachers and learners]. This not only support active forms of learning but accommodates various learning styles. It is also argued that support tools such as online toolkits, aimed at encouraging engagement with others and constructing practitioner knowledge are designed to encourage the user to revisit and adapt concepts. According to Conole et al [2007], online toolkits can provide a structured resource that can be used to plan, scope and cost an activity, such as the development of an evaluation plan, choosing and integrating different types of media into teaching or managing information. Given that toolkits are designed to be adaptable and offer different navigational routes, they are more multimodal than fixed lesson plans [Conole, et al, 2007].

- *Increased Participation and Increased Opportunity to Modify Tools*

It was argued earlier that given the didactic teacher-led models, incorporated into the systems, VLEs can be "*uncompromising in allowing students to actively negotiate assessments, set up online discussions, or develop and upload their own learning resources*" [Littlejohn et al, 2007; p. 136]. The pedagogical focus of social constructivism, on the other hand, is task-oriented – "Authentic" learning tasks – and this approach favours hands-on, self-directed activities orientated towards design and discovery [Conole et al, 2004]. Therefore, learners can construct or shape the technologies in their learning activities based on their different views, interpretations, knowledge and experience.

- *Emphasis on Dialogue and Interaction Among Participants*

According to Bell and Rennie [2010], the social construction of knowledge relies heavily on dialogue, and this may be between students and possibly a teacher within a group. Bell and Rennie maintain that social software can give very effective support to, not only dialogue, but also non-verbal and non-direct forms of communication. Although in recent years, the focus has been on improving the functionality of well-established VLE technologies by incorporating software and 'building blocks' techniques, this is often marginalized and superficial [Wilson et al, 2006; Bell and

Rennie, 2010].   For example, on the Blackboard VLE, links to a person's name is more likely to pull up an email form, rather than to their 'linkable' profile and on to their blog or wikis [Bell and Rennie, 2010]. Altogether, social software can promote two-way communication, not just between teacher and students but also between students and classmates.

- *Assessment: Social and Cross-Cultural Feedback*

As explained earlier, the nature of VLE assessment activities and tasks typically deliver quizzes with automated feedback, based largely on the designers' foresight. However, from a constructivist E-Learning viewpoint, assessment and feedback on the learning processes can take place in many forms and in more social ways. According to Bell and Rennie [2010], social feedback may come in the form of conversational responses, from students and teachers who are effective communicators and facilitators, or may also be given through the commenting on and rating of contributions [e.g. blog or discussion forum postings]. The authors also point out that feedback on the learning process can be encouraged through reflective threads in discussion forums, for example.

- *Supports Multiculturalism*

Based on the overall advantages it offers, it is claimed that social constructivism supports multiculturalism. For example, Hossain and Aydin [2010] purport that "Web 2.0 applications serve as crucial tools for students, teachers, educators and social workers to build and participate in many virtual collaborative societies to practice effective multiculturalism" [Hossain and Aydin, 2010; p. 361].

While social constructivism actively engages learners, facilitating the development of problem-solving skills and encouraging higher level thinking and diversity of thoughts, this approach also has limitations, as discussed in the ensuing subsection.

2.2.6 Limitations of Constructivism: Implications for E-Learning and Multicultural Settings

Social constructivism is premised on the epistemological orientation of subjectivism, which assumes that knowledge is internally and meaningfully constructed by the individual. Social constructivism contends that our understanding of technology is essentially social [Doherty et al, 2006] and that "*technology does not have any influence which can be gauged independently of human interpretation*" [Grint and Woolgar, 1997; p. 10]. Given this human-centric position, social constructivism and its E-learning models have been criticised mainly for their social determinism, whereby the role of technical artefacts has typically been down-played, if not completely ignored [Doherty et al, 2006]. Further, it is argued that many described instances of E-Learning claim to draw upon theoretical positions, such as constructivism, without explaining how they embody the principles and values of that approach [Oliver, 2002]. As such Conole et al [2004] purport that much of what is described could more easily be explained in terms of didactic and behaviourist approaches to learning. In addition, as it relates to Web 2.0 application and E-Learning, there have been significant debates over the alleged advantages and disadvantages of incorporating social software into mainstream education. Other criticisms and limitations of constructivism identified in the literature include:

- *Too Many Choices and Limited Technological and Pedagogical Structures*

It is argued that too many choices and user-independence in social constructivist environments can overwhelm students. According to Simpson [2010], not all students can learn in constructivist type of environment. Some cannot handle responsibility and rely heavily on the teacher for instruction. Some teachers also cannot handle constructivist setting because it is time consuming and demands a lot of preparation. For example, while hyperlinks allow for learner control which is crucial to constructivist learning, there are some concerns over the novice learner becoming "lost" in a sea of hypermedia [Mergel, 1998]. Most literature on constructivist design suggests that learners should not simply be let loose in a

hypermedia or hypertext environment, but that a mix of old and new [objective and constructive] instruction/learning design be implemented [Mergel, 1998].

- *Limited Conception of Learners' Experiences of 'Authentic' Learning Tasks*

It is noted that culture is particularly important to consider in constructivist educational designs that emphasize learning through interactions with other students, as these designs are often premised on shared values, beliefs and cultural practices [Jonassen, 1999; Campbell, 2011]. While it is argued that constructivist designs are often premised on developing 'authentic' learning tasks that are relevant and hence motivating to learners, one major challenge to cross-cultural social constructivist inquiry is whether learning tasks are 'authentic' to learners from various backgrounds [Campbell, 2011]. Furthermore, learners' cultural backgrounds influence their different expectations of how to work collaboratively within a group. For example, Chen et al. [2006] note that American students' collaborative work often involves dividing tasks, and recombining pieces into a whole. In contrast, Taiwanese students show a marked preference for working collaboratively throughout the duration of the project [Campbell, 2011]. It is important to note, therefore, that learning tasks that might be relevant and plausible to learners in one culture might not be relevant and plausible to learners of a different culture.

- *Collaborative Tools/Web 2.0 Tools Not Appropriate for Formal Learning Contexts*

It is argued that collaborative technologies such as mobile devices and web 2.0 applications are not designed primarily for learning and that there is very little reliable, original pedagogic research and evaluation evidence that [Laurillard, 2009; Fountain, 2005]. In the context of formal learning this is arguably only possible with small groups of students, facilitated by educators with high levels of IT skills. There are also many problems with every student building their own personal learning environment [PLE], particularly where the E-Learning elements of a course are collaborative or assessed [Sclater, 2010]. In this context VLEs provide a possible solution. According to Sclater [2010], one feature common to all VLEs, which is

necessary in the context of formal learning, is the ability to provide specific content and functionality to closed groups of students who are taking a particular course for a defined period.

- *Collaborative Tools/Web 2.0 Tools: Potential Agency, Ownership and Control Issues*

Given that the line between the creation and consumption of content in Web 2.0 environments is blurred [Maness, 2006], the use of mobile devices and web 2.0 applications may result in a crisis over issues of agency, ownership and control in light of the rapid evolution of these devices and their widespread adoption by learners [Creanor and Walker, 2010b]. Institutional VLEs are thus important in this regard. There are advantages in the institution owning user access data so that services and content can be enhanced, leading to a better learning experience and higher levels of student retention [Sclater, 2010; p. 11]. While VR technologies have been developed recently for a wide range of applications in education, further research is needed to establish appropriate and effective learning techniques and practices to motivate meaningful learning [Huang and Liaw, 2018].

Behaviourism, cognitivism and constructivism, their application to E-Learning and their implications for multicultural settings were discussed above. The next section examines two dominant cultural theories that are employed in the E-Learning literature and general information systems research, and discusses their limitations and implications for multicultural E-Learning settings.

2.3 Cultural Theories and E-Learning

Researchers and designers of ICTs and E-learning tools generally borrow definitions of culture to theoretically and practically inform their work [Young, 2008; Myers and Tan, 2002]. In so doing, most rely on the work of Dutch anthropologist Geert Hofstede, which is premised on a paradigm that equates culture with the territorial boundary of a particular nation state [Myers and Tan, 2002; Hewling, 2009; Hewling, 2006; Walsham, 2002]. Thus, to date, much of the existing learning technology

research is framed by a conceptualisation of culture solely as being rooted in national or ethnic backgrounds which individual participants bring with them to the virtual learning environments, rather than as something that is produced out of interactions in virtual learning environments [Goodfellow, 2008; Hewling, 2006; p. 337; Goodfellow and Hewling, 2005].   In order to understand such conception, the following subsection provides a brief description of Hofstede's prominent model of cultural differences rooted in national culture.

2.3.1 Hofstede's Model of Cultural Dimensions

During the 1970s, Geert Hofstede conducted extensive research in IBM offices around the world, interviewing and conducting surveys about employees' behaviour. The analyses of these results were published in 1980, in his book "Cultures Consequences". From this research, Hofstede [1982] developed a survey instrument called the Value Survey Module [VSM], which identifies five[3] primary dimensions or indices to assist in differentiating cultures. These dimensions or indices are defined as follows:

- **Power Distance Index [PDI]**: Concerns the extent to which the less powerful members of organizations and institutions [like the family] accept and expect that power is distributed unequally.

- **Individualism Index [IDV]**: This index, which is compared to its opposite, *Collectivism*, concerns the degree to which individuals are integrated into groups.

- **Masculinity Index [MAS]**: This index which is compared to its opposite, *Femininity*, concerns the distribution of roles between the genders. It is based on the assumption that masculine values are competitive and assertive, while feminine values are modest and nurturing.

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[3]   Hofstede initially identified four dimensions of national culture. However, later on he developed a fifth dimension – "*Long-term versus Short-term Orientation*" – based upon the findings of a Chinese Value Survey [CVS], conducted around 1985. This study is independent of the previous four dimensions identified in his IBM research.

- **Uncertainty Avoidance Index [UAI]**: Concerns a society's tolerance for uncertainty and ambiguity. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations.

- **Long-Term Orientation Index [LTO]**: This index, which is compared to its opposite, *Short-term Orientation*, concerns the choice of focus for people's efforts: the future or the present.

Each of the indices is scored on a range of 0 to 100, with the values and behaviours of most cultural groups falling somewhere in the middle [e.g. in the moderately high or moderately low areas]. The balance between ratings for each of the above dimensions provides the overall profile for any one particular nation [Hewling, 2005].

A fundamental assumption of Hofstede's work is that there is such a thing as "national culture", where the unit of analysis is deemed to be the nation-state, and each nation is assumed to have its own culture [Myers and Tan, 2003]. On this assumption, it is argued that the VSM instrument can be used to compare country samples; identify major differences in cultural beliefs, values and behaviours across countries; and predict other observable and measurable behaviours [verbal and nonverbal]. Since Hofstede's dimensions of culture are group-level constructs, they are also employed in the study of "organizational culture", with the unit of analysis being the organization. However, the model does not account for individual differences and comparisons between members of society or organizations.

The primary reason why Hofstede's model has become an influential classic work is that his work was supported by hundreds of both qualitative and quantitative studies in different disciplines, and by large replications [Søndergaard, 2002; Wang and Reeves, 2007]. Many researchers have employed Hofstede's paradigm to inform their work and some have developed similar binary dimensions which operate in opposition. For example, Trompenaars and Hampden-Turner [1993; 2001],

developed a model of culture with seven binary dimensions which are used for exploring how people deal with each other, particularly in the business world, and for examining the difference in attitude of the culture toward the environment. Other cultural frameworks which develop categorizations of national cultural characteristics include Hall and Hall's [1990] high and low contexts. For example, high-context involves using the entire social context of an interaction – physical location, status of participants, body language and so forth – to interpret its meaning, while low context involves focusing on the direct content of messages, seeking specific information and/or expecting particular responses [Goodfellow and Lamy, 2009]. Altogether, these accounts determine differences between nationalities and ethnic groups by the use of categories.

2.3.1.1 *Hofstedian-Type Model of Culture and E-Learning*

Educational and E-Learning researchers consider Hofstede-type models of cultural differences to be influential and seminal in examining the cross-cultural use of E-Learning tools [Campbell, 2011; Edmundson, 2007]. As such, much of the research into culture as it impacts the online class, situates itself within a paradigm that equates culture with membership in a particular nation state [Hewling, 2006; p. 337]. It is argued that such models offer several measures of cultural variability that can help to predict how learners from a given culture will interact with an E-Learning design, and that designers can use these indices to [a] self-reflexively identify how their cultural backgrounds influence their design choices, and [b] modify course designs for the intended learning audience [Campbell, 2011]. *APPENDIX A* provides basic illustrations of how Hofstede's cultural dimensions are manifested in education systems or learning situations.

The work of Hofstede and that of similar type, have the merit of alerting us to the importance of cultural differences across cultural groups and cultural similarities within cultural groups [Walsham, 2002; Goodfellow and Hewling, 2005]. For example, research using such models has shown that there can be collective similarities in the ways that groups of people from the same national or ethnic

background perceive and act on social contexts, including educational ones such as virtual classrooms [Goodfellow and Hewling, 2005]. Hofstedian-type works also have "*proved highly useful to researchers wishing to tailor the design of online learning to the assumed cultural preferences of individuals or groups*" [Goodfellow and Lamy, 2009; p. 8]. However, nationality-driven constructs may be useful when talking about large groups of people – on a smaller interactional level, particularly where the interaction is cross-cultural, the individual disappears in such an approach.

While not without value, Hofstedian-type frameworks provide only a simplified way of examining cultures, since all cultures are far more complex than these models suggest. Hofstede's work, in particular, has received considerable criticism, and the fundamental assumption upon which his work is based – that of "national culture" – is often brought into question. The main criticisms and limitations of Hofstede's work, and their implications for multicultural E-Learning settings are discussed in the next subsection.

2.3.2 *Limitations of Hofstede-type Cultural Frameworks: Implications for E-Learning and Multicultural Settings*

The most prominent critique of Hofstede's work is that it equates culture with membership in a particular nation state. In this view, culture is a consequence of geographical, historical, climatic, religious, political, linguistic and other behaviour and attitude-shaping influences that are assumed to act on everyone who shares the same physical and social environment [Goodfellow and Lamy, 2009]. However, this concept of "national culture" is problematic on several grounds [Myers and Tan, 2002], as discussed below.

- *Ignores Heterogeneity within Nation-States*

It is recognized that there is no necessary alignment between a nation-state and culture, given that many nations are composed of more than one culture and/or subcultures and the same cultural groups may span multiple national geographical boundaries [Myers and Tan, 2003; Srite et al, 2003]. Furthermore, there are nations

75

that have strong internal cultural differences, such as English and French-speaking Canada, or recognized intra-regional differences, such as the United States and Germany [Srite et al, 2003]. Given that Hofstede's work overlooks diversity within cultural groups, it is argued that – with respect to education – Hofstede's work does not differentiate between learners in different kinds of institutions, such as high schools and higher education, nor does it accommodate differences in race, age, gender, location, ability, class, or any other major axis of social difference [Campbell, 2011]. In terms of learning online, Hofstede's 'essentialist' cultural framework offers no means of understanding how collaboration happens among members of different national groups who do not share cultural understandings supposedly afforded by shared nationality [Hewling, 2006]. In other words, the 'essentialist' conception of cultural difference is of limited value for understanding the production of culture in VLEs where interaction takes place between individuals who are nationally heterogeneous and globally dispersed.

- *Disregards History*

It is argued that the nation-state is a new phenomenon. It is only in the last 100 years that the nation-state has been formed, and thus did not exist for the greater part of human history [Myers and Tan, 2003]. On this assertion, Myers and Tan concluded that there appears to be a mismatch between the nation-state, which is a recent phenomenon, and culture, which in some areas has existed for thousands of years [e.g. Confucianism]. This lack of attention to historical factors has implications for multicultural online learning settings. According to Goodfellow and Hewling [2005], Hofstede's perspective of "national culture" is too simplistic for understanding the complexity of the wider socio-historical factors that shape the perceptions, behaviours and actions of diverse participants in online learning settings. Consequently, there will be difficulty in relating national cultural values to actions and attitudes.

- *Deterministic in Nature: Treats Culture as Static Rather than as Dynamic*

Hofstede's model of national culture does not account for historical and demographical changes, as well as changes to physical or geographical boundaries. Myers and Tan [2002] pointed out that many older nation-states within Europe, for example, have experienced dramatic changes in their population and ethnic composition, due to significant numbers of Asian immigrants – for instance. Altogether, an increase in globalization and the cross-border movement of people around the world has led individuals to embrace – to different extents – some of the cultural values and basic assumptions shared by the host country.   This fundamentally means that many individuals are operating within at least two nation-based frames of cultural reference [Hewling, 2006].

Myers and Tan further pointed out that many new nation-states have been formed in recent years, such as those that were formed as a result of the break-up of the Soviet Union after the Cold War. As such, this had led to changes in physical and geographical boundaries. According to Myers and Tan, treating culture as something which identifies and differentiates one group or category of people from another is deterministic and tends to be static. They argue that contemporary anthropologists view culture as something that is interpreted and re-interpreted, and constantly produced and reproduced in social relations. Furthermore, contradictions and conflict are an important part of this constant re-interpretation and re-reproduction, but accounts of these are not provided in Hofstedian-type studies [Walsham, 2002].   In summary, Hofstede's perspective is too simplistic for understanding the emergent nature of culture. Consequently, such perspective is unhelpful for understanding the management of unpredictable configurations of heterogeneous and dispersed individuals, and for addressing smaller interactional level, particularly where the interaction is cross-cultural [Goodfellow and Hewling, 2005].   It does not recognize that the online class can become the site for cultural production and reproduction.

- *Inadequate for Explaining Relationship between "National" Cultural Values and Work-related Values*

It is claimed that the relationship between "national" cultural values and culturally-influenced work-related values and attitudes is extremely complex and is not well explained by Hofstede's model. For example, Case et al's [2002] study revealed that the members of a class, as Canadians, were technically a homogeneous group, but that individual student's behaviours varied widely, as made visible through the messages they posted to class discussions. Thus individual differences were not subsumed into a broader pattern of national culture as might have been predicted by Hofstede-type studies, but were visible in terms of what students said and to whom they spoke. Altogether, ideas associating culture with nations or ethnicities ignore the complexity of cultural influences and determinants brought into play by the key players in that interaction – the individual participants [Hewling, 2006]. Furthermore, by assuming that culture is something that arrives online with the student, the tutor[s] and the institution both are effectively accorded no cultural role at all [ibid]. The culturally-diverse class is positioned as dissonant and, in some ways at least, deficient.

In summary, the concept of "national culture" has been criticized as being theoretically and methodologically weak, as it ignores heterogeneity, individuality, agency, reflexivity and change; is deterministic in nature; and disregards some of the facts about history [Myers and Tan, 2003; Goodfellow and Hewling, 2005; Walsham, 2002]. Adopting such views leads us, as teachers and students of the class, towards seeing cultural issues in that class in terms of incompatibility [Hewling, 2006]. This may lead to learning and teaching design and practice being seen simply as a matter of locating "common denominators", for example, of platform or interface design [ibid]. According to Goodfellow [2008], it is commonsense that people brought up in different societies and with different languages will view on or offline learning contexts differently. However, there is a question whether such difficulties could ever be resolved by attempting to embed the kind of simplified understanding of these national and regional cultures that Hofstedian-type frameworks propose, into

the design of learning material. Goodfellow, therefore, maintains that a move away from a view of culture as an attribute of individuals, to one which locates it in the 'construction of a reality', problematizes online learning in a promising way [Goodfellow, 2008].

In the light of the shortcomings of Hofstede-type studies, E-Learning and Information Systems researchers argue for a move beyond the concept of "national culture", to one that recognizes culture as being dynamic [Walsham, 2002; Goodfellow and Hewling, 2005; Goodfellow, 2008]; one that sees culture as contested, temporal and emergent [Myers and Tan, 2002].

Although researchers over the years have drawn on more interpretive models of culture, Hofstede-type studies remain the more dominant perspective. Nonetheless, American anthropologist, Clifford Geertz, whose work is premised on a semiotic concept and context of culture, which treats human behaviour as symbolic action, offers an alternative interpretive account of culture [e.g. Churchill and Bly, 2000]. Human behaviour as symbolic action is explained by Geertz [1973] through the notion of "Thick Description". This means that in order that the behaviour of an individual becomes meaningful to an outsider, one needs to understand the context within which that behaviour occurs. Geertz's theory of "Thick Description" is discussed in the upcoming section.

2.3.3   Geertz's Cultural Theory of "Thick Description"

In his collection of essays, "*The Interpretation of Cultures*", American anthropologist Clifford Geertz purports a particular view of "*what culture is, what role it plays in social life, and how it ought properly to be studied*" [p. vii]. He uses Gilbert Ryle's notion of "thick description" to describe his personal ethnographic approach to anthropology, and to illustrate the complexity of the concept of culture and its analysis. Geertz's [1973] adoption and illustration of the "thick description" concept has led to an Interpretive Theory of Culture, which has had implications for the social

sciences in general and, in the case of this PhD, the information systems and E-Learning disciplines, in particular.

Geertz [1973] argues for more attention into the symbolic dimensions of culture and social action such as art, religion, ideology, science, law, morality, common sense [p. 30]. His cultural framework is based on Max Weber's perspective that "man is an animal suspended in webs of significance he himself has spun" [5]. Thus, Geertz takes culture to be "*those webs and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning*" [p. 5].

Geertz [1973] commits to a semiotic view of culture, that is, culture as an interworked systems of construable signs, which treats human behaviour as symbolic action. Thus his framework of culture focuses primarily on the role of symbols in constructing public meaning. It is argued that people develop concepts, names and shared meanings and understandings which can be correlated with their behaviour and actions. To find meaning in an action, or to understand a particular social action, requires that one interpret in a particular way what the actors are doing and the social context within which the action is carried out [Denzin and Lincoln, 2000]. As a semiotic concept,

> "*culture is not a power, something to which social events, behaviours, institutions, or processes can be causally attributed; it is a context, something within which they can be intelligibly – that is, thickly – described*" [Geertz, 1973; p. 14].

Geertz adopts Gilbert Ryle's notion of "*Thick Description*", which uses the action of a wink to illustrate the complexity of the concept of culture and its analysis. According to Geertz, if someone winks without a particular context then it is difficult to tell what this wink means. First, the onlooker would have to establish whether the movement was a twitch or indeed a wink. If it was a wink, then the winker could be communicating in a precise and special way: 1. Deliberately; 2. To someone in

particular; 3. To impart a particular message; 4. According to a socially established code; and 5. Without cognizance of the rest of the company.

The meaning of the wink changes along with the context or cultural structure. In order to distinguish the wink from a twitch, we should move beyond the action of winking ["thin description"] to the particular social understanding of the winking as a gesture, as well as the state of mind of the winker, his/her audience and how they construe the meaning of the winking action itself ["thick description"]. For instance, "*contracting one's eyelids on purpose when there exists a public code in which so doing counts as a conspiratorial signal **is** winking*" [p. 6].

Geertz maintains that we should aim to understand "the degree to which [an action's] meaning varies according to the pattern of life by which it is informed. Understanding a people's culture exposes their normalness without reducing their particularity" [p. 14].

As it relates to this study, Geertz' cultural definition serves as a useful concept for understanding how symbolic action reflects a deeper meaning of a particular culture and forms part of the knowledge base for that culture. In turn, this deeper meaning reflects people's way of thinking and it informs their actions [e.g. the abstinence from beef-based meals by Hindus]. Symbolic action points to the idea of autonomy and the active role of human agency in cultures, and the important role that context plays, in describing and understanding human actions. Thus Geertz's notion of culture recognizes the autonomy and agency of each individual, and thus recognizes that the ability of actors to be reflexive result in diversity and change within cultures. It therefore recognizes that diversity does not only exist among cultures, but also within cultures. For instance, students of the same society may share common norms and values, but have their own personal beliefs and values. As such, each student will interact with the VLE in a manner that is unique to his/her own experience, understanding and inner beliefs and the meaning students attribute to the VLE.

It is observed that not much work employing Geertz's "Thick Description" exist in the Learning Technology literature. In 2000, however, Churchill and Bly employed Geertz's work in their study, which considers culture and communication in virtual environments. The study looks at the MUD virtual environments to support working relationships. This work is discussed in the ensuing subsection.

2.3.4.1 Geertz' Cultural Theory of Thick Description and E-Learning

It is at the level of action, interaction, collaboration and cooperation, with a focus on conversations and on communicative practices, that culture becomes an interesting area of discussion for online design [Churchill and Bly; 2000]. There are studies which detail human communication, action, interaction and reaction in virtual learning environments in trying to gain a deeper understanding of the development of communities and to show how culture is produced out of interactions among participants [e.g. Hewling, 2006; Goodfewllow and Hewling, 2005; Walsham, 2002; Churchill and Bly, 2000].

Churchill and Bly's [2000] work, in particular, considered a number of issues relating to the design of virtual places and spaces, and took a broad definition of culture in thinking about the ways in which such environments may support fostering of online relationships between people from different cultures. In accordance with Geertz's perspective, their work took an interpretive stance to observed actions and interactions, over some period of time. It offers an introduction to the concerns about the development and maintenance of virtual communities; some observations from their work and that of their colleagues, and it reflects on methodologies for the design and evaluation of emerging online cultures and communities. In their work on text-based virtual environments, they looked at a MUD technology that has been in use in the Math and Computer Science Division at Argonne National Labs [ANL]. The MUD technology supports collaborations between researchers and their colleagues [who may be on-site or located in other institutions], between researchers and systems administrators and between the systems administrators themselves. Their

observations are based on in-depth interviews [two interview visits, eight people interviewed each time] and email questionnaires with 23 respondents.

The authors shared the lessons learnt along with the questions, which those lessons posed:

Shared Interests: successful on-line communities are "information ecologies" and the shared understandings that underpin these human connections are the "webs of significance" that Geertz mentions. Thus, even though I may have never met you, if we work in a related area you are likely to know people I know, and I am likely to have some working practices in common with you. We already have considerable common ground from which to base negotiations and discussions.

So when do problems arise? Some potential problems arise from differences in:

1. *Technologies Cultures*.   The technology to which one has access affects the ability to communicate effectively. At the most extreme, there is simply whether one has the technology or not. Even when people have access to technologies and are connected, we make incorrect assumptions about the kinds of technology that are available to others. We often assume others have access to the same technologies as we do, and that their level of connectivity is also the same. There are also infrastructural reasons why people may not be available to partake fully in inter-cultural communities. As we design for cross cultural applications we need to consider what technological infrastructure is in place and consider the consequences for involvement. How can we understand not just what technologies are available, what the impact of connectivity is and what technological expertise exists, but also what understandings there are of the use of and place of technologies in our lives? There are instances of different cultures wherein the understandings about how technology is to be used differ. Technologies are not simply there. Technologies themselves and their usage have different meanings in different cultures. There are also skills which one must have to use the technologies for communication effectively. Often these skills become another form of background, invisible work.

2. *Time differences which affect rhythms of interaction – Cultures of time and geography.* Whilst geographic separation is a problem, a greater problem is that of time zone changes. However, such time differences can be overcome if expectations are set over time.

3. *Language and national culture – Language and communication.* Considering language, Non-native English speakers, even those who are proficient at speaking a language, get tired and find "thinking in English" hard to achieve. Even for proficient speakers of second languages, the inability to use familiar words and expressions can lead to a fracture in the flow of communication. Gestures and codes interact with spoken or written words to create a sense of meaning; in text-based environments, use of emoticons illustrates this. With increased focus on visual virtual environments we need to consider how our avatars will gesture and how we will present ourselves.

The extent to which each of these has an effect will depend on the nature of the relationships being fostered.

Methodologies for Observing Online Life. So what are the appropriate methodologies for gaining a deeper understanding of the lifecycle and daily life of online cultures? What analyses can we carry out to get at the development and maintenance of Geertz's shared "webs of significance" in on-line cultures? How can we begin to understand issues that arise in multi-cultural on-line worlds and what mechanisms there are for negotiation and discussion? How can we begin to understand where online cultures intersect with the cultures of the material world(s) in which individuals live their daily, material lives? What are methods for unpacking those social understandings both on-line and off-line? How do we gain an understanding of the intersecting cultural influences on an individual and on groups if we do not have access to the totality of their material and virtual worlds? In the context of virtual environments, what does it mean to design from the interaction out? How can we

achieve meaningful descriptions that consider people's intersecting identities and desires, on-line and off-line?

In accord with Geertz, the authors argue that in order to gain deeper understandings, "thick descriptions" are needed in these virtual environments. How can this be achieved? How can we be made to understand the dynamic and slow evolution of virtual cultures and climates? In answer to these questions they argue for a "shameless eclecticism" in approaches, involving online and offline ethnographic descriptions, semi-structured interviews, surveys and questionnaires and qualitative and quantitative analysis of logs.

The authors concluded that compelling environments can be designed, by being critically reflective on what they have observed and by foregrounding people's desire to be in touch and to share content and context as well as chat. They provided a few guidelines to achieve this:

- Keep the focus on the conversations and not on the technology.
- Keep the use of the environment easy and the learning curve gentle.
- Provide good integration of artefacts and conversations.
- Provide easy means for creation of new groups and for movement between different group conversations.
- Allow integration with other technologies, but do not require it.
- Design for different technological capabilities.
- Design for synchronous and asynchronous messages.
- Keep environments tailorable – allow people to develop their environments.
- Design to enable permanent artifacts and places– people begin to feel like places really exist when there is some sense of permanence of the rooms and artifacts. Relationships build around the existence of those places and those things.

Geertz' theory of "Thick Description", however, has limitations that are consistent with general interpretive theory. These limitations were identified and criticized by Shankman [1984], mainly for the contradictions of its interpretive stance, which

offers little guidelines for interpreting and evaluating culture. Two such contradictions, which may have implications for multiculturalism and E-Learning, are discussed in the following subsection.

2.3.4 Limitations of Geertz' Cultural Theory of Thick Description: Implications for E-Learning and Multicultural Settings

- *Few Guidelines for Assessing and Evaluating Cultural Interpretations.*

Shankman [1984] argued that when it comes to elucidating what is good or bad or how one discerns the heart of the matter, Geertz provides few guidelines. In Geertz's own words, Shankman reported that 'interpretive theory lacks precise criteria for evaluating cultural interpretations'. Shankman asks the question "How, then, does one assess an interpretation?" This question has implications for research into E-Learning and multiculturalism. In order to understand the social and cultural aspects of a learning technology and its role for developing knowledge, for example, it is important to consider how the technology is developed and construed by the people who it influences and by whom the technology is influenced, in multicultural settings. An analytic strategy is needed to assess or evaluate such social and cultural interpretations in order to draw sound conclusions and to test the "validity" of the conclusions.

As mentioned elsewhere in this thesis, to a large degree, culture shapes how members of a society think and feel, as it is guided by *norms* which direct actions and define acceptable and appropriate behaviour in particular situations [Haralambos and Holborn, 2004]. Different groups of people or social collectivities consciously or unconsciously, have chosen different definitions of good or bad, right or wrong. These assumptions account for the basic differences in norms, values and interpretations across cultures. What might be acceptable or appropriate in one culture might not be acceptable or appropriate in another culture. In the absence of a guideline, it will be difficult for the researcher to evaluate teachers' and students' respective cultural interpretations or accounts of their multicultural E-Learning environment.

- *Hard to Proceed in terms of Cumulative Knowledge with Geertz' Theory*

According to Shankman [1984], Geertz contends that "the essential task of theory-building here is not to codify abstract regularities but to make thick description possible, not to generalize across cases, but to generalize within them" [p. 26]. If there is no generalization across cases, then how does Geertzian theory proceed in terms of cumulative knowledge? Geertz focuses on the individual's knowledge of and meaning associated with an action within a particular context [e.g., the wink], but does not look at the totalities of peoples' knowledge of and meaning associated with the same action within the same context. The lack of generalization across cases has implications for multiculturalism, in that, Geertz' theory would not prove useful when discussing how national culture impacts on the individual's action in that particular cultural setting or in multicultural settings, if it cannot generalize across cases.

Based on their research, discussed in the previous section, Churchill and Bly [2000] posed a few questions, some of which are directly related to the above limitations: What happens when we wish to go beyond observations and begin to design to facilitate and encourage the meeting of multiple cultures in an online environment? What are appropriate methodologies for designing multicultural collaborative virtual environments? How can we comprehend different cultures and then co-develop as a foregrounding negotiation across culturally diverse community members? How can we determine what are appropriate design metaphors for the worlds we create?

Whilst the authors acknowledged that these questions do not have clear answers, they argue that by being critically reflective on what have been observed and by foregrounding people's desire to be in touch and to share content and context, virtual environments can be designed. They provided a few guidelines on how to achieve this, as discussed in the previous section. It can be argued that these and similar guidelines could be used to alleviate the limitations of Geertz's cultural theory.

2.4 Summary: Conceptions of Technology, Culture and Education

From the overall discussions of this chapter, it is seen that cultural, technological [E-Learning] and conventional pedagogical theories have their respective limitations, as summarized in *Table 2.1* [overleaf]. These limitations largely relate to the dichotomy or dualism with which each theory is accorded. Each theory has an objective, deterministic stance in opposition with a subjective, anti-deterministic stance. Determinists tend to view the context or environment as influencing or exerting a constraining force on individual activity, which is wrapped up in the notion of "structure". On the contrary, anti-determinists tend to focus primarily on the individual action in shaping all aspects of social life, which is wrapped up in the notion of "agency". For example, in terms of culture, determinists believe that "national culture" acts on everyone who shares the same physical and social environment. On the other hand, seeing culture in terms of context and meaning, anti-determinists argue that people develop concepts, names and shared understanding and meanings linked to their actions and behaviour. In terms of pedagogy, determinists [behaviourists] believe that knowledge is transferred from teacher to students and that instructions change students' behaviour in obvious and measurable ways. In contrast, anti-determinists [social constructivists] believe that learning is constructed based on learners' understanding of the world and on their reflection and experiences. In terms of technology, determinists believed that the technology, such as the VLE, determines how learning will take place based on a didactic approach. Conversely, an anti-deterministic view is that social actions shape the technology to construct meaning and knowledge.

The dichotomies and dualisms in general Information Systems research emphasize that "*we need to understand both the nature or shape of ICT, alongside human freedom in using it and how the two interact*" [Basden, 2018; p. 227]. Particularly in this research, a theoretical framework is needed to enable the author to:

- Explicitly take both context/environment and individual action into account.

- Differentiate and understand several kinds of context or environment [e.g. social, cultural, technological] and individual activity [e.g. social, cultural, technological activities].

- Understand the relationship between context/environment and individual action and social activities.

- Provide a model – rather than just a general approach – to overcome the dichotomy presented in each theory; one that will adequately reconceptualise all three themes of culture, technology and pedagogy simultaneously, as they are central to "E-Learning in multicultural contexts".

Over the years, scholars have taken various approach under the umbrella of "Socio-technical Theories" and "Socio-technical Design" to address the dichotomies or dualisms in Information Systems research. According to Singh, Wood and Wood-Harper [2007], "*the traditional goals of socio-technical design have been twofold: the humanization of work through better job design and increased democracy in both workplace and society as a whole*" [p. 505]. As a motivation to recognise both people and technology, the approach is useful, but it has also tended to be influenced by seeing 'socio' and 'technical' as opposing poles of a dualism that must somehow be brought together [Basden, 2018; p. 160]. A few socio-technical approaches are discussed in *Chapter Three*.

Table 2.1: Limitations of Pedagogical, Technological [E-Learning] and Cultural Theories

PEDAGOGICAL THEORIES
Behaviourist Mode of E-Learning [Deterministic Assumption]
1. Homogenous experience of context, thus ignoring individual learning styles and preferences and cultural diversity.
2. Limited pedagogical/educational models, e.g. VLEs support limited 'active' forms of learning and cross-cultural interaction/collaboration.
3. Not conducive to modification and personalization, thus unable to accommodate personal preferences and cultural diversity, and effect learning on a whole.
4. Content-driven, ignoring dialogue and interaction among users, thus not good at fostering conversational interaction and social networks such as cross-cultural collaborations/interactions.
5. Assessment activities based on a particular cultural framework, thus ignoring other cultural frames of reference.
Cognitivist Mode of E-Learning [Deterministic-Pragmatic Assumption]
1. Disregards Cultural Influences on the Design/Development of Learning Models
2. Focuses too much on the cognitive powers of individual student and focuses too little on the social context and on diversity
Constructivist Mode of E-Learning [Anti-Deterministic Assumption]
1. Too many choices and user-independence can overwhelm students.
2. Learners' experiences of 'authentic' learning tasks becomes questionable in the face of cross-cultural collaboration; are learning tasks 'authentic' to learners from various backgrounds?
3. Collaborative technologies such as mobile devices and web 2.0 applications are not appropriate for formal learning contexts, as they are not designed primarily for learning and are not possible with large groups of students in formal learning contexts.
4. Potential agency, ownership and control issues may result, given that the line between the creation and consumption of content in Web 2.0 environments is blurred [Maness, 2006].
TECHNOLOGICAL THEORIES
Technological Determinism [Underpinning Behaviourist E-Learning Design]
1. Behaviourist E-Learning Technologies take a technology-led approach, which pays inadequate attention to socio-cultural contexts
2. The social impacts of learning technology, such as a VLE, tend to be universal and generalizable, rather than unique and sensitive to the individual. It ignores the uniqueness of the situation

Anti-Determinism or Social Determinism [Underpinning Social Constructivist E-Learning Design]
1. Pays little or no attention to the role of the technical artefact in helping to shape social and cultural contexts.
CULTURAL THEORIES
Hofstedian-type Theories [Deterministic Assumption]
1. Ignores Heterogeneity within Nation-States
2. Disregards History
2. Deterministic in Nature: Treats Culture as Static Rather than as Dynamic
3. Inadequate for Explaining Relationship between "National" Cultural Values and Work-related Values
Geertz' Cultural Theory [Anti-Deterministic Assumption]
1. Few Guidelines for Assessing and Evaluating Cultural Interpretations.
2. Hard to Proceed in terms of Cumulative Knowledge with Geertz' Theory

2.5 Chapter Summary and Conclusions

In line with the first objective listed in *Chapter One*, this chapter has reviewed established theories of pedagogy, E-Learning [technology] and culture, and has discussed their limitations.   The implications of their limited conceptions for practice and multicultural settings were also discussed, using design flaws of current VLE systems, as illustrations. The chapter has concluded with a summary of the limitations of all three theories presented in *Table 2.1*. It was noted that these limitations relate to the dichotomy or dualism – determinism versus anti-determinism – with which each theory is accorded. Determinists tend to view the context or environment as influencing or exerting a constraining force on individual activity, which will be referred to as "structure" in *Chapter Three*. On the other hand, anti-determinists tend to focus primarily on the individual action in shaping all aspects of social life, which will be referred to as "agency" in *Chapter Three*. It is concluded that a theoretical framework is needed to overcome the dichotomy presented in each theory. In the next chapter a suitable framework will be selected which will attempt to address these limitations.

CHAPTER THREE

Socio-Technical Theories: Selection and Justification of a Theoretical Framework

"*Man is a Tool-making Animal*"   "*Man is a Tool-using Animal*"
[Benjamin Franklin; 1706-1790]   [Thomas Carlyle; 1795-1881]

3.1   Introduction

The preceding chapter discussed issues surrounding the dichotomous conceptualizations of "technology", "culture" and "education" in the E-learning literature and their implications for practice. This chapter discusses and selects a suitable theoretical framework to overcome the dichotomy of each of the phenomenon in the literature and improve practice.

Determinists tend to view the context or environment as influencing or exerting a constraining force on individual activity, which will be referred to as "structure" in this Chapter. On the other hand, anti-determinists tend to focus primarily on the individual action in shaping all aspects of social life, which will be referred to as "agency" herein. Dichotomies portray a lack of understanding of how structure and agency, the objective and the subjective, the physical and the social, mutually influence each other.

This chapter first reflects on the mutually emergent phenomena of technology, culture and education – employing the concepts of structure and agency – within a socio-historical setting. It then looks at a few socio-technical approaches, which combine both the technical and the social, in an attempt to overcome the determinism-antideterminism, structure-agency dichotomy in Information Systems research. Anthony Giddens' [1984] Theory of Structuration involving key concepts of agency, structure and transformation are then discussed, drawing upon examples from the

socio-historical reflections. The theory is selected as the most suitable framework for this research. Brief explanations of how technological, cultural and educational models of agency and structure could help to address the shortcomings in the literature and in practice are provided. The chapter concludes with the establishment of a Structuration Conceptual and Theoretical [SCT] framework which underpins an exploration into how VLEs are used in multicultural settings. Incorporated into this framework are key themes drawn from the discussions of this chapter and the previous one.

3.2 Technology, Culture and Education: A Socio-historical Concept and Context

The notions of agency and structure "*begin from temporality and thus, in one sense, 'history'*" [Giddens, 1984; p. 3]. In order to articulate and illustrate the concepts of structure and agency, this section reflects on the mutually emergent phenomena of technology, culture and education within a socio-historical context. The birth and development of learning technologies are also discussed.

In ancient times, people survived by interacting directly with their physical environment – hunting, fishing, gathering crops and making simple tools from natural resources found in their surroundings. Although nature directly provided their basic needs, nature also presented various constraints and dilemmas. In order to survive, each group of people in different regions had to organize itself in ways to deal most effectively with its environment, given its available resources [Trompenaars and Hampden-Turner, 2001]. The making and using of tools enabled these groups to meet their day-to-day needs and to solve their respective dilemmas. These technological and cultural activities also provided basic modes of education for people of ancient societies, which 'dominated the whole of history up to two centuries ago' [Giddens, 2001]. The concepts of agency and structure arose from these socio-historical experiences.

93

3.2.1 Technology

The term "*technology*" is derived from the Greek word '*technologia*': '*techne*' means art, craft; '*logia*' means word, speech.   Tools, in ancient times, were fashioned based on the tool-makers' mutual knowledge of how to create and use objects to shape their environment and solve problems.   As members of each community interacted during routine tool-making activities, they developed words [symbols] and socially-constructed meanings to represent the names and purposes of the tools they created. For instance, it is presumed here that an equivalent of the term "*spade*" was the symbol used by early humans to represent the tool they utilized for digging and cutting the ground. In the same way, other symbols and meanings emerged to represent various objects created during socialization. Effective social interaction during tool-making activities depended on the attributed meaning and the intended meaning coinciding [Trompenaars and Hampden-Turner, 2001]. Overtime, the familiar symbols became part of the language and means of communication – the "organization of meaning" – within a particular society.   These experiences, altogether, characterize technology in its original sense: "*Techne*" means art [know-how], craft [practical application of knowledge and skills]; "*Logia*" means word [symbol], speech.   It is seen in this scenario that the tool-makers' mutual knowledge of how to create and use objects to shape their environment and solve problems formed part of the ***social structure*** in a particular community.   The actual tool-making activities depicted the ***human agency***, which drew upon these social structures for enactment.

3.2.2 Culture

The phenomenon of culture mutually arose from the above human experiences and actions. The term "*culture*" is derived from the Latin word '*cultura*', understood simply as cultivation of the soil [Gurevich, 1989; p. 8].   The most basic value people strive for is survival [Trompenaars and Hampden-Turner, 2001].   Early human's ability to make and use tools enabled their means of subsistence, such as hunting or gathering crops, and enabled them to shape nature to address the dilemmas faced by

their respective societies. For example, groups of people who lived in low-lying lands close to the sea [e.g. the Dutch] encountered problems with rising tides. As part of the solution, these people made tools that enabled them to build sand-dunes or dykes to keep back the waters. On the other hand, groups of people who lived in areas where there is infrequent rainfall [e.g. the Malawian] encountered problems of drought. These people made tools that enabled them to dig or construct wells to collect rainwater whenever the rain falls. These instances of humankind's ability to shape their environment and solve problems characterize the phenomenon of culture, which means "*to cultivate*" or "*to till the soil: the way people act upon nature*" [Trompenaars and Hampden-Turner, 2001; p. 23]. It is seen that solving the dilemmas faced by different societies formed the *social structure* within a particular society. The actual soil-tilling and survival activities represented the human agency which drew upon this common knowledge or social structure for enactment. Based on these human activities and practices, it is argued that "***agency** is the active element of culture*" [Ratner, 2000].

Human actions surrounding tool-making [technology] and soil-tilling [culture] involved enculturation, "*a process of learning how to deal with the world and solving the myriads of problems it presents, according to the ways of a particular culture*" [Harris, 1993; p. 24]. Within this vein, it can be argued that the technological and cultural activities of the ancients created basic modes of education in early times, thus mutually constituting the process of teaching and learning. It can also be argued that such human actions gave birth to the making and using of learning technologies. The following subsection expounds upon these arguments, examining the original meaning of education and applying it to a detailed example on tool-making.

3.2.3   Education and Educational Technology

The word "*education*" is derived from the Latin root words, '*educare*' and '*educere*'. '*Educare*' means 'to train or to mould' [Craft, 1984], while '*educere*' means 'to lead out or draw out or bring forth that which is within the person' [Wilshire, 1996; Frazee

and Rudnitski; 1995]. Although the definitions of these root words are different, together they depict the process of teaching and learning.

In the absence of schools in early times, teaching and learning occurred largely within family settings and small communal groups. Children and new members learned the norms and values of society, and imitated local customs and practices which socialized them into the society. As it regards tool-making, for instance, intricate details such as form and material, methods of manufacture and of use, were preserved by social tradition, and were imparted by precept and example to each new initiate into that tradition [Childe, 1955; p. 39]. Thus the ancients made tools in a particular fashion largely because they were "*trained*" or "*moulded*" [educare] in the likeness of their parents and other experienced members within the community. On the other hand, tool-makers were not passive learners who merely received instructions and replicated the tools they were taught to make. Rather they processed or assimilated the information and instructions in such a way that produced new knowledge and thus new tools. For instance, Oakley [1955] asserted that 'tool-makers in successive generations not only copied, but occasionally improved on the products of their predecessors'. This suggests that in these instances, new knowledge was constructed during tool-making activities, which allowed tool-makers to exercise ingenuity and innovativeness. Viewed from this perspective, the new knowledge, potential and skills within each tool-maker were "*led out*" or "*drawn out*" or "*brought forth*" [educere] during tool-making activities, and were evident or embodied in the tools they made. Altogether, a more open-ended learning experience resulted, where the methods and results of learning were not easily measured and may not be the same for each learner [Mergel, 1998]. In summary, it is seen that the situated activities of tool-making served as the **social structure** for teaching and learning within particular groups or societies, and involved **agency** in the form of "learning by doing" – enactment.

Tool-making and soil-tilling activities of the ancient world played an important role not only in the emergence of informal modes of education but also in facilitating the

starting point for today's sophisticated learning technologies. As mentioned earlier, tool-making and tool-using involved an understanding of society's cultural dilemmas and needs in order to address them effectively. Therefore, in principle, the very act of tool-making – which is based on learning how to solve cultural dilemmas using technologies – gave birth to the use of technologies to facilitate learning. According to Cook et al [2007], "*Learning by tool-making is an attempt to put the user of technologies at the centre of the tool design process*" [p. 57]. Putting the user at the centre of the tool design process means that the user of a particular technology will have an idea of how to design tools that will match his or her cognitive capacities and will align with the cultural settings in which the tools will be used [ibid; modified]. Altogether, the use of technology in teaching and learning is not a new phenomenon. This experience can be traced back to ancient times, as outlined in *APPENDIX B*.

3.2.4 Technological, Cultural and Educational Concepts of Agency and Structure: Summary and Discussion

It is seen from the socio-historical reflections above, that routine survival activities of the ancients gave rise to the phenomena of technology, culture and education. Tool-making and tool usage involved knowledge and understanding of the world and of the society's value systems, so as to support those value systems. In this sense, education – teaching and learning – was implicated in the reflexive relations between technology and culture: technologies were fashioned and used based on the knowledge the ancients gained about their societies' cultural needs and dilemmas. Education in its original and socio-historical sense involved not merely the giving of instructions and the receiving of knowledge, but also the development and the "leading out" of learners' potentials through enactment, such as tool-making. Learning by tool-making, in principle, gave birth to the phenomenon of learning technologies, since the very tools that tool-users were learning to make also facilitated the learning process.

It is seen from the reflections that the ancients' routine activities such as tool-making and soil-tilling, provided a *structure* within which they operated. This structure –

which included the ancients' mutual knowledge and understanding of society's dilemmas, needs, norms and values – largely constrained social behaviour through a set of inherent rules for doing things a certain way. For example, during the enactment of tool-making, individuals performed within the constraints of the rules, procedures and available resources inherent in their society, which also enabled them to interpret the processes and participate in the tool-making activities. However, as pointed out earlier, tool-makers in successive generations did not merely replicate tools during their tool-making activities, but exercised ingenuity and innovativeness by improving upon the products of their predecessors. This ability of tool-makers to exercise autonomy in improving upon the tools of their predecessors, indicates that each tool-maker had different interpretations of the way of life and that each had the capability to do things differently – outside of the tool-making norms and the wider norms of society. Such ability also indicates that tool-makers were not passive learners who merely received instructions and information as a response to external stimuli, such as environmental conditions. While activities were to some extent pre-determined and "structured", education was not merely a goal of transferring knowledge from experienced members of society to tool-makers [**behaviourism**]. Rather, the tool-making instructions opened up the "black box" of the tool-makers' minds through problem-solving activities, providing a source of empowerment [**cognitivism**]. Tool-makers structured the information they acquired in a way such that it brought about changes in their cognitive structures resulting in the construction of new knowledge. Since tool-makers were actively engaged in the learning process, this provided an opportunity for them to be flexible and to explore different features that could be included during the tool-making process. The fact that new tools were produced provides evidence that something new was learnt. Though involving group or collaborative tool-making activities, such learning became an entirely unique product for each tool-maker [**social constructivism**].

Altogether, structure in each of the above scenario represents the particular contexts within which activities were undertaken and the implicit rules and procedures which governed these activities. Such structure was inherent both in the wider society and

in the minds of its individual members, to accomplish tasks and solve dilemmas. Agency represents the actual "doing" of the activities, the intentional process of accomplishing meaningful tasks and solving dilemmas, based on the existing structures.

While the principles of structure and agency work side by side naturally within a socio-historical context, modern theorists tend to view them as two contrasting, incompatible approaches to sociology. The view of structure and agency as being opposing and incompatible has also influenced Information Systems research and the learning technology literature. This is evident in the conceptualizations of "technology", "culture" and "education", as being entirely objective or entirely subjective. These issues were discussed in *Chapter Two*.

Over the decades, attempts have been made to overcome dualisms in Information Systems research under the notion of socio-technical approach, which is discussed in the next section.

3.3 Socio-Technical Theories: Attempts to Overcome Dichotomies/Dualisms in Information Systems Research

A socio-technical perspective attempts to overcome the limitations inherent in viewing IS development either as primarily a technical, rational and controllable process to be engineered or managed, or as a social process involving actors in various political, cultural or interactional roles [McLeod and Doolin, 2011; Doherty and Kling, 2005; Robey et al, 2001]. Originating in the 1950s, the Socio-technical approach was applied to the IS field by Enid Mumford in a set of principles, under the acronym ETHICS [Mumford and Weir, 1979], and its main focus was on issues like job satisfaction when working with technology [Basden, 2018; p. 160]. Later, case studies of its use and subsequent refinement were published [see Mumford, 2006].

In the traditional socio-technical perspective, the technical perspective is often condensed to a minimum [Geihs and Hoffmann, 2014]. However, a more holistic approach is one in which the balance between social and behavioural aspects of system development are matched with technical aspects of system development [Ibid]. Three socio-technical approaches are discussed in *Subsection 3.3.1 – Subsection 3.3.3*. Their potential strengths as a theoretical framework as well as their weaknesses are discussed in relation to this research thesis.

3.3.1   Soft Systems Methodology [SSM]

3.3.1.1 Background of SSM

Soft Systems Methodology is the brainchild of Peter Checkland, who, along with his collaborators such as Brian Wilson, Jim Scholes and David Smyth, developed SSM [soft systems thinking] as an alternative approach to the Systems Engineering approach [hard systems thinking].

Soft Systems Methodology was developed to tackle organisation-based problem situations that are highly complex and subject to the multiple interpretations or perceptions of the people involved [Wilson and Van Haperen, 2010]. Thus SSM is essentially an approach for structuring messy, uncertain and ambiguous situations so that other approaches and techniques can be brought to bear to arrive at 'solutions' that are capable of implementation within the cultural environment specific to the situation [Checkland, 1980; Checkland and Wilson, 1981; Wilson, 1990, 2001; Wilson and Van Haperen, 2010].

3.3.1.2 SSM Aims to Explain

Understanding the difference between hard systems thinking and soft systems thinking is the crucial step in understanding SSM. The distinction between 'hard' and 'soft' systems thinking stems from how the word 'system' is used. In everyday language, 'system' is usually a label-word for part of the world – such as legal system, education system, transport system, etc. – which reinforces the assumptions

of 'hard' systems paradigm. Hard systems thinking has a "*taken-as-given assumption that the world can be taken to be a set of interacting systems, some of which do not work very well and can be engineered to work better*" [Checkland and Scholes, 2005; p. A10]. In the sense of soft systems thinking, the word 'system' is no longer applied to the world, but instead applied to the process of our dealing with the world – making sure the process of inquiry into real-world complexity is itself a system for learning. Soft systems thinking takes the world to be very complex, problematical and mysterious, but assumes that our coping with it can itself be organized as a learning system. While hard systems thinking is appropriate in well-defined technical problems, soft systems thinking is more appropriate in fuzzy ill-defined situations involving human beings and cultural considerations.

Altogether, SSM is a sense-making approach, which, once internalized, allows exploration of how people in a specific situation create for themselves the meaning of their world and so act intentionally [Checkland and Scholes, 2005; p. A4].

3.3.1.3 *How SSM Achieves its Aims – Description of the Model*

SSM makes a conscious distinction between the messy and complex bit of the 'real world' [which is the subject of some form of investigation] and a reference [conceptual] model, which is used to structure the investigation [Wilson and Van Haperen, 2010]. According to Wilson and Van Haperen, the reference model is a systems model, in which the activities could be undertaken by people and which can be argued to be coherent. It is derived by, first of all, defining a purpose [or purposes] relevant to the bit of the real world of interest and by then describing 'what' must be done to achieve the purpose [or purposes]. The translation of the defined purpose into the activities [i.e., the 'what' must be done] uses logic only and leads to a defensible model of a purposeful activity system, which can be shown also to be coherent. This becomes a very powerful device for investigating situations which can be anything but coherent. As the reference model is explicit, it forms part of the complete audit trail for the investigation providing total defensibility of the approach. In summary, SSM is represented as a seven-stage model, which entails:

Stage 1: Entering the problem situation which is usually messy and not suitable for hard systems methods, and finding out as much information as possible [e.g. cultural or political];

Stage 2: Expressing the nature of the problem situation, by drawing rich pictures to show the complexity of human affairs and the complexity of multiple interacting relationships;

Stage 3: Formulating root definitions – tightly constructed descriptions of the human activity system to be modelled, which state what the system is – by using the crucial CATWOE technique:

   C: Customers, the beneficiaries or victims of the system's activity.

   A: Actors, the persons who carry out one or more of the activities in the system. They transform inputs into outputs.

   T: Transformation Process, is the core process of a human activity system, which is expressed as the conversion of some input into some output [e.g. raw materials into manufactured products].

   W: Weltanschauung or Worldview, the wider image or model of the world which makes this particular human activity system [with its particular transformation process] a meaningful one to consider.

   O: Owner or System Owner, the person[s] who own the process or situation being investigated and actively seek improvement, and who could modify or demolish the system. This person has the power to start up and shut down the system.

   E: Environmental Constraints, the external elements or impositions which the system takes as given and must be considered [e.g. organizational policies as well as legal and ethical matters].

Stage 4: Building conceptual models based on the human activity systems' root definitions, in which procedures and tasks are usually described using a structured set of verbs;

Stage 5: Comparing the expression of the problem situation – the reality [Stage 2] with the conceptual models of relevant systems [Stage 4].

Stage 6: Defining changes to the situation which are feasible and desirable [i.e. problems to be tackled].

Stage 7: Implementing changed processes – application of the model.

Once the model has been applied, any conversion of input to output should be judged successful or unsuccessful using three criteria, or the '3 Es' [Checkland and Scholes, 2005; p. 39]: *Efficacy* – whether the means chosen actually works in producing the output ['does the means work?']; *Efficiency* – whether the transformation is being carried out with a minimum use of resources ['amount of output divided by amount of resources used']; and *Effectiveness* – whether the transformation meets the longer term aims. A transformation which works and uses minimum resources might still be regarded as unsuccessful if it were not achieving the longer term aim ['is T meeting the longer term aim?'].

Checkland later provided a more refined and sophisticated version of the systemic method, seeing CATWOE as an FMA model. However, the earlier classical view is still the most widely used in practice.

3.3.1.4 *Possible Strengths of SSM in Relation to this Research*
SSM gives consideration to complex organizational and political situations, and it can enable the researcher to look for a solution that is more than technical. This research on multiculturalism and VLE usage seeks to differentiate and understand several kinds of socio-cultural assumptions and individual actions. SSM, through its rich picture, can facilitate this. Also, this research needs a model, rather than just a general approach to understanding the use of VLEs in multicultural contexts. SSM has a step-by-step model with specific techniques that could be useful for addressing cultural or "messy" problems.

3.3.1.5 Weaknesses of SSM in Relation to this Research

While SSM has a model which may help the researcher to some extent to address messy problems via its rich pictures, SSM does not explicitly take both context/structure and individual action into account in an extensive way. Thus it will not enable a theoretical understanding of the relationship between structure and individual action in a reciprocal way. Neither the classical nor the new version of SSM help in this research on VLEs in multicultural contexts.

3.3.2 Multiview Methodology [MVM]

3.3.2.1 Background to Multiview Methodology

The main contributors to the Multiview Methodology are Trevor Wood-Harper and David Avison – [e.g. Avison and Wood-Harper, 1990; 1991; Wood-Harper and Avison, 1992] – [Avison et al, 1998]. However, the methodology was originally the brainchild of Wood-Harper [see Wood-Harper, 1989]. Its initial formulation took four years to develop through a mixture of practice and fieldwork and it was evident that the participants only fully understood it after using the methodology in an action-learning situation [Wood-Harper, 1989; Wood-Harper and Wood, 2005].

The motivation for the development of the Multiview methodology was the perception by Avison and Wood-Harper [1990] of a range of problems with both conventional and structured methodologies [Avison, Wood-Harper et al, 1998]. Thus, Multiview arose by reaction against "technical rationalities" embodied in the Waterfall Model and a lack of interest in the goodness of fit of ICT [Basden, 2018]. The methodology is primarily concerned with the application of interpretivist and action research orientated approaches to information systems applications largely in academic teaching settings [Bell and Wood-Harper, 2014]. It aims "*to make explicit, the links and relationships between a given "computer resource" and the social and political context within which the particular resource was developed and subsequently used*" [Wood-Harper and Wood, 2005; p. 26].

The foundations of Multiview as an enquiring framework for IS development rest on a recognition that the needs of computer artefacts, organizations, and individuals must be considered jointly [Avison, Wood-Harper et al, 1998; p. 126]. Thus it adopts a multiple perspective approach that incorporates the technical [T], the organizational [O] and the personal [P], which constitute its central theme. Altogether, the Multiview framework is used to inform the emergence of a situation-specific methodology, which should result from a genuine engagement of the analyst with the problem situation. As a methodology, Multiview has evolved into three versions – Multiview1, Multiview2 and Multiview3.

3.3.2.2 *Multiview Aims to Explain*

Similar to SSM, Multiview is a sense-making approach. According to Avison et al [1998], Multiview is "more usefully seen as a metaphor which is interpreted and developed in a particular situation, rather than as a prescriptive description of some real-world activity" [p. 126]. The framework is used to inform the emergence of a situation-specific methodology, which should result from a genuine engagement of the analyst with the problem situation [Avison et al, 1998]. Avison and Wood-Harper [1990], for instance, based the articulation of the Multiview approach "upon a series of real-world interventions that they then tried to make sense of by using a variety of "theoretical languages", in order to make sense of both the technical and the social worlds that were under investigation" [Wood-Harper and Wood, 2005; p. 26]. The locally-situated methodology provides the context for the choice of methods and techniques, such as object-oriented design and job satisfaction surveys, that will be used to get things done [Avison et al, 1998; p. 126].

3.3.2.3 *How MVM Achieves its Aims – Description of the Model*

Multiview approach looks at both the human and the technical aspects of IS development, and is a contingency approach, in that it is adapted according to the particular situation in the organization, the skills of different analysts, and the situations within which they were constrained to work [Avison et al, 1998]. Multiview is represented as a five-stage model, which includes:

Stage 1: Analysis of human activity – How is the Information System supposed to further the aims of the organisation using it?

Stage 2: Analysis of information – How can it be fitted into the working lives of the people in the organisation using it?

Stage 3: Analysis and design of socio-technical aspects – How can the individuals concerned best relate to the computer in terms of operating it and using the output from it?

Stage 4: Design of the human-computer interface – What information processing function is the system to perform?

Stage 5:   Design of technical aspects or user interface – What is the technical specification of a system that will come close enough to meeting the identified requirements?

The five stages move from the general to the specific, from the conceptual to hard fact, and from issue to task [Avison et al, 1998]. The first four "*emerge theoretically from the interaction of two dualities: socio-technical and reductionist-systemic*" [Basden, 2018; p. 328].

Despite Multiview being a construction of the best aspects from other methodologies, it demonstrated weaknesses in practice [Wood-Harper and Wood, 2005]. Three of the weaknesses manifested during the various studies were that, firstly, the original formulation of the methodology did not take into account the different interest groups in the situation, and thus the identification of stakeholders during the human activity phase is now seen as being crucially important. Secondly, within the methodology the identification of information from the activity model was shown to be overly simplistic. Thirdly, the methodology did not include a formal phase in which to evaluate both the changes and the change process in-context [Ibid, 2005; p. 28]. Thus, in using Multiview across a wide range of action research projects, the original authors – Avison and Wood-Harper [1990; 1991] and Wood-Harper and Avison

[1992] – identified a number of lessons learned which yielded a new model, Multiview2 [Basden, 2018; Avison et al, 1998]. Chief among these being that each IS development situation is unique, the development process is understood differently from different perspectives, methodologies evolve, system definition is a social process and ethics is important [Basden, 2018; Wood-Harper and Wood, 2005; Avison et al, 1998]. The original authors began to see similarities between ICT development and research, and by reference to other theories, such as Habermas' [1972] idea of knowledge interests, Giddens' [1984] Structuration Theory and Latour's [1993] Actor-Network Theory [ANT], expanded a scope of Multiview2 to include the relationship between analyst, methodology and situation [Basden, 2018; Avison et al, 1998].

The second mode for Multiview was introduced in 1998 [e.g. Avison et al. 1998], and its elements could be seen as being more fluid, more systemic in relationship than sequential in stage [Bell and Wood-Harper, 2014]. In the Multiview2 framework, the interpretive scheme is drawn on when developing and deploying information systems [action] in an organizational context [structure], and its information system definition comprises four components: organizational analysis, information system modelling, sociotechnical analysis, and software development [Avison, 1998]. The design of the user interface disappeared, being reduced to 'software development', but then was reinstated by Vidgen [2002], albeit squeezed between the social and technical and inexplicably limited to the reductionist side [Basden, 2018; p. 328]. Multiview2 takes account of the practical experiences of Multiview1, and moves the methodology on, widening its applicability and usefulness in the light of changing organizational forms and emerging technologies [Avison et al, 1998].

Figure 2.2: **The Multiview Methodology [Avison and Fitzgerald, 2003; p. 506]**

Organizational Analysis	**Information Modelling**
Socio-technical Analysis and Design	**Technical Design**

Mediation
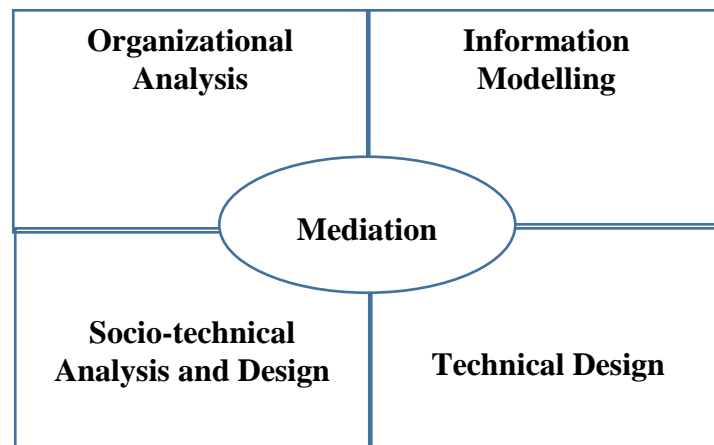
Altogether, the principal differences from Multiview1 to Multiview2 are: the content of the methodological framework is extended to incorporate software development and production operation; a tendency towards an apparent waterfall life-cycle is replaced by mediation and the struggle to make separations; and a multiple perspectives are adopted to give insight into the unfolding of the IS development process in practice [Avison et al, 1998]. Multiview2 provided a strong sense of innovation from method to methodology; from recipe approach to reflective IS development, towards a freer and more epistemologically self-knowing form of exploration [Bell and Wood-Harper, 2014; p. 6].

The innovation of the Multiview3 methodology for Information systems analysis, design and development was specifically designed for non-specialists working in developing countries [Bell and Wood-Harper, 2014]. The innovation emerged from the identification of a methodological 'gap' in support for non-specialists struggling with Information Systems problem structuring challenges. Primarily, Multiview3 was innovated from working with professionals and Continuing Professional Development students from developing countries [as opposed to Information Systems practitioners and doctoral students].

Multiview3 aims to explain how IS methodology can be innovated to address the needs of users, and it is argued to be theoretically distinct from previous versions in terms of its focus [developing countries] and application [problem solving and co-learning in practice] [Ibid, 2014]. According to Bell and Wood-Harper [2014], in theoretical terms Multiview3 has three primary foci, all of which can be seen as being problematic in developing country context:

1. To sustain the tradition of the approach as a multiple-perspective methodology, which is of primary importance if the approach is to have value for a variety of stakeholders in diverse cultural and technical contexts. However, it raises the problem of requiring the IS practitioner or learner to have capacity to engage with a wide range and challenging set of analysis, design and development skills.

2. To evolve the methodology as a planning and design approach applicable for the use of non-specialists in IS, which is a significant departure from earlier versions of Multiview. Developing countries differ widely from each other, and to some extent the term 'Developing Country' is problematic. What does it signify? How does it affect decision making? These and other questions require caution in the extrapolation of ideas which represent developing countries as a whole.

3. As a means to improve reflectivity in practice, Multiview3 was engineered to provide those engaged in analysis and design with an explicit means to record and reflect the perspective of the analyst/ analyst group from within the IS enquiry. However, this requirement adds the task and therefore potential problem of requiring the MV3 analyst to engage in active reflection on practice.

Notwithstanding the challenges, Bell and Wood-Harper [2014] argued that these three foci can contribute sequentially to the wider historic legacy of Multiview. They provided examples to help demonstrate the way Multiview3 was experienced. The authors, for example, looked at the manner in which Multiview3 was applied to a case which was developed in China, related to the development of a Financial Appraisal System, in order to provide insights into its practicalities. They also provided a table of "example projects with MV3 from UEA", which lists the various

developing countries, the type of innovation and the year in which the Multiview3 projects were undertaken, among other things. Bell and Wood-Harper concluded that

"*whilst Multiview3 is not an exemplar of 'anything goes' it does relate to the need to innovate methodology into the gaps where existing methodology does not reach, in this case primarily the non-specialist structuring IS issues in developing countries*" [p. 20].

3.3.2.4 *Possible Strengths of MVM in Relation to this Research*

Multiview methodology is good for technology development in this thesis as it goes beyond the technical. However, for pedagogy it is good in terms of lessons learnt for systems development but not for systems use, such as academic learning in terms of completing pedagogical tasks supported via the VLE technology, which is the main focus of this research. From the perspective of culture, MVM in general is a pluralistic approach. MVM3 in particular, recognizes the importance of culture and cultural differences particularly from the perspective of developing countries. However, it does not provide a theoretical understanding of culture, cultural differences and individual action. It also analyses human activity [agency] and information as well as context [structure].

3.3.2.5 *MVM's Weaknesses in Relation to this Research*

While MVM1, MVM2 and MVM3 are good for the development of technology and might take culture and pedagogy into consideration, none of the versions has developed a concept of culture or teaching and learning which could help with the cultural and pedagogical aspects in this research. For instance, as it regards culture, MVM only points to culture and developing countries as being important, but it has no theoretical basis for understanding culture. Structuration theory provides a strong theoretical understanding about the relationship between human activity [agency] and structure [culture], while MVM does not have such a strong theoretical understanding of the nature of the relationship between cultures and individuals.

From the viewpoint of pedagogy, MVM gives help with "co-learning", which is one aspect of pedagogy. However, it is not the kind of pedagogy that is needed in this

research. This research needs a concept of pedagogy in which students learn as they interact with staff who provide the basis for students being able to learn, and might even teach. Thus the concept of pedagogy or learning in this thesis is different from a Multiview perspective in two ways: Firstly, the co-learning that is mentioned in Multiview concerns learning about development of an information systems, whereas in this research the Information System is intended to assist in learning about any subject matter. Thus, MVM entails learning about Information Systems development, whereas in this research the VLE is the Information Systems helping learning. Secondly, there is a symmetric co-learning relationship among partners in the ISD project, where as in this research there is an asymmetric pedagogical relationship between staff and students, although students might co-learn together. From the viewpoint of this research, Structuration provides a basis for studying all three themes simultaneously – culture, technology and pedagogy.

3.3.3 Materiality and Socio-Materiality of ICT

3.3.3.1 Background of Materiality and Socio-Materiality

As seen in *Chapter Two*, in an attempt to address technological determinism which dominated the discourse about the role of ICT in society, social constructivism of technology became the dominant paradigm [Basden, 2018]. "*This has led to a tendency to ignore what has become known as materiality of ICT*" [Ibid; p. 227]. Writers in the two schools of thought "end up 'struggling with a dualism between "technology" and "the social". Does technology…determine, or is it determined by, the social?' [Grint and Woolgar, 1997; p. 21].

The materiality of ICT discourse emerged in the 1990s, when the "modes of existence of things" were called into question by elements like the digitalization of societies and organizations; the disembodiment of agency; and the increasingly distributed modalities of collective activity supported by mobile technologies, digital nomadism, and collaborative platforms and spaces [Pozzebon et al, 2017; p. 537].

111

Hutchby [2011] proposed and illustrated a way of analysing the technological shaping of sociality, drawing on the concept of affordances [Gibson 1979], to argue for a recognition of the constraining as well as enabling materiality of artefacts. His argument is set in the comprehensive statements of anti-essentialism [Grint and Woolgar, 1997], a principled opposition to the view that technological artefacts have any inherent properties outside the interpretive work which humans engage in to establish what those artefacts 'actually are' [pp. 442-443]. To anti-essentialists, what counts as 'the technology' is just as much the outcome of interpretive accounts – some more persuasive than others – as is what counts as the technology's 'uses' or 'effects'. Thus, Hutchby's concept of affordance is grounded in the materiality of the technology as a worldly object. 'Materiality' is not thought of only in physical terms, "but rather to the fact that there is something 'there' in ICT that is beyond social or even individual construction" [Basden, 2018; p. 227]. For instance, the telephone may be thought of as having a materiality affecting the distribution of interactional space, through the promotion of conversation at a distance [Hutchby, 1997].

Hutchby proposed an approach which offers a reconciliation between the opposing poles of constructivism and essentialism or technological determinism. This involves seeing technologies in terms of their affordances – functional and relational aspects of technology which frame, while not determining, the possibilities for agentic action in relation to an object. In this way, technologies can be understood, "without falling back into technological determinism" [Basden, 2018; p. 227], as artefacts which may be both shaped by and shaping of the practices humans use in interaction with, around and through them [Hutchby, 1997]. According to Hutchby, different technologies possess different affordances, and these affordances constrain the ways that they can possibly be 'written' or 'read'. For example, the affordances of an aeroplane and a bridge render different [though sometimes overlapping] ranges of uses and subjects those possible uses to different ranges of effects and constraints. Affordances may differ from species to species and from context to context. An aeroplane can offer a range of affordances which a bridge cannot and vice versa. Therefore, our interpretations and uses of technological artefacts, while important,

contingent and variable, are constrained in analysable ways by the ranges of affordances that particular artefacts possess. Freedom in their use is not infinite and arbitrary. The concept of affordance, according to Hutchby, helps to avoid the arbitrariness of the radical constructivist position, with its single-minded view and to evade the equally unilateral epistemology associated with technological determinism.

Within the materiality discourse, there is an embedded stream that focuses more specifically on socio-materiality. Socio-Materiality was promoted in the IS discipline primarily by Wanda Orlikowski and Susan Scott. After publication of two seminal papers, [Orlikowski, 2007; Orlikowski and Scott, 2008], many researchers either adopted or were significantly influenced by the socio-material approach [Tuncalp, 2016]. Other important influences might be found among the writings of Suchman [1987], Pickering [1995], Latour [2005], Orlikowski [2005], Leonardi [2013], and Barad [2013], whose contributions have provided some of the keywords found in the socio-material vocabulary: material, materiality, devices, apparatuses, intra-action, affordance, entanglement, and performativity [Pozzebon et al, 2017; p. 537].

Socio-material scholars have attempted to overcome the dichotomy between the social and material worlds by concentrating on the practices within organizations, practices that are constituted by, but also produce, material and social dynamics [Pozzebon et al, 2017]. While the materiality of ICT helps us to understand the nature or shape of ICTs, Orlikowski [2007] argued that much of the organizational studies literature disregards or ignores the everyday materiality of organizing. Specifically, she argued that we should recognize that all practices are always and everywhere "socio-material", and that this socio-materiality is the constitutive entanglement of the social and the material in everyday life.

3.3.3.2 *Socio-Materiality Aims to Explain*
Socio-material approaches focus on the relationship between technologies as material tools and social framing [Mifsud, 2014]. It offers an approach which takes into consideration "both the human/social side and the material/technological side equally

seriously" [Basden, 2018; p. 227].   Thus, socio-materiality brings the promise of better capturing the richness of novel, relational, indeterminate, and always emergent contemporary organizing where the social and the material cannot be separated [Pozzebon et al, 2017]. According to Orlikowski,

> "*everyday organizing is inextricably bound up with materiality and contend that this relationship is inadequately reflected in organizational studies that tend to ignore it, take it for granted, or treat it as a special case*".

3.3.3.3 *How Socio-Materiality Achieves its Aims – Description of the Model*

No clear picture has emerged yet of what materiality or socio-materiality is or how it functions [Basden, 2018]. However, in their work, Orlikowski [2007]; Orlikowski [2010]; and Orlikowski and Scott [2008], draw on some empirical examples to help ground and illustrate the socio-materiality approach in practice.   For instance, Orlikowski [2007] drew on the activities of information search and mobile communication to "*illustrate how we may begin to examine the constitutive entanglement characterizing socio-material practices*" [p. 1439].

While socio-materiality could potentially overcome dualisms, Tuncalp [2016] pointed out a few weaknesses: First, as constitutive entanglement conflates the material and social into what is analytically and phenomenologically the same assemblage creates a series of ontological problems Second, this creates an incomplete framework to explain different circumstances actors may face with material and/or social situations in organizations. Third, by combining the material and the social, we may actually limit our understanding of distinctly material and social issues. Also, constitutive entanglement undermines our understanding of the very nature of the social as a priori and independent from the material, and also where the material might exists independently or may be socially constructed [Tuncalp, 2016; p. 107]. These drawbacks can only be avoided using a recursive but separatist understanding, which was already available in socio-technical systems perspective [Tuncalp, 2016; Leonardi, 2012].

3.3.3.4 *Possible Strengths of Socio-Materiality in Relation to this Research*

Materiality reminds us that there is more than just social construction of technology [subjective side]. Thus materiality can help us to understand the technical side of technology and pedagogy. However, it does not go all the way to address the social aspects, and therefore it does not address culture.

Socio-materiality might be an approach the researcher could use since she wanted to bring objectivity and subjectivity together. It tells us that we need to bridge objective-subjective gap. However, it has a few weaknesses which may still leave a void in addressing the social and the technical.

3.3.3.5 *Socio-Materiality's Weaknesses in Relation to this Research*

The author of this thesis is looking for a framework that can support and help to understand the rich pictures involving pedagogy, culture and technology. However, socio-materiality does not have a model. Although it has a "socio" or social side, it does not really separate pedagogy from culture. Moreover, while it tries to bring the social aspects and the technological aspects together, neither side can support the rich picture of the three themes of technology, culture and pedagogy, which are central to the "E-Learning in Multicultural Contexts" – a priority in this research. In addition, as mentioned earlier, Tuncalp [2016] pointed out that constitutive entanglement undermines our understanding of the very nature of the social as a priori and independent from the material, and also where the material might exists independently or may be socially constructed. These drawbacks can only be avoided using a recursive but separatist understanding, which was already available in socio-technical systems perspective [Tuncalp, 2016; p. 107]. For this reason, Structuration theory could help in providing a socio-technical solution in addressing the dualisms of culture, technology and pedagogy. A precise model, rather than just a general approach is needed for this research. Structuration theory allows the researcher to come up with a more precise model, that just superficial proposals about VLEs in multicultural settings.

3.3.4 SSM, MVM and Socio-Materiality: Conclusion in Relation to this Research

As mentioned toward the end of Chapter Two, this research needs a theoretical framework that will enable the author to: 1] Explicitly take both context/environment and individual action into account; 2] Differentiate and understand several kinds of context or environment [e.g. social, cultural, technological] and individual activity [e.g. social, cultural, technological activities]; 3] Understand the relationship between context/environment and individual action and social activities; and 4] Provide a model – rather than just a general approach – to overcome the dichotomy presented in each theory; one that will adequately reconceptualise all three themes of culture, technology and pedagogy simultaneously, as they are central to "E-Learning in multicultural contexts".

None of the Socio-Technical theories discussed above is entirely suitable. Hence Anthony Giddens' [1984] Theory of Structuration, which views human action and structure as two aspects of the same whole [a duality], will be employed as the theoretical framework in this research. The theory is explored in the next section.

3.4 The Theory of Structuration

Anthony Giddens [1984] has developed his Theory of Structuration over thirty years, as a response to the dualism he perceived in sociological enquiry between structures, such as society and social systems, and human agency or individual action. Structuralists and Functionalists, such as Marx, Parsons and Levi Strauss, have largely given explanations of social behaviour in terms of structural forces which constrain people to do things in particular ways [Rose, 2000]. Focusing on society and the social system, social structures were viewed objectively as external and constraining forces that have deterministic impact on members of society. On the other hand, other traditions in sociology, such as hermeneutics and phenomenology have concentrated on the human agent as the primary actor in, and interpreter of, social life [Rose, 2000]. Focusing mainly on the individual and social action, human agency was viewed subjectively.

In an attempt to overcome the division between structure and human agency, Giddens introduced the single theoretical framework of '*Structuration*', a theory which posits that structure and agency are mutually constituted; one does not determine the other exclusively. It is through this mutual constitution of structure and agency that social life and structural properties are produced, reproduced and transformed. Human agents utilize the rules and resources embedded in structural properties – created by their actions – to accomplish their day-to-day activities. Structure, therefore, is both the medium and outcome of the social activities it continuously organizes over time and space. This "duality of structure" is the central premise of Giddens' theory of Structuration. Contrary to the objectivists view of structures as merely constraining forces upon human agency, the duality of structure also highlights that "*structure is not to be equated with constraint but is always both constraining and enabling*" [Giddens 1984; p. 25]. Further, it is important to note here that Giddens regards structure as existing in the human mind, only as memory traces, rather than as physical, external constraints.

"From a theoretical standpoint, the main contribution of structuration is not in its conception of either action or structure, but in their reconciliation in the duality of structure" [Halperin, 2016; p. 280]. The key elements of the theory of Structuration are expounded upon in the ensuing subsections, using appropriate examples from earlier reflections on the socio-historical contexts of technology, culture and education.

3.4.1 Structure

Giddens [1984] defines structure as rules and resources which are recursively implicated in the reproduction of social systems across time and space. Giddens argues that the vast 'stocks of mutual knowledge' that exist in any given society provides a structure which is inherent in the capability of human beings to 'go on' within the routines of social life [p. 4]. Structures exist in the human mind and are enacted only in and through interaction, when actors draw upon structural rules and

resources. According to Giddens, "structure exists only as memory traces – the organic basis of human knowledgeability – and as instantiated in action" [Giddens, 1984; p. 377]. Thus structure has no real existence, but merely a 'virtual' existence in the practices that they organize [Scott, 1995]. Structure consists of rules and resources. There are semantic, moral and power-exercising aspects of rules and material and non-material forms of resources.

3.4.1.1 Structural Rules

Rules of social life are "techniques or generalizable procedures applied in the enactment or reproduction of social practices" [Giddens, 1984; p. 21]. There are three kinds of structural rules: structures of signification; structures of domination and structures of ligitimation. *Structures of Signification* are the shared semantic aspects of rules that inform interaction and organize the procedures for the construction of meaning during communication. *Structures of domination* are the resource aspects of rules that inform the exercising of power. *Structures of legitimation* are the moral or evaluative aspect of rules which inform the judging of individuals' conduct – behaviour and actions.

Actors are generally unconscious or partially conscious about the procedural rules embodied in their actions. Nonetheless, the constitutive 'formula' of how to proceed allow actors to perform their activities automatically in a routinized way.

3.4.1.2 Structural Resources

Resources are structured properties of social systems, drawn on and reproduced by knowledgeable agents in the course of interaction' [Giddens, 1984; p. 15]. Structural resources are of two kinds: authoritative resources and allocative resources. According to Giddens, "*any co-ordination of social systems across time and space necessarily involves a definite combination of these two types of resources*" [p. 258]. Authoritative resources result from the ability of some people to dominate others. In all societies there is a "*division between those who hold authority and those who are largely excluded from it, between rulers and ruled*" [Giddens,

2001; p. 17]. Such social structures help to maintain a controlled manner in which humans behave generally and toward one another. This is evident in government, families, classes, status groups and organizations. Allocative resources result from the ability to dominate over material products or aspects of the natural world. Resources or facilities are not fixed, but rather they form the media of the expandable character of power in different types of society [p. 258]. Authoritative and allocative resources together, constitute structures of domination outlined earlier. Power is generated from the ways in which these resources are controlled and used.

Altogether, structure is seen as the rules of behaviour and the ability to deploy resources for any given action and social context [Walsham, 2002].

3.4.2 Agency

Giddens' [1984] concepts of 'agent' and 'agency' portray the ability of people – or actors – to create, shape and reshape social structures through their constant negotiation with the outside world. Using the Oxford English Dictionary's definition of an agent as '*one who exerts power or produces an effect*', Giddens argues that agency implies power [p. 9]. According to Giddens, "*action depends upon the capability of the individual to 'make a difference' to a pre-existing state of affairs or course of events*" [p. 14]. Thus he maintains that action logically involves power in the sense of 'transformative capacity'.

Given that structures form the basis of human knowledgeability, the ability to create and recreate structures is not independent of the agents' knowledge or 'familiarity with the forms of life expressed in their day-to-day activities' [p. 3]. In this regard, Giddens [1984] purports that "all social actors, all human beings are highly 'learned' in respect of knowledge which they possess and apply, in the production and reproduction of day-to-day social encounters" [p. 22]. For example, the Dutch and the Malawian were knowledgeable about their respective societies' dilemmas and therefore produced tools that enabled them to build dykes to keep back the water or tools that enabled them to construct wells to collect rainwater whenever the rain falls.

3.4.2.1   The Individual Agent

Giddens argues that the actions of knowledgeable human agents incorporates the reflexive monitoring, rationalization and motivation of actions.   Giddens' stratification model of the agent – illustrating personality and action – distinguishes between the reflexive monitoring of action, the rationalization of action and the motivation of action.   Drawing on Freud and Eriksons' psychological theories, Giddens further explains action in his theorem in terms of three levels of consciousness within the individual: unconsciousness, practical consciousness and discursive consciousness. These are illustrated in *figure 3.1* and are discussed below.
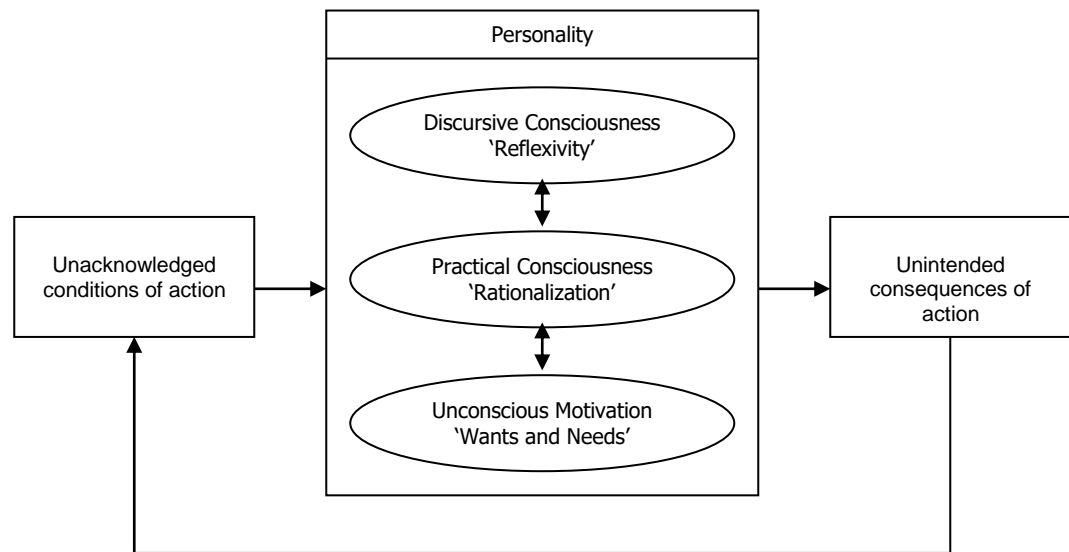
Figure 3.1: **Giddens' Model of Personality and Action [Adopted from: Scott, 1995; p. 205]**

- The *reflexive monitoring of action* concerns the agents' inherent knowledge of what they do and the capacity to understand what they do, while they do it. Actors routinely observe and understand the flow of their activities and expect others to do the same for their own. Reflexive monitoring involves either or both of discursive consciousness and practical consciousness. Thus competent agents are usually able to explain most of what they do, if asked [discursive consciousness]. However, much of the 'mutual knowledge' incorporated in a given society is practical in character: it is inherent in the capability of actors to "do" things [practical consciousness or tacit knowledge]. Tacit knowledge is

difficult to articulate or put into words. Giddens points out that actors also monitor the social and physical aspects of the contexts in which they move, reflecting on the planned and unplanned effects of their intentional actions and on changes in their environment. This reflexive monitoring of actions and their consequences form the basis for the agents' subsequent actions, which are not necessarily repetitions of what they have done before [Walsham, 2001].

- The *rationalization of action* entails the agents' ability to articulate and specify the reasons for action. Because competent actors reflexively monitor their actions – 'keeping in touch' with the grounds of what they do, as they do it – they have the capability to supply reasons for their activities, if asked. Thus rationalization involves accountability. According to Giddens, to be 'accountable' for one's activities is both to give the reasons for them and to supply normative grounds whereby they may be 'justified'. Rationalization always involves discursive consciousness or verbalization.

- The *motivation of action* refers to the unconscious wants and needs – the motives – which prompt action. "*While competent actors can nearly always report discursively about their intentions in, and reasons for, acting as they do, they cannot necessarily do so of their motives*" [1984a; p. 6]. Giddens argues that human agents have a basic desire for some degree of predictability, order and stability in social life. Such psychological desire is grounded in what Giddens calls the need for 'ontological security' – "*confidence or trust that the natural and social worlds are as they appear to be, including the basic existential parameters of self and social identity*" [1984a; p. 375]. The habitual, taken-for-granted character of day-to-day activities in social life – routinization – both support and is supported by a sense of ontological security. Routinization, therefore, is vital to the actors' psychological and emotional mechanisms whereby a sense of order, continuity in experiences, confidence and personal security is sustained in the daily activities of social life. Giddens argues that a sense of ontological security helps to control or reduce anxiety by avoiding chaos. It is vital to the actors'

ability to give meaning to their lives, and is critical to the survival of human agents and social institutions. If a critical situation arises where there is chaos or where established modes of accustomed daily life are drastically undermined, this will threaten agents' ontological security. It is at this point that actors' motives [wants and needs] are consciously taken into account and acted upon before they can have any direct purchase on social action. Altogether, unconscious motives indirectly drive individual actors to satisfy their basic need for personal security, self-preservation and wellbeing.

3.4.2.2 _Co-Presence: Social Integration and Social Interaction_

Social integration involves the co-presence of two or more actors, and it is the consequences of the use of specific 'rules' by those who are involved in the interaction, for example, doctor and patient [Scott, 1995]. Giddens sees this structuring of interaction as occurring in three dimensions: the communication of meaning; the exercise of power; and the sanctioning of action. Communication, power and sanctioning are features of all human action and interaction, and they are central to human agency [Scott, 1995].

3.4.3 **Structure and Agency: The Duality of Structure, Structuration**

The duality of structure refers to the mutual constitution of structure and agency: social actions create structures and it is through social actions that structures are produced and reproduced so that they can survive overtime. Thus Structuration is both the medium and outcome of the social activities it continuously organizes over time and space. In other words, structure and human behaviour/action are intertwined: people go through a socialization process and become dependent on the existing social structures, but at the same time social structures are being altered by their activities [Indeje and Zheng, 2010]. For example, it was seen in the reflections earlier that the structures underlying tool-making – such as the form and material, methods of manufacture and of use – were sustained by their ongoing reproduction by toolmakers. This structural influence on the behaviour of newcomers to society was maintained. However, toolmakers in successive generations not only copied, but

occasionally improved on the products of their predecessors, thus producing, reproducing and transforming the tool-making structures over time. This capability of toolmakers to transform tool-making structures across generations, are evident to the point at which we see new innovations in communication and digital technologies today.

As mentioned earlier, Giddens argues that the mutual constitution and reconstitution of structural properties across time and space – structuration – always involves: the communication of meaning, the exercise of power and the sanctioning of action. These elements of agency are linked to the elements of structure via structural resources or modalities. Thus the interactional element of *communication* is linked to structures of *signification* through the modality of *interpretive scheme*; *power* is linked to structures of *domination* via *facility*; and sanction is linked to structures of *legitimation* through *norms*. Human action and structure in the minds are composed of elements of each of these dimensions. The dimensions are inextricably interlinked and work hand-in-hand in the process of Structuration. The dimensions of the duality of structure are represented in *Figure 3.2*, and are further explained below.

Structure	Signification	Domination	Legitimation
[Modality]	Interpretive Scheme	Facility	Norm
Interaction	Communication	Power	Sanction
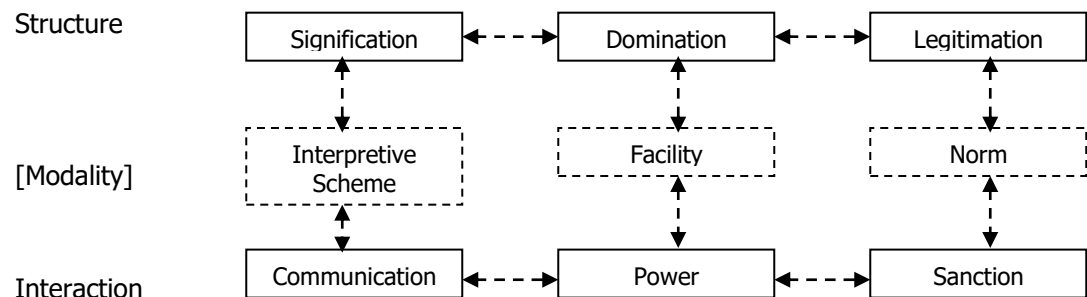
Figure 3.2: Dimensions of the Duality of Structure [Giddens, 1984; p. 29]

3.4.3.1 *Communication of Meaning*

Communication is enabled and mediated by the modalities of *interpretive schemes*, the mutual stocks of knowledge about rules and procedures, which are drawn upon and applied reflexively by actors during communication. Interpretive schemes are governed and defined by the *rules of signification*. Jones and Karsten [2003] provide

123

a useful example of the capability of human individuals to transform structures of signification: When encountering somebody in a work setting we draw on structures of signification that inform our understanding of that person's role. So, if we meet a person in a white coat in a hospital we are likely to assume that they are a doctor [at least in many settings] or, in a laboratory, that they are a scientist. According to Jones and Karsten, the structures underlying dress codes are not implacable or immutable. They are sustained by their ongoing reproduction by social actors, but can be changed. So long as employees continue to follow the dress code then its influence on the behaviour of new recruits is likely to be maintained. If certain individuals or groups challenge the code, then, over time, new structures, no less influential, may develop.

3.4.3.2 *Exercise of Power*

Power is enabled and mediated by the modes of *facilities*, which in turn are governed by the *rules of domination*. Facilities refer to the resources that participants bring to and mobilize within interaction to accomplish certain outcomes. As mentioned earlier, resources are of two kinds: allocative resources [extending over material phenomena] and authoritative resources [extending over people]. These resources are not fixed, but rather they form the media of the expandable character of power in different types of society [p. 258]. Power, as noted earlier, refers to the capability of human agents to make a difference – to transform pre-existing conditions or the actions of other people through their actions. Giddens asserts that all social actions involve power relationships. With reference to the socio-historical reflections, this is seen in the process of teaching and learning, where older members of the community taught or "moulded" the younger members and the newcomers, as in a "student-teacher" or "trainer-trainee" relationship. Power can be exercised to constrain and reduce the freedom of the dominated agents and at the same time increase the power and freedom of the dominating agents. However, there always remains the potential for agents to act to change a particular structure of domination, a potentiality referred to as dialectic of control. Thus in such relationships there is the dialectic of control

whereby those being dominated can influence the activities of their dominators. According to Orlikowski [1992]:

> "*When a given asymmetry of resources is drawn on by human actors in interaction, the existing structure of domination is reaffirmed. It is only when the existing asymmetry of resources is changed – either through being explicitly altered or through being gradually and imperceptibly shifted – that the existing structure of domination may be modified or undermined*" [p. 405].

3.4.3.3 *Sanction of Action*

The *sanctioning of action* is enabled and mediated by the modality of *norms*, which reflect the shared values and standard for conduct for collective actors in a given society. Norms are defined and governed by *rules of legitimation*. Human agents are able to monitor their activities and those of others against society's norms, which are sustained and enforced by positive and negative sanctions. In evaluating or judging society members' conduct, actors draw on the modality of norms to apply the relevant sanctions. For example, rewards are given for conformity and punishment for non-conformity. Whenever the relevant sanctions are applied, they are reinforced and reaffirmed in the minds of actors within the collectivity. However, if rewards are given for non-conformity, for example, then this would change the structures or rules regarding acceptable behaviour and conduct overtime.

Norm as a modality of structuration, intersects with the modality of interpretive schemes in the sense of 'accountability'. According to Giddens, to be 'accountable' for one's activities is both to give the reasons for them and to supply normative grounds whereby they may be 'justified'. "*Normative components of interaction always centre upon relations between the rights and obligations 'expected' of those participating in a range of interaction contexts*" [1984; p. 30].

3.5 Theory of Structuration and the Field of Information Systems

This section briefly explores some applications of structuration in the field of Information Systems, particularly relevant to the themes of technology, culture and pedagogy. Until his discussions on modernity in the early 1990s, Giddens makes almost no reference to IS in his writings or to the specifics of social and

organizational changes in which IS might be implicated [Jones and Karsten, 2008; Jones et al, 2004]. Despite Giddens' almost total neglect of this particular area, many IS researchers have argued that structuration has the potential to reconcile traditionally opposed conceptualizations [Orlikowski, 1992] and to treat social actors as knowledgeable agents actively shaping technologies and their use [Poole and DeSanctis, 2004]. Consequently, Giddens' mature formulation of structuration theory has been adopted and adapted by a number of researchers in the Information System field [Rose, 2000]. IS researchers have used the theory to theorize or reconceptualise aspects of Information Systems; analyse empirical situations or cases; and provide operational guidance for IS practitioners [Jones and Karsten, 2008; Jones et al, 2004; Rose, 2000].

3.5.1 Structuration and Technology

One of the most notable work which draws on Giddens' theory of Structuration to theorize aspects of the IS field is that of Wanda Orlikowski. Orlikowski [1992] proposes a structurational model of technology that offers "a reconstruction of the concept of technology" [p. 398] and provides insights into how the socio-historical context influences the interactions of humans around the use of a technology. Orlikowski argues that prior traditionally opposed conceptualizations of technology were "partially correct, but also one-sided" [p. 423][4]. She offers a structurational account of technology which emphasizes two key aspects of technology in organizations – the *duality of technology* and the *interpretive flexibility of technology*. The duality of technology highlights that "*technology is both shaped by and shapes human action*" [Jones et al, 2004; p. 318]. Technology is the outcome of coordinated human action – and hence is inherently social – and simultaneously, technology is used by humans to accomplish some action [Orlikowski, 1992]. The technological artefact is influenced by three aspects:

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[4] Similar discussions were held in *Chapter Two* of this thesis.

"*Characteristics of the material artefact [e.g., the specific hardware and software comprising the technology], characteristics of the human agents [e.g., skills, experiences, motivation], and characteristics of the context [e.g. social relations, task assignment, resource allocations*]" [Orlikowski, 1992; p. 409].

Orlikowski's duality of technology is combined with the interpretive flexibility inherent in technology, that is, the ongoing social and physical construction of the technology that occurs during its use. Since technology is developed in a different setting and at a different time from the one in which it is used, Orlikowski argues that the view of "interpretive flexibility" is often neglected in traditional IS literature, which treats technology largely as a "black box" [p. 407]. Orlikowski thus recognizes the duality of technology and its interpretive flexibility as two iterative modes: the '*design mode*' which represents human action affecting technology, and the '*use mode*' which represents technology affecting human action [Loureiro-Koechlin, 2008]. Thus, Orlikowski's structurational model highlights the ability of users to constitute the social and physical characteristics of technology through their interactions with it. While there is greater engagement of human agents during the initial development of a technology, "*in using a technology, users interpret, appropriate and manipulate it in various ways, being influenced by a number of individual and social factors*" [p. 408].

Orlikowski, however, argues that interpretive flexibility is not infinite, as it is constrained by the material characteristics of the technology, the institutional contexts of its design and use, the power, knowledge and interests of the relevant actors and the conditions at a given point in time. Orlikowski's work concludes with the application of her structurational model of technology – depicted in *Figure 3.2* below – to analyse an empirical case study. Her subsequent work [e.g. Orlikowski and Yates, 1994; Orlikowski, 1996; Orlikowski, 2000] applied and extended her structurational model through a number of empirical studies into the organizational use of different kinds of technologies [Jones et al, 2004].

Figure 3.3: **Orlikowski's Structurational Model of Technology [Orlikowski, 1992; p. 406]**

Institutional Properties

Technology

c

d

a

b

Human Agents

a Technology as a product of human agency
b Technology as a medium of human action
c Institutional conditions of interaction with technology
d Institutional consequences of interaction with technology
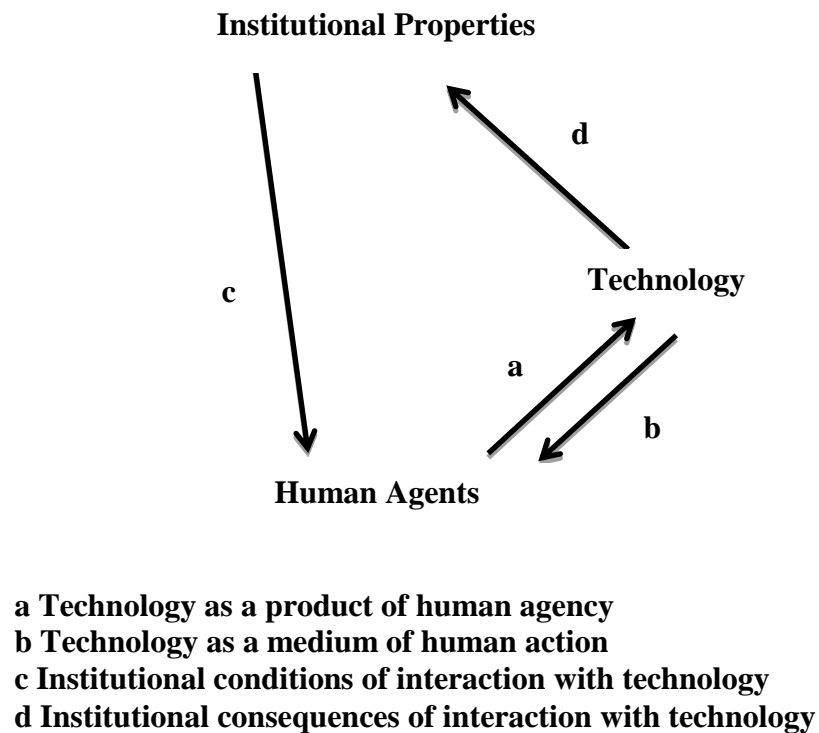
Over the years, structuration theory ST has been used in social studies of technology in a variety of ways [Halperin, 2016], including Organizational Management; Learning and E-Learning [e.g. Halperin, 2017; Viberg and Gronlund, 2017 and Fay and Larson, 2016]; Health and Medicine [e.g. Bernardi, 2017; Jefferies et al, 2017]; and Nuclear Technology Transfer [e.g. Mihok, 2014], among others.

Mihok [2014], for example, applied the structuration theory to research concerning two different technology transfer concepts in the field of final disposal of spent nuclear fuel [SNF] and related nuclear safety communication with affected inhabitants. The two cases concerned technological concepts developed in Sweden: one case involved the transfer of material technology concept from Sweden to Finland and the other involved the transfer of social technology concept from Sweden to the Czech Republic. Mihok emphasized that the technology transfers referred to in

his paper relate to 'transfers of concepts' rather than to a 'transfer of technologies already applied in practice', and therefore the term 'technology concept' is used.

With reference to Orlikowski's [1992] work, based on Structuration Theory, Mihok argued that 'power-domination', 'legitimation-sanction' and 'communication-signification' are the three properties of empirical reality that are recognized and researched in the field of technologies and technological transfers. The author, therefore, referred to these properties, in the summary of both case studies.

According to Mihok, in order to understand one of the key differences between the attempt to transfer the material technology concept to Finland and the attempt to transfer the social technology concept to the Czech Republic, it is important to understand rationale of division of regions into the so called 'nuclear communities' and the opposing 'virgin communities'. 'Nuclear communities' are areas in which significant educational and communicational activities concerning nuclear safety have been carried out for several decades. These communities are sometimes referred to as 'home bases of the nuclear industry' or 'nuclear oases'. SNF long-term disposal is typically considered to be sufficiently safe only if SNF is stored in specific geological conditions that correspond to the material technology for SNF storage [metal canisters]. SNF long-term disposal was often considered to be located away from the current nuclear power plant localities, in regions in which affected citizens were never involved in education and communication concerning nuclear risks. Communities in the regions where nuclear industry was never located are sometimes labelled as 'virgin communities'.

It was stipulated in the workplan that one of the important factors of success in siting SNF final repository would lie in the ability to explain and convince affected local lay people about the safety of SNF disposal. This was to be achieved in Sweden through a process labelled "Mediation by Demonstration [of safety]". After the strong protests of the local affected inhabitants and the pressure groups in the 1980s, all the major actors in the Swedish nuclear waste management field were in agreement that

something needed to be added to the "Mediation by Demonstration" to assure future progress in the siting and establishment of a final repository for Sweden's SNF.

The "Mediation by Dialogue" was considered as the response of the Swedish authorities to those new challenges that emerged during the protests of affected local citizens against location of SNF final repository near their homes. Mediation by Dialogue is about collective acknowledgements of uncertainty, creating room for broader discussion. Key mediators remain predominantly human. It accepts that there might be other currently unknown things worth publicly pointing out. According to Mihok, the potential for Mediation by Dialogue was heightened by the introduction of new and comprehensive environmental legislation in Sweden during the 1990s, which requested that potential environmental and health impacts of intended activities are sufficiently consulted also with "uneducated affected lay citizens" prior to start of project permit procedures.

The material technology concept to dispose SNF developed in Sweden [and transferred to Finland] was acronymed 'KBS' from the Swedish term 'KarnBransleSakerhet' [in English 'Nuclear Fuel Safety']. The social technology concept [transferred to the Czech Republic] was based on the Swedish RISCOM [Risk Communication] model.

In the case of material technology concept transfer of 'KBS3' from Sweden to Finland, the '*power-domination*' property was emphasized in relation to the mutual attempt of the stakeholders from both countries to avoid dominance of the country of origin's stakeholders over the 'transfer recipient stakeholders' in the communication and similar technology transfer activities. The interplay of these mutual attempts with the '*communication-signification*' property was illustrated by highlighting the importance played by the factors of the common language [Swedish language being the second official language in Finland] and similar organizational culture. The importance of the legal mandate approved by the Finnish Government, and fostering of pragmatic approach over dealing with societal concerns, were mentioned the two

most important '*legitimation-sanction*' property factors which contributed significantly to the success in the technology transfer. The emphasis was also put on the fact that, in both Sweden and Finland, the SNF repositories were in the end located in the nuclear communities, even though the virgin localities were proposed to be considered in the early phases of the siting processes.

In the case of social technology concept transfer of the Swedish RISCOM model of risk communication to the Czech Republic, the '*legitimation-sanction*' property and the related issue of legitimacy was emphasized especially with regards to the right of veto for local communities. The '*power-domination*' property in the empirical reality of the Czech SNF repository siting procedure was characterized by a domination of the stakeholders from the five 'virgin localities' considered for hosting the SNF geological repository in the Working group for dialogue. Mihok pointed out that an attempt to apply the technology concepts to the virgin communities in the end happened only in the Czech Republic, where the social technology concept was aimed to be transferred from Sweden [despite that this concept has not been successfully applied in virgin communities in Sweden]. Mihok purported that the dominance of the stakeholders opposing geology-led strategy for siting of SNF repository in the Working group was probably the most important feature that differed from 'the Swedish original' of the RISCOM model. The '*communication-signification*' property and its interplay between the '*power-domination*' and '*legitimation-sanction*' properties of the social technology as attempted to be applied in the Czech Republic can be illustrated by the unprecedented and controversial decision by the Czech Ministry of Industry and Trade to start negotiations concerning geological investigations in the Kravi hora locality without any communication about this issue within the Working Group for Dialogue.

In comparison to material technologies, Mihok concludes that an interplay between the '*power-domination*', '*legitimation-sanction*' and '*communication-signification*' properties can be very challenging especially with regards to social technologies that are being transferred to new countries with very different political, cultural and

organizational context than in the country of the social technology's origin. Being aware of this challenge, the Swedish expert noted that "it may be important to proceed step by step by setting limited goals within a well-defined process format in a country such as Czech Republic which is in an early stage of a SNF final repository site selection programme". However, in the Czech Republic, the Working Group started to make initiative proposals influencing 'the power and the domination' very quickly. This unprecedented empiric action falling into the category of 'power-domination' within the structuration theory also had implications and consequences for the categories of 'legitimation-sanction' and 'communication-signification' with regard to researching [analysing] technology transfers.

3.5.2 Structuration, IS and Culture

Other research which largely uses structuration theory to offer insights into IS phenomena, includes the work of Geoff Walsham, who focuses particularly on the human consequences of computerisation in a global context. Walsham's work typically provides detailed theoretical bases, well-developed case study analysis and sound conclusions on issues covering IS strategy, development, implementation and evaluation in contrasting organizations. Examples of his work exemplifying structuration are featured in Walsham [2002], which examines software production and use, particularly where the software is not developed in and for a specific cultural group. The paper employs structuration theory to analyse field data from two published case studies of cross-cultural software development and application. The first case, which draws on earlier field notes from Walsham [1995] and Barrett et al [1996], involves a Jamaican general insurance company, called Abco, and a team of Indian software developers. Abco developed a new general insurance information system, and Gtec – a software development company – was set up within the insurance company to strengthen its existing IT skills. A group of Indian software developers were recruited later from software houses in India to form the top management group of Gtec.

The second case, which draws on the work of Walsham and Sahay [1999], concerns the development of a GIS technology in the United States which is to be used by district-level administration in an Indian government department. The department produced detailed maps as a basis for considering how to develop and manage wastelands. The stimulus for the possible application of GIS to this situation was "provided by a chance meeting of some GIS experts from Ohio in the United States with Indian government officials, in the context of a general USAID mission to India in 1989" [p. 369]. Subsequently, in 1990, an Indian expert team visited the United States to see GIS installations, followed by the testing of the efficacy of GIS in wasteland management, using specific districts as research sites.

Walsham [2002] developed a theoretical basis to analyse the two cases, using key elements which draw on Structuration: "Structure", "Culture", "Cross-cultural Contradiction and Conflict"; and "Reflexivity and Change" – *Table 3.1* below.

Table 3.1: **Walsham's Theoretical Framework employing Structuration [Walsham, 2002; p. 36]**

Structuration Theory, Culture and ICTs: Some Key Concepts	
Structure	• Structure as memory traces in the human mind • Action draws on rules of behaviour and ability to deploy resources and, in so doing, produces and reproduces structure • Three dimensions of action/structure: systems of meaning, forms of power relations, sets of norms • IS embody systems of meaning, provide resources, and encapsulate norms, and are thus deeply involved in the modalities linking action and structure
Culture	• Conceptualized as shared symbols, norms and values in a social collectivity such as a country • Meaning systems, power relations, behavioural norms not merely in the mind of one person, but often display enough systemness to speak of them being shared • But need to recognize intra-cultural variety
Cross-cultural Contradiction and Conflict	• Conflict is actual struggle between actors and groups • Contradiction is potential basis for conflict arising from divisions of interest, e.g. divergent forms of life • Conflicts may occur in cross-cultural working if differences affect actors negatively and they are able to act
Reflexivity and Change	• Reproduction through processes of routinization • But human beings reflexively monitor actions and consequences, creating a basis for social change

In analysing the first case, Walsham uses the dimensions of meaning, power and norms to analyse "structure". In terms of meaning, both the Jamaican and Indian teams used metaphors to describe each other's teamwork – the Jamaican team described the Indians as having a "school room" attitude, while the Indians used international relay races to describe the Jamaican; both teams had different views of power relations – the Indians thought the Jamaicans were too equal [consensual] in terms of management-subordinate relations, while the Jamaicans thought the Indians were too autocratic; and in terms of norms of behaviour, both teams had different attitude to time deadlines on software projects.

In his analysis of the second case, Walsham examines the element of "reflexivity and change". He points out that while there was passive resistance to the GIS by district-level staff – representing reproduction of structure – there was an increasing awareness in maps and map-based systems in India resulting in subtle shifts in perception. He further points out that major social change over longer time horizons is made up of such minor shifts. Walsham also argues that the current evidence of successful use of GIS for land management in India, reflects changed attitudinal rigidities. Walsham's [2002] main conclusion drawn from his analyses of the two case studies is that a structurational approach is particularly valuable for facilitating cross-cultural comparisons of information systems development and use. He argues that structuration theory goes beyond the relatively simplistic Hofstede-type studies, which dominate the IS literature to date. He maintains that such analysis enables a more sophisticated and detailed consideration of issues such as cross-cultural conflict and contradiction; cultural heterogeneity; detailed work patterns in different cultures; and the dynamic, emergent nature of culture.

3.5.3 Structuration, IS and Pedagogy

Walker's [2002] work employing a structurational approach to Internet training provides valuable insight into how teachers and learners contribute to the process of structuration using technologies and other resources. In two separate publications,

Walker [2002] discusses the implementation of Internet training programmes in three [and four] nationally-based trade unions across Europe. Walker posits that training

> "*comprises a social structure which is enacted through participation by both learners and trainers*"…*It is a practice geared particularly towards developing, augmenting and rearranging the interpretive schemes of learners*" [p. 3].

While both papers focus primarily on the role of the trainer in enacting training and very little on the role of the learner in shaping the learning, Walker's 'training-in-practice' provides an understanding of the roles of both types of agents. In an analogous way to Orlikowski's [2000] view of technology-in-practice, Walker explains that the recurrent training activities – training-in-practice – form a social structure enacted by trainers and learners. Trainers draw on the material and organizational resources, such as classrooms and learning technologies available to them. They draw on their own interpretive schemes both in relation to the organization and delivery of training, and in relation to the subject matter. They also draw on shared norms and values embedded in wider social, cultural and organizational arrangements. Walker further explains that learners likewise contribute to the process of structuration as they draw on available resources such as the technology. They draw on their existing interpretive schemes in relation to both the nature of the training and to their technological frames based on earlier encounters with or knowledge of technologies. They also draw on norms shared either with other learners or trainers about the role of training and perhaps technology. Applying this 'training-in-practice' model to four trade union cases, Walker argues that "taking a structurational approach has assisted in clarifying some of the factors and relations without implying a straightforwardly deterministic relationship". He further argues that

> "*it illustrates the value of a structurational approach in comparing case data of technology use in ways that are sensitive to local context, while allowing wider levels of social structure to be analysed both as influences on and outcomes of technology use*" [Walker, 2002; p. 19].

135

Walker acknowledges that the varied conceptions of internet training among trainers have resulted in significantly different conceptions of the Internet being enacted. He therefore suggests that greater attention needs to be paid to the context of Internet use in policy initiatives designed to promote ICT skills.

More recently, Halperin [2017] applied Structuration theory in her work to the understanding of human interaction with technology in learning setting. Her study aimed at generating findings on the emerging structures of technology use in learning. The study used the core element of the duality of structure model and, specifically, its technology-specific adaptation, as developed in Orlikowski's [2000] Structurational Practice Lens, to explore Technology-mediated Learning [TML] practices in higher education. Within the detailed description of the activities associated with the use of the LMS, effort was in identifying those recurrent and routinised activities, or sets of activities, shared by groups of learners. First, Halperin extended the key analytical constructs – the three modalities of facility [technology], norms and interpretive schemes – to enhance their usefulness for guiding an empirical investigation into TML practices. The constructs were then applied to a case involving the use of a standard Learning Management Systems [LMS] in a well-established research university in the UK. The case focused on the integration of the system into the provision of a Master's Degree [MSc in Global Media] within the faculty of Social Science. An average of 50 students enrolled each year with many of them being overseas students. The case represented a blended mode of implementation in which the LMS was used to facilitate delivery of courses alongside traditional face-to-face instruction in the form of weekly lectures and group seminars.

Halperin characterized the manifestation of TML practices in terms of their recursive action, and associated each practice with the analysis of the core analytical structurational constructs – the technological properties, the set of norms and the interpretive schemes that were drawn upon in students' ongoing engagement with the technology. The author relied on the results obtained in her previous analysis of the modalities focusing exclusively on *enacted* properties. This exercise led to the

recognition of types and subtypes of TML practices such as "*information exchange*" and "*knowledge sharing*" respectively. For example, Halperin pointed out that "*information exchange*" is a term that arose during analysis to represent an emergent TML practice in which the technology was used recurrently to exchange information regarding learning content. Routine activities associated with information exchange included information seeking as well as contribution of information. According to the author, the second sub-practice was labelled "*knowledge sharing*" because actors were seen to share information that they had organized and processed to convey understanding, experience or expertise.

One of the key findings arising from Halperin's empirical analysis concerned the diversity of TML practice – rather than a single dominant structure of technology use, diverse 'technologies-in-practice' emerged through the use of learning technology. The TML practices identified in the study provided evidence for the emergence of new learning activities and processes that had not existed prior to the introduction of the technology. Halperin concluded that the technological environment had contributed to the enhancement of the repertoire of learning practices, since new modes of conduct did not replace their pre-existing counterparts [of the traditional learning components] but rather added to them. For example, in the case of collaborative TML practices that relied on both discussion module of the LMS as well as the student presentation module. Through this practice, the traditional boundaries were challenged – that of time and space co-presence, as well as that of previous individualistic learning practice lacking any form of structured collaboration amongst students.

In subsequent analyses of her findings, Halperin pointed out that links were explored between the set of TML practices and the characteristics of the technology at hand, being essentially modular and network-based. According to Halperin, contemporary learning technologies comprise several customisable modules which act together to form an 'E-learning platform'. By combining the properties and functionalities, current LMSs present themselves as multipurpose learning environments. The author

concluded that, reflecting its multipurpose design, the system was found to support a wide variety of uses, manifested in the emergence of diverse TML practices. However, only a selected set of modules was ultimately adopted in use, and thereby became involved in structuring TML practices.

Altogether, Halperin maintained that Structuration Theory helped to shape the research focus on, and understanding of, learning practices associated with using learning technology in an institutional context. A significant aspect of using the theory concerns the emphasis on studying ongoing action, as this is particularly relevant to widely studied phenomena of learning technology use, and non-use, in different contexts. Structuration Theory compels us to distinguish what people actually do from what they can, should or ought to do in certain conditions; and indeed, to collect and analyse data that can testify to this.

While not exhaustive, the above discussion provides examples of how IS researchers have contributed to the IS literature, using structuration theory generally, and particularly in the areas of technology, culture and education. The next section critically reviews the role of structuration theory in Information Systems, in particular, its treatment of relationship between technology and social structure.

3.5.4 The Role of Structuration Theory in Information Systems: A Critical Review

It should be reminded that the central concern of structuration theory is the relationship between individuals and society. It embraces the view that human agents draw on social structures in their actions, and at the same time these actions serve to produce and reproduce social structure. Jones and Karsten [2008] argue that to the extent that information systems are considered to exist within a significant social context, there should be no types of IS, phases of IS development and use, or application domains that could not be addressed from a structurational perspective. While this claim is supported by some of the exemplar work provided in the previous section, this does not mean that Giddens' work "*is without specific implications for the nature of IS research*" [Jones et al, 2004; p. 323].

From Giddens' perspective, structure has no physical existence and is only given substance through what people do. It is claimed from an IS viewpoint, therefore, that structure cannot be "inscribed" or "embedded" in technology, since to do so would be to give it an existence separate from the practices of social actors and independent of action [Jones et al, 2004; Jones and Karsten, 2008]. This thereby turns the duality, which is such a central feature of Giddens's position, into a dualism. It is argued that if IS research identify structures within technology, then what they are describing are not structures as Giddens would understand them, and thus do not necessarily have the properties – such as mutual constitution with action – that structuration theory attributes to them [Jones and Karsten, 2008]. Challenging Orlikowski's [1992] structurational model of technology, for example, Jones [1999] argues that structure only exists as memory traces in humans and agency is a human attribute, therefore, there is no place for a materialistic account of technology, as proposed by Orlikowski. Jones therefore concludes that Orlikowski's conceptualization of technology is not congruent with Giddens' position on structure. In an attempt to overcome these criticisms, Orlikowski's subsequent work [Orlikowski, 2000] develops a practice lens to propose the notion of "technologies-in-practice", which illustrate that technology structures are emergent and enacted, not embodied and appropriated. This practice lens helps to "*examine how people, as they interact with a technology in their ongoing practices, enact structures which shape their emergent and situated use of that technology*" [p. 404]. Thus, in this account, rather than examining the technology and how actors appropriate its embodied structures, this view starts with human action and examines how it enacts emergent structures through recurrent interaction with the technology [Jones et al, 2004].

A further implication of Giddens' position, from an IS lens, is that the "effects of material artefacts on social practices are wholly dependent on the knowledgeability of social actors" [Jones et al, 2004; p. 309]. Giddens [1984] purports that human agents' ability to create and recreate social structures is not independent of their knowledge or 'familiarity with the forms of life expressed in their day-to-day

activities' [p. 3]. According to Jones et al [2004], while Giddens recognizes that this may involve unconscious sources of cognition and practical consciousness as well as actors' discursive explanations, material artefacts are only influential on social practices to the extent that actors' knowledgeability is instantiated in their practices. They argue that "*if actors are not knowledgeable about these effects, or their knowledge of these effects is mistaken, they have no independent influence on actors' practices*" [p. 309]. For example, lacking knowledge of the particular function on a piece of technology may mean that an individual may not use it for an activity for which it would be well suited.

In critiquing Giddens' position, some critical realists [e.g. Archer, 1995] argue that social structure necessarily precedes, and may be relatively autonomous of, action and thus the two cannot be mutually constitutive. As such, they conclude that there is a possibility that social structures may be influenced by material conditions in a more direct way than structuration theory allows and that these influences may not depend entirely on social actors' knowledge of them. Jones and Karsten [2008], however, point out that Giddens does not deny the existence of a material world that affects how people act. Rather, Giddens is seeking to distinguish between how the physical world affects action and how social structure influences social practice. In the latter case, the "*causal effects of structural properties of human institutions are there simply because they are produced and reproduced in everyday actions*" [Giddens and Pierson, 1998; p. 82]. Thus, technology can have no influence on social practice, but that whatever effects it has depend on how social agents engage with it in their actions [Jones and Karsten, 2008]. "*As they do things in relation to machines and so forth, these are the stuff out of which structural properties are constructed*" [Giddens and Pierson, 1998; p. 83]. Given that structuration sees social actors as continuously reflecting on their practice, Giddens' "double hermeneutic" conceptualization also helps to counteract critical realists' claims: "All social actors, it can properly be said, are social theorists, who alter their theories in the light of experience" [Giddens, 1984; p. 335]. In this sense, therefore, social actors have the power to reflect upon their practice, to incorporate new concepts into their stock of mutual knowledge, and

to act differently as a consequence. As they do this, they transform the structure of social reality.

A major concern for the use of structuration theory in the IS field is its relevance to empirical research. Critics, such as Gregson [1989], suggest that Giddens' ideas operate at too high a level of generality to inform research in specific empirical settings. Similarly, Rose [2000] argues that the little work reported in "operationalizing" the theory is a potentially serious problem in an applied discipline as IS: "*If the theory is not useful to inform practice, then of what value is it?*" [Rose, 2000]. While Giddens does provide some guidelines on what he sees as the implications of his work for empirical research, this might seem to confirm rather than refute the charges of his critics [Jones et al, 2004]. For instance, Giddens claims that he does not view structuration as supporting a particular research program [1983, p. 77; 1992, p. 310] and that his principles "*do not supply concepts useful for the actual prosecution of research*" [1990b, p. 312].

A further problem for the IS researcher is that Giddens have little to say directly about information technology. Critics have suggested that the "lack of specificity" about the technical details of information systems means that the researcher may investigate the social actions around the technology, or offer broad-brush theorizing in the style of Orlikowski, or start borrowing or inventing theoretical concepts in order to fill the vacuum in the manner of Poole and DeSanctis [Monteiro and Hanseth, 1996; Rose, 2000].

Despite the non-propositional character of Giddens' theory and its almost total neglect of the technological artefact, which makes it an unlikely source of insight for IS researchers [Jones and Karsten, 2008], structuration still has a number of significant strengths. These include structuration's non-dualistic account of the structure-agency relationship, which may be seen to avoid both technological and social determinism; its concept of structure as being continuously produced and reproduced through situated practice, which facilitates the study of change; and its

broad-ranging account of social processes, which takes in many phenomena of interest to IS researchers [Markus and Robey, 1988; Orlikowski 2000; Jones and Karsten, 2008]. Rose [2000] purports that part of the answer of structuration theory's value to IS, is that, in a field often dominated by technical considerations, any informed account of social practices helps to redress the balance. He further argues that richer understandings of social action obtained by theorizing and analysis may pass into the store of 'mutual knowledge' that informs IS practice.

3.6 The Theory of Structuration: Summary

In summary, structures are the rules and resources that exist in the human mind and are instantiated in action. Structural rules consist of: *signification*, which concerns the organization of meaning during communication; *domination*, which concerns the resource aspects of rules that inform the exercising of power; and *legitimation*, which concerns the moral or evaluative aspect of rules which inform the judging of individuals' behaviour and actions. These three rules respectively govern the structural resources of interpretive schemes, facility and norm. The actions of an individual draw upon the modalities of Structuration in the reproduction of systems of interaction – communication, power and sanction, and by the same token reconstitute their structural properties. That is, they produce and reproduce structures in the mind. However, humans cannot determine exactly the way in which these structures are produced and reproduced, and as such, attention is drawn to the unacknowledged conditions and unintended consequences of intentional action [Jones and Karsten, 2003].

Structuration always presumes the duality of structure. This means that all social action presumes the existence of structure. But at the same time structure presumes action, because 'structure' depends on regularities of human behaviour [Giddens, 2001; p. 669]. *Table 3.2* provides a summary of the main principles of the Theory of Structuration discussed in this chapter. In summary, Structural rules and resources mediate human action, and at the same time they are reaffirmed through being used by human actors [Orlikowski, 1992]. Structures do not merely constrain human

actions but also enable actions, and simultaneously, they are the result of previous actions.

While the theory of Structuration has been employed in studies of technology, culture and Pedagogy concerning E-learning, Structuration has never been used as the primary theoretical basis for combining and re-conceptualizing the three themes simultaneously, within a given research. It is therefore a novel approach in this research. A proposed Structuration Conceptual and Theoretical [SCT] framework, premised on technological, cultural and educational models of agency and structure, is explicated in the ensuing section.

Table 3.2: **Summary of the Theory of Structuration**

Central Elements of Structuration Theory	Concepts
Structure	• Structure defined as rules and resources that exist in the human mind and are instantiated in action. It is the procedural rules and resources for action. • Three dimensions of structural rules: Signification, Legitimation and Domination. • Three dimensions of structural resources [modalities]: Interpretive Schemes, Facility and Norm.
Agency	• Agency refers to ongoing actions and interactions of human agents. Human agency is "*the capability of the individual to 'make a difference' to a pre-existing state of affairs or course of events*" – "transformative capacity". It is intimately connected with power. • Individual Action: The actions of an individual draw on the rules and resources in the mind to accomplish activities. In this regard, individual actors are knowledgeable/highly learned: The competent agent is able to monitor his/her actions through the process of reflexivity and provide reasons for his/her actions through the process of rationalization. Actors, however, cannot report discursively about their motives [unconscious sources of motivation – 'wants' and 'needs'] which drive individual action in a non-deterministic way. • Social Integration and Social Interaction [Co-presence]: Social interaction involves two or more actors. Interaction and social integration are the consequences of the use of specific rules by those who are involved in the interaction [e.g. student and teacher]. • Ongoing actions of human agents create and recreate three elements of interaction: communication of meaning; exercise of power; and justification of action.

Structure and Agency: The Duality of Structure, Structuration	• Modalities or structural resources, such as interpretive scheme, facility and norm, link action and structure. Thus the three interactional elements of communication, power and sanction correspond to the three structural rules of signification, legitimation and domination through modalities in the following ways:
	  • The communication of meaning is enabled and mediated by resources of interpretive schemes which are governed by the rules of signification.
	  • The exercising of power is enabled and mediated by the facility resources, which are governed and defined by the rules of domination.
	  • The sanctioning or legitimizing of actions are mediated and enabled by the resources of norm which are governed and defined by the rules of legitimation.
	
	• The duality of structure refers to the mutual constitution of structure and agency: social actions create structures and it is through social actions that structures are produced and reproduced so that they can survive overtime.
	
	• Structuration is both the medium and outcome of the social activities it continuously organizes over time and space: Ongoing actions and interactions of individuals draw on structural rules and resources and in turn these structures are produced, reproduced or reinforced in the mind.

144

3.7 The Structuration Conceptual and Theoretical [SCT] Framework

The recognition that the objective and the subjective, the physical and the social mutually influence each other, helps to overcome the limitations of pure technological determinism and pure social or cultural determinism. The Structuration Conceptual and Theoretical [SCT] framework, depicted in *Figure 3.3*, is proposed as a model that can be employed to help fill the gaps in the literature, concerning limited conceptualizations of technology, culture and education. This in turn should help improve practice in the design of flexible learning technologies that support multiple cultures. The SCT framework is based primarily on Giddens' [1984] Theory of Structuration and incorporates key themes drawn from the previous chapter. The framework is comprised of nine components, which in some instances, overlap with one another. Details of the SCT framework are provided below.

Component A. *Structure: VLE-Supported Pedagogical Activities in Multicultural Settings*

The ***multicultural setting within which pedagogical and VLE activities occur*** [**A**], is the first component of the SCT framework. This represents the existing structure embodied in a classroom or virtual learning environment within a particular university. Every university has its own organizational culture or rules governing appropriate conduct, which embody the values of the wider society. Such institutional culture may involve the vision or long term strategy for normative pedagogical methods, such as lectures, tutorials, assignments, assessment/exams and, perhaps, VLE usage and the streamlining of multicultural or internationalized programmes. It is also likely that the institutional culture involve expectations concerning the obligations of academic staff and students, given that all interactions involve normative components, which "*always centre upon relations between the rights and obligations 'expected' of those participating in the interaction contexts*" [Giddens, 1984; p. 30]. For example, it is expected that lecturers will deliver lectures/tutorials/courses, provide instructions and set activities or tasks for students. It is also expected that students, regardless of their cultural backgrounds, will actively contribute to their own learning by working individually as well as in teams, during

their course of study. All in all, the organizational culture creates a common "social structure" or context surrounding pedagogical/E-Learning activities for academic staff and students of diverse cultures to draw on. However, in addition to this existing pedagogical/E-Learning structure, the SCT framework recognizes that teachers and students come to the classroom or online learning environment with their own cultural [B], technological [C] and pedagogical [D] structures or assumptions, which guide [enable and constrain] their actions. These individual assumptions or structures help to reinforce the existing structure and at the same time, such assumptions and actions alter the existing structures. These are further explained in the subsequent components of the framework.

Component B. *Culture and Cultural Structures*

The SCT framework commits to a semiotic view of *culture* [**B**], which is interpretive and emergent in nature. It is concerned with the system of mutual signs, symbols and public codes that actors within a social collectivity, such as a country, use to interpret and communicate meaning. At the heart of this semiotic concept of culture is the notion of "structure" – the rules and resources that exist in the minds of each individual – which informs actions. Rules and resources form a group's basic assumptions or mutual stocks of knowledge within the society or country where actors live and operate. Such mutual stocks of knowledge, referred to in this thesis as *cultural structures*, are retained in the actors' memory and instantiated in actions. They are comprised of semantic aspects of rules [rules of signification for interpretation of meaning] and moral aspects of rules [rules of legitimation for validation of norms]. Such knowledge also includes an awareness of the different power relationships involved in social systems, such as teacher-student or trainer-trainee.

Altogether, communication is a cultural process through which meanings are established [Scott, 1995]. In order to communicate, for example, the assigned symbols and intended meanings must coincide – there must be some amount of congruence in knowledge, given that different cultural knowledge and assumptions

represent different symbolic meanings. Sanction, too, is a cultural process through which norms are enforced [Scott, 1995]. Different cultures consciously or unconsciously, have chosen different definitions of good or bad, right or wrong [Tromprenaars and Hampden-Turner, 2001; p. 22]. These assumptions account for the basic differences in norms and values across cultures.

All actors, regardless of their cultural background, are highly "learned" in respect of the cultural knowledge which they possess and apply [the competent agent]. In carrying out a particular action, students and teachers, for example, are able to deploy the rules of behaviour and associated resources in their minds, even if they cannot codify this knowledge in a formal way. In sum, a semiotic view of culture treats individual human behaviour as symbolic action, which reflects a deeper meaning of a particular culture and forms part of the knowledge base for that social collectivity [e.g., the abstinence from beef-based meals by Hindus]. In this regard, the culture of the collectivity, such as national culture, enables and constrains individual actions.

Component C. *Technology and Technological Structures*

The SCT framework considers **technology** [**C**] in terms of both its *constituted nature* and its *constitutive role*. For example, in one sense, the learning technology is a socially constructed product, comprising of certain interpretive schemes [rules reflecting knowledge of the work being automated]; certain facilities [features/resources to accomplish that work]; and norms [rules that define the institutionally sanctioned way of executing that work] [Orlikowski, 1992; p. 410]. In another sense, the technology is an objective product, implemented and deployed within the higher education institution to play a particular role in pedagogical activities. Users of the learning technology have their own **technological structures** – interpretations, assumptions, meanings and values – which they assign to the technology. These technological structures influence [enable and constrain] their actions, in terms of how they interact with the technology. As Orlikowski [1992] points out,

"*In the use mode, human agents appropriate technology by assigning shared meanings to it, which influence their appropriation of the interpretive schemes, facilities, and norms designed into the technology, thus allowing those elements to influence their task execution*" [Orlikowski, 1992; p. 410].

In this context, it is assumed that the learning technology constrain the actions of lecturers and students through its embedded interpretive schemes, facilities and norms, thus having a deterministic effect on the task being executed. This is in line with the notion of technological determinism. However, the SCT framework acknowledges both the *constituted nature* [design-mode] and the *constitutive role* [use-mode] of the learning technology. In its use-mode, users' technological structures – their assigned meanings and rules about how the technology is to be used – influence their appropriation of the technology and task execution. Users' ongoing use of the technology and their enacted structures provide a basis for the technology to be reconstructed, providing a more emergent way of viewing the technology..

Component D. *Pedagogy Concerning the Use of the VLE Technology [Pedagogical and E-Learning Structures]*

Within the SCT Framework, teaching and learning activities or ***pedagogy*** [**D**] are conceptualized as action-based, collaborative learning centred particularly around the use of the VLE technology. Collaborative learning takes social interactions into account and focuses on learning as social participation [Dyke, Conole, et al, 2007]. In most institutions today, graduate students and academic staff alike are encouraged, and in some cases, mandated to use the institutions' VLE technology systematically for collaborative learning activities. As such, the SCT framework considers VLE activities as an integral part of the pedagogical practice within institutions of higher learning. In this framework collaborative activities involve not only social constructivism, but also cognitivism, as learners will apply their cognitive powers to construct knowledge in a social way. Such activities also involve behaviourism, as there is, to some extent, direct teacher control: lecturers deliver ["transmit"] lectures and tutorials, information and instructions and set VLE tasks/activities for students. However, students are not seen merely as passive recipients of information and instructions. They are expected to actively contribute to their own learning by

working individually as well as in teams, attending lectures, researching relevant topics and participating in learning activities supported by the VLE. Walsham [2002] argues that computer-based information systems provide coordination and control facilities, and are drawn on to exercise power.   Lecturers may draw on the VLE as a source of power [allocative facility], to transform the actions and activities of students [authoritative facility] during teaching and learning. The ways in which lecturers configure and use the VLE technology for pedagogical activities may constrain students' actions and VLE usage. However, the SCT framework also recognizes that students arrive at university already schooled in a variety of practices related to learning and technology [Jones and Healing, 2010], and thus have their own pedagogical and technological structures which will enable and constrain the ways in which they use the VLE technology. New structures are produced and reproduced when these structures are enacted.

Component E. *Agency and Multiculturalism: Interaction and Ongoing Actions of Culturally-diverse Actors using the VLE Technology*

Proceeding from individual agent and action to social integration and interaction, it is argued that the co-presence and integration of culturally-diverse actors in a given setting, result in **multiculturalism** [**E**].   Thus, from the viewpoint of the SCT framework, multiculturalism is a corollary of culture. As mentioned earlier, students and lecturing staff alike come to the university with their respective set of cultural beliefs, knowledge and rules of behaviour, which guide their individual actions. These assumptions constitute "*structure for the interaction*" [Rose, 2000], and will continue to influence their individual actions in new cultural settings. When students and staff integrate within the classroom or virtual setting, they draw on the respective structures or rules of behaviour to interact with one another.   Such interactions involve three fundamental elements: the *communication of meaning*; the *exercising of power*; and the *sanctioning of actions*.   The rules governing these interactions, however, may vary widely among students and staff, given that different cultural rules and assumptions result in different culturally-symbolic actions. The differences in rules of behaviour among actors – which include their technological and

pedagogical assumptions – help to shape the multicultural classroom and virtual settings.

Component F. *Agency among Culturally-diverse Actors [Leading to Conflict]*

While the differences in rules of behaviour among actors help to shape the multicultural classroom and virtual settings, it is precisely some of these differences which exist in the mind that can cause ***conflict and misunderstanding*** [**F**] as actors interact with one another. This issue of incongruence is in line with the analyses of Hofstede-type studies based on models of "national culture", which view cultural differences in class in terms of incompatibility [Hewling, 2006].   Also, the ways in which lecturers configure the VLE technology for teaching and learning activities not only pose constraints to students, but also may result in conflict. This is because different actors have different VLE and pedagogical expectations, and thus may use the technology in ways different from other actors' expectations, when accomplishing pedagogical activities.

Although conflict of cultural, technological and pedagogical structures may occur, this opens up the door the production and reproduction of new cultural, technological and pedagogical structures. This is because knowledgeable actors can reflexively monitor the wider learning environment within which the VLE activities occur. They can monitor their own actions and those of others, and the consequences – both intended and unintended. They can reflect upon the conflicts and try to resolve them, and in so doing, actors can change the existing structures within the environment. This notion of agency and change is in line with Giddens' and Geertz' emergent views of how transformation of cultures occur, and are explained in the remaining components – **G, H** and **I –** of the SCT framework.

Social interactions [**G**], according to the Theory of Structuration, create and recreate the three fundamental elements of interaction – *meaning*, *power* and *sanctions*. These are enabled by the corresponding ***structural resources*** or ***modalities*** [**H**] – interpretive schemes, facility and norm, which in turn are governed by their

respective *structural rules* [**I**] – signification, domination and legitimation. Further explanations ofcultural, technological and pedagogical agency and change within the multicultural virtual environment, are provided in Components F2 and F3 below.

- **Component F2.** *Cultural Agency*

As will recall, culture within the SCT framework is concerned with the system of mutual or shared signs, symbols and public codes that actors within a social collectivity, use to interpret or communicate meaning. These mutual signs, symbols and codes form mutual stocks of knowledge – social structures – which embody rules and resources. These include semantic aspects of rules [rules of signification for interpretation of meaning]; moral aspects of rules [rules of legitimation for validation of norms]; and resource aspects of rules [rules of domination for the exercising of power]. Upon entering the university and interacting with others from different cultural backgrounds [socialization], students' ability to monitor and reflect on their classroom/VLE environment, enable them to adapt to their new cultural setting and become dependent on the existing multicultural pedagogical and VLE setting. Academic staff and students of diverse cultures draw on the standard norms and rules of organizational arrangements that comprise a common learning patrimony [Walker, 2002]. As they continue to interact, a new culture is developed within the setting, serving as the culturally-diverse group's basic assumptions or *cultural structures*. These new cultural structures are then instantiated in actions. While students and lecturers draw upon existing multicultural structures, they simultaneously alter these existing structures through their actions and interactions, creating new *meaning*, *power relations* and *sanctions* [**G**]. Such agency is enabled by drawing upon new interpretive schemes; facility; and norm – structural resources [**H**] and associated structural rules – signification, domination and legitimation [**I**]. Altogether, these new structures and resources are shared and drawn upon by the cohort.

- **Component F3.** *Technological and Pedagogical [E-Learning] Agency*

As already mentioned, teaching and learning activities or pedagogy are conceptualized as action-based and situated, centred particularly around the use of the

VLE technology. It was highlighted earlier that users of the learning technology have their own technological structures which will influence the ways in which they appropriate the technology. It was further highlighted that the ways in which lecturers configure the VLE technology for teaching and learning activities as well as students' own pedagogical structures may constrain students' VLE usage. On the other hand, since teaching "comprises a social structure which is enacted through participation by both learners and trainers" [Walker, 2002], this means that students, too, may draw on the VLE to communicate and provide meaning, exercise power [allocative facility] and apply sanctions. The VLE being drawn on, as a resource by students and lecturers, becomes deeply involved in the modalities linking social action and structure [Walsham, 2002]. In other words, since the VLE is drawn on in interaction, it will serve as a modality for reinforcing and changing cultural and social structures, such as actors' pedagogical and technological [E-Learning] structures. Thus students and lecturers will contribute to the process of Structuration, by drawing upon the VLE to create meaning, exercise power and apply sanctions [**G**], while accomplishing pedagogical tasks and constructing knowledge. Such agency is enabled by drawing upon new interpretive schemes; facility; and norm – structural resources [**H**] and associated structural rules – signification, domination and legitimation [**I**]. Altogether, these new structures and resources are shared and drawn upon by the cohort.

Components G, H and I. *Elements of Social Interaction; Structural Resources and Structural Rules*

The dimensions of structuration – **Social Interaction [G]**; **Structural Resources [H]**; and **Structural Rules [I]** – will be used as the primary tools in the SCT framework to analyse and test the empirical study. Brief examples of their use have been provided in **Components F2** and **F3** above.

Figure 3.3:   **The Structuration Conceptual and Theoretical [SCT] Framework**

A.
STRUCTURE: VLE-supported Pedagogical [E-Learning] Activities in Multicultural Settings

B.
CULTURE

- Cultural Structures: Cultural rules of behaviour concerning signification, domination and legitimation, which enable and constrain individual's actions during interaction.

C.
TECHNOLOGY

- Technological Structures: The meanings that users assign to the technology which enable and constrain their appropriation of the technology.
- .

D.
PEDAGOGY CONCERNING THE VLE

- Pedagogical/E-Learning Structures: Assumptions about pedagogy, which enable or constrain the ways in which individuals accomplish E-Learning tasks/activities.

E.
AGENCY AND MULTICULTURALISM: Interaction and Ongoing Actions of Culturally-Diverse Actors Using the VLE

F.
AGENCY AMONG CULTURALLY-DIVERSE ACTORS [LEADING TO CONFLICT]

- **F[2] Cultural Agency:** The ability of knowledgeable actors to draw on their own cultural structures and those of the wider environment to:

- **F[3] Pedagogical/Techno-logical Agency**: The Ability of knowledgeable actors to draw on learning techs during pedagogical activities to:

Create and Recreate

G.
ELEMENTS OF SOCIAL/CULTURAL INTERACTION

- Meaning
- Power
- Sanctions

Mediated and Enabled by

H.
STRUCTURAL RESOURCES

- Interpretive Schemes
- Facility
- Norm

Governed and Defined by

I.
STRUCTURAL RULES

- Structures of Signification
- Structures of Domination
- Structures of Legitimation

153

3.8 How Can the SCT Framework Address or Make Sense of the Theoretical Limitations of Culture, Technology and Pedagogy?

While the SCT framework proposed in the previous section may not be able to overcome all the theoretical limitations of Culture, Technology and Pedagogy, it can help us to make sense of them. *Table 3.3*, provides brief examples of this.

Table 3.3: **A Summary of the SCT Framework Addressing the Limitations**

PEDAGOGICAL THEORIES
Behaviourist Mode of E-Learning [Deterministic Assumption]
1. **Homogenous experience of context, thus ignoring individual learning styles and preferences and cultural diversity**. **The SCT framework takes into account individuality as well as the wider multicultural contexts in which the VLE is used**. The SCT framework recognizes that teachers and students come to the classroom or online learning environment with their own cultural, technological and pedagogical assumptions or structures, which guide [enable and constrain] their actions. In recognizing the various cultural structures within and across societies, the STCF helps to highlight differences in people's assumptions and practices, individual learning styles, heterogeneity of contexts and cultural diversity within an institutional setting, such as the university. Highlighting the differences in people's assumptions and practices help to address the homogenous experience of context presented by behaviourist models.
2.   **Limited pedagogical/educational models, e.g. VLEs support limited 'active' forms of learning and cross-cultural interaction/collaboration**. **The SCT framework recognizes that not all students learn the same and not all teachers teach the same way.** Thus the framework facilitates a more holistic perspective on teaching and learning – behaviourism, cognitivism and social constructivism. The SCTF acknowledges that the ability of students and lecturers to exercise agency enables them to draw on the VLE to develop and communicate meaning; to exercise power and to apply sanctions. In drawing upon the VLE in his way to accomplish pedagogical tasks, students and lecturers may contribute to a process of Structuration, which provides a more emergent and enriching E-learning experience for all.
3. **Not conducive to modification and personalization, thus unable to accommodate personal preferences and cultural diversity, and effect learning on a whole**. **The SCTF recognizes that while the learning technology may constrain actions, in using the technology for pedagogical activities, users contribute to an ongoing social and physical construction of the artefact**. The SCTF views the technology as an objective product, implemented and deployed within the institution to play a particular role in pedagogical activities. In this context, it is assumed that the learning technology constrains the actions of lecturers and students through its embedded interpretive schemes, facilities and norms, thus having a deterministic effect on the task being executed. However, the SCTF also recognizes the element of human agency, shaping and re-shaping the technology when interacting with it to achieve or accomplish certain goals.
4.   **Content-driven, ignoring dialogue and interaction among users, thus not good at fostering**

conversational interaction and social networks such as cross-cultural collaborations/ interactions.

Similar to item 2 above, the **SCT framework recognizes that students and teachers have the ability to play an active role in the teaching and learning process, despite the VLE being content-driven.** The SCT framework acknowledges that the ability of students and lecturers to exercise agency enables them to draw on the VLE to develop and communicate meaning; to exercise power [allocative facility] and to apply sanctions. In drawing upon the VLE in his way to accomplish pedagogical tasks, students and lecturers may contribute to a process of Structuration, which provides a more emergent and enriching E-learning experience for all.

5.	**Pre-determined Assessment Activities Based on Designers' Foresight and Culture, thus ignoring other cultural frames of reference.** **Similar to Item 1 above, the SCT framework takes into account the social and cultural contexts within which the learning technology is used.** It considers *technology* in terms of both its *constituted nature* and its *constitutive role*. In one sense, the learning technology is a socially- and culturally-constructed product. In another sense, the technology is an objective product, implemented and deployed within the higher education institution to play a particular role in pedagogical activities. The framework also acknowledges that users of the learning technology have their own *technological structures* – interpretations, assumptions, meanings and values which influence their appropriation of the technology and task execution. Users' enacted structures during their ongoing use of the technology provide a basis for the technology to be reconstructed, even if the technology is culturally different.

Cognitivist Mode of E-Learning [Deterministic-Pragmatic Assumption]

1.1	**Disregards Cultural Influences on the Design/Development of Learning Models** **The SCTF recognizes that since structures form the basis of human knowledgeability, the ability to construct knowledge is not independent of the agents' cultural assumptions and language.** It acknowledges that learning takes place both through interaction with external environmental stimuli and through the ability of learners to reflect on their experiences which are then used to update their mental models [structures] accordingly. The SCTF takes an eclectic approach to learning, recognizing the roles of Behaviourism, Cognitivism and Social Constructivism in pedagogy. Taking such approach helps us to identify the learner's own cognitive ability as well as the influence which the wider socio-cultural context has on the individual's learning models.
2.1	**Focuses too much on the cognitive powers of individual student and focuses too little on the social context and on diversity.** **The SCT framework takes into account individual structures of students and teachers as well as the wider social and multicultural contexts in which students learn.** For example, the SCTF recognizes the wider multicultural classroom and virtual setting in which teachers and students operate. The framework therefore focuses on diversity and also acknowledges that teachers and students' individual structures help to reinforce and alter existing structures.

Social Constructivist Mode of E-Learning [Anti-Deterministic Assumption]

1.	**Too many choices and user-independence can overwhelm students.** **The SCTF can reduce overwhelming feelings, as it recognizes that learning technologies are not infinitely malleable.** While learning technologies enable students to complete certain activities, the way in which the learning technology is set up, along with the students' own pedagogical structure will constrain students, thus limiting their choices. This therefore helps to reduce overwhelming feelings.
2.	**Learners' experiences of 'authentic' learning tasks becomes questionable in the face of cross-**

cultural collaboration; are learning tasks 'authentic' to learners from various backgrounds?

Similar to item #1 under Behaviourism, the SCT framework takes into account individual experience as well as cultural diversity and recognizes that individuals have the ability to shape or adjust to new circumstances. It recognizes that learners' cultural backgrounds influence their different expectations of pedagogical practices and of how to work collaboratively within a group. What is deemed worthwhile and meaningful in one cultural setting may not be deemed significant in another cultural setting. The SCTF also recognizes that individuals are knowledgeable and can reflect upon or reflexively monitor their own actions and their new cultural setting, and are able to modify their current actions in the light of the situation. This provides a basis for change – a change in which students begin to interact with the technology in a way that is meaningful to them.

3. **Collaborative technologies such as mobile devices and web 2.0 applications are not appropriate for formal learning contexts, as they are not designed primarily for learning and are not possible with large groups of students in formal learning contexts.**

   The SCTF views VLEs as technologies that are incorporated into mainstream learning to provide a formal, structured and uniformed approach to pedagogical activities – unlike personal technologies and collaborative applications. The SCTF recognizes that although students have great independence in the constructivist classroom, the teacher still plays the dominant role, monitoring and ensuring that the technologies are used appropriately by students. Thus technological constraints and teachers' monitoring of action help to address the issue of relevance and appropriateness of mobile technologies and web 2.9 applications for formal learning contexts.

TECHNOLOGICAL THEORIES

Technological Determinism [Underpinning Behaviourist E-Learning Design]

1. **Behaviourist E-Learning Technologies take a technology-led approach, which pays inadequate attention to socio-cultural contexts.**

   The SCT framework considers both the technical as well as the social aspects of technology. In one sense, the learning technology is an objective product, implemented and deployed within the higher education institution to play a particular role in pedagogical activities. In another sense, users of the learning technology have their own *technological structures* – interpretations, assumptions, meanings and values – which they assign to the technology. The STCF acknowledges that the social interpretations and actions of the relevant users may modify the impact of particular software systems or hardware configurations.

2. **The social impacts of technology tend to be universal and generalizable, rather than unique and sensitive to the individual. It ignores the uniqueness of the situation.**

   The SCT recognizes that the learning technology is not an objective artefact, independent of organizational, social, historical and cultural contexts. Instead it acknowledges that learning cannot be separated from its social and cultural contexts, and from the learning technology which will help to update pedagogical and E-Learning structures.

Anti-Determinism or Social Determinism [Underpinning Social Constructivist E-Learning Design]

1. **Pays little or no attention to the role of the technical artefact in helping to shape social and cultural contexts.**

   The SCT framework considers both the technical artefact as well as the social aspects of technology. In one sense, the learning technology is an objective product, implemented and deployed within the higher education institution to play a particular role in pedagogical activities. The STCF further acknowledges that while the social interpretations and actions of the relevant users may modify the impact of particular software systems or hardware configurations, the technology may still constrain the actions of users.

CULTURAL THEORIES

Hofstedian-type Theories [Deterministic Assumption]

1. **Ignores Heterogeneity within Nation-States**.

   While the SCTF acknowledges that people within a given a collectivity, such as a country, share mutual stocks of knowledge – cultural structures – it also recognizes that diversity also exists within cultures. This is because individuals within a collectivity has the ability to act autonomously or independently of situated social structures, and thus can behave in ways which are different from the norms and values of a particular society, resulting in intra-cultural diversity.

2. **Disregards History**.

   The SCTF takes into account the historical and contextual factors surrounding culture, technology and pedagogy. At the beginning of this chapter, the author provided socio-historical reflections on the mutual evolution of Technology, Culture and Education. It provided the original meaning of culture and the contextual activities, such as tool-making and soil-tilling which gave birth to phenomenon of culture in ancient times. Such historical accounts provide a simple, but effective way of viewing agency and structure which is important in the evolution or "structuration" of cultures.

3. **Deterministic in Nature: Treats Culture as Static Rather than as Dynamic**.

   While the SCTF acknowledges that the culture of a collectivity, such as national culture, enables and constrains individual actions, it also recognizes that individuals within a given culture have the ability to reflect on their actions and to exercise agency. The SCTF recognizes that diversity exists not only among cultures but also within cultures. Therefore actors' ability to reflect on their circumstances, exercise agency and behave in autonomous ways provide a basis for change and cultural transformation

4 **Inadequate for Explaining Relationship between "National" Cultural Values and Work-related Values**.

   The SCTF recognizes that "National" culture influences individual agent's action. Thus, agent's assumptions will continue to influence their individual actions at work, at school and in new cultural settings. When students and staff integrate within the classroom or virtual setting, they draw on the respective structures or rules of behaviour to interact with one another.

Geertz' Cultural Theory [Anti-Deterministic Assumption]

1. **Few Guidelines for Assessing and Evaluating Cultural Interpretations**.

   The SCTF can serve as a useful tool for analysing – making sense of or interpreting – people's social, cultural and multicultural settings and the meanings behind their subjective actions. One of the main objectives of developing the SCTF was to make sense of the theoretical limitations discussed earlier, and to guide exploration into how we can understand the use of VLEs in multicultural contexts. A set of guidelines for evaluating cultural interpretations can be developed from such empirical study.

2. **Hard to Proceed in terms of Cumulative Knowledge with Geertz' Theory**.

   Given that the SCTF looks at individual actions as well as social and cultural integration/interaction, it provides a starting point from which to proceed in terms of cumulative knowledge. In examining the mutual stocks of knowledge – shared cultural structures – and the meaning that individuals associate with a particular action within the same context, from there, the Framework can go on to examine an aggregate of the peoples' knowledge of and meaning associated with the same action within the same context.

3.6 Chapter Summary and Conclusions

This chapter has examined the core concepts of Structuration, initially reflecting on the socio-historical contexts of technology, culture and education through the concepts of agency and structure. It has looked at a few socio-technical approaches which have attempted to overcome the determinism-antideterminism, structure-agency dichotomy in Information Systems research by combining the social and the technical. The researcher has argued, however, that none of these theories is entirely suitable for her research. Giddens' [1984] Theory of Structuration has been reviewed, and its relevance to this research has been discussed. The potential value of developing technological, cultural and educational models of agency and structure has been examined. A penultimate conclusion is that a structurational framework could be employed to re-conceptualize technology, culture and education through the interdependent notions of structure and agency, to overcome the incomplete conceptualizations of each phenomenon and improve practice.

The chapter concludes with the establishment of a Structuration Conceptual and Theoretical [SCT] framework to guide the exploration into how VLEs are used in multicultural contexts. Foundational to the SCT framework is Giddens' theory of Structuration. Incorporated into this framework are key themes drawn from the discussions of this chapter and the previous one. A summary of how the SCT framework could help to address the shortcomings in the literature is also presented.

The next chapter examines broad research methodologies and their underlying assumptions, and justifies the selection of the approach taken to explore the use of VLEs in multicultural contexts.

CHAPTER FOUR

Research Methodology

4.1   Introduction

Chapters Two and *Three*, together, have so far provided the theoretical base for the proposal of a Structuration Conceptual and Theoretical [SCT] framework for conceptualizing technology, culture and education.   This theoretical framework needs to be supported by empirical work.   This chapter is concerned with the research methodology that is employed to meet the objectives of the research fieldwork.   Quantitative and Qualitative research are introduced as two broad methodologies, and their underlying assumptions are characterized and examined within the domains of Information Systems and Learning Technology Research. The ontological and epistemological positions taken in this research are then justified.   The case study methodology is then discussed within the context of Information Systems research. The research design and methods for this study are then described, followed by an evaluation of the research.

4.2   Quantitative and Qualitative Research Methodology: An Overview

Traditionally, quantitative and qualitative types of research have been identified as two broad methodologies.   Quantitative research is classified as a structured approach to inquiry, into natural phenomena. It allows researchers to describe current or existing conditions, investigate relationships between two or more variables and determine cause and effect. Qualitative research, on the other hand, is a flexible approach to inquiry which allows researchers to "*get at the inner experience of participants, to determine how meanings are formed through and in culture, and to discover rather than test variables*" [Corbin and Strauss, 2008]. Both kinds of research are guided by an underlying assumption or philosophy, which concerns the nature of knowledge [ontology], how it can be obtained

[epistemology] and which research methods and procedures are appropriate for obtaining it [methodology] [Creswell, 2003; Myers, 2005].

The nature of knowledge – ontology – relates to the researcher's view of the world and its characteristics. That is, whether the researcher assumes the empirical world to be objective and hence independent of humans, or subjective and hence having existence only through the action of humans in creating and recreating it [Orlikowski and Baroudi, 1991; p. 58]. Based on the researcher's ontological position, a particular epistemological approach is usually taken in obtaining and validating knowledge. There are three generally accepted epistemological paradigms: *Positivist*; *Interpretivist*; and *Critical* approaches. Quantitative research is premised on a positivist epistemology whereas the epistemological positions for qualitative research are positivist, interpretive or critical, as depicted in *Figure 4.2*.

Figure 4.1: **Epistemological Assumptions for Quantitative and Qualitative Research [after Myers, 1997]**
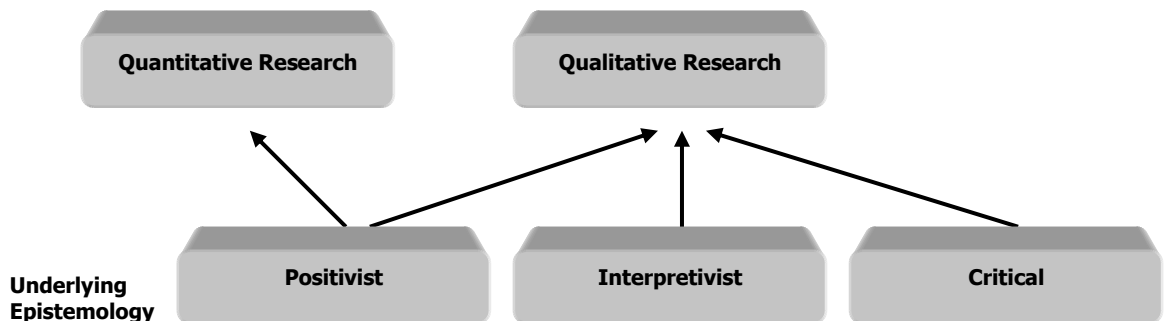
Epistemological assumptions inform the research methodology or practice. These assumptions influence different ideas about what constitutes 'valid' or 'sound' research, and they also inform the different criteria for assessing the quality of the study [Oates, 2006]. In most areas of social research these different philosophical ideas have led to polarized positivist-interpretivist debates about what defines valid knowledge and about the appropriate methods and procedures for conducting and validating research. Positivists, for instance, believe that the scientific method is the accepted approach for knowledge acquisition and that this approach is valid for all forms of inquiry, whether the domain of study is animate or inanimate; human,

160

animal or plant life; and physical or non-physical phenomena [Goles and Hirschheim, 2000]. Interpretivists, on the other hand, argue that natural reality – and the laws of science –are fundamentally different from social reality [Gray, 2004], and therefore a quantitative analysis of complex social phenomena is neither possible nor desirable.

This kind of debate is not excluded from the domains of Information Systems which draws heavily from mature disciplines within the social sciences, though emerging from computer science. With a view to developing a critical understanding of positivist and interpretivist studies within Information Systems, the ensuing section briefly introduces the field of IS and discusses the philosophical premises on which positivism and interpretivism are founded.

4.3 Positivism and Interpretivism in Information Systems Research

Information systems are, fundamentally, social [soft] rather than technical [hard] systems [Stowell and Mingers, 1997]. However, over the last 20 years the competing strands of positivism and interpretivism have been the source of much controversy within the IS discipline, which witnessed the dominance of positivism in guiding research in the field. Studies conducted over the past two decades, presented this evidence [e.g. Orlikowski and Baroudi, 1991; Alavi and Carlson, 1992; Walsham 1995a; Mingers, 2003]. With many researchers and practitioners sticking strictly to formal methods in computer science and software engineering, IS has had to fight an uphill battle in coming to terms with balancing qualitative and quantitative methods in the course of research activities – unlike most mature social studies [Lee and Liebenau, 1997]. Some interpretivists argue that some of the difficulties experienced in IS research, such as inconsistent results; lack of regard for the end-user, lack of customer satisfaction and the general disregard for contexts [social, cultural and institutional], may be attributed to the inappropriateness of the positivist paradigm for the domain. This has also influenced the new field of learning technology/E-learning, which in many ways, share similar characteristics with the IS field [e.g., their interdisciplinary approach]. On these grounds, some practitioners pressed for alternative philosophical approaches to IS research, while others advocated for an integration of paradigms

within the same research project [e.g. Mingers, 2001a; Goles and Hirschheim, 2000].

Despite the long dominance of positivism over the years, interpretive research in information systems is now a well-established part of the field [Walsham, 2006]. This is evident in the significant number of interpretive papers published in well-known US and European-based journals in the period 1993-2000, and since then [Mingers, 2003]. So, many IS journals are now publishing interpretive studies, and interpretive researchers can find several examples of such papers in any of the potential outlets for their work [Walsham, 2006]. According to Mingers [2004], it can now be announced that a ceasefire has been agreed:

> "*Whether through the 'unforced force of the better argument' [Habermas, 174: 240] or simple exhaustion and boredom, both sides now recognise the legitimacy of the other's position. Generally, positivists now accept that there are important aspects of the social and psychological world that simply escape measurement and quantification, and that interpretive research can be both insightful and rigorous. Interpretivists in their turn accept that there quantitative analysis can sometimes be useful*" [p. 165].

Mingers, however, remains cautious about the 'pockets of resistance on both sides who will carry on guerrilla campaigns' [p. 165]. Nonetheless, given that interpretive research is now a well-established part of the IS field, the epistemological choice between interpretivism and positivism is an important issue for IS researchers [Walsham, 2006; Walsham, 2001]. It is prudent, therefore, to examine the philosophical assumptions underlying the conduct of research in general, in order to develop a critical understanding of how they inform IS research practice in particular. The next two subsections – *4.3.1* and *4.3.2* – discuss the premises on which positivism and interpretivism are based, with examples grounded in IS/learning technology research.

4.3.1 Positivism

Positivism underlies the scientific method which seeks to find universal laws, patterns, regularities and causal relationships among the elements of study [Oates, 2006]. This allows researchers to make generalizations and predictions and control phenomena.

Ontologically, the position adopted by the positivist is one of realism [Hirschheim, 1992], which postulates that entities in the physical and social world – be they objects, forces, social structures, ideas – are orderly and regular, and exist independently of the individual who observes them [Mingers, 2004; Weber, 2004]. Similarly, within the field of information systems, positivist IS researchers conceptualize information technology [IT] as a finished artefact which is relatively stable, fixed and independent of the context in which it operates. Many learning technology designers tend to focus on the software-instructional processes to be used between learner and learning software [Sorensen and Ó Murchú, 2006], without consideration for inter- and intrapersonal human interaction and the wider institutional, cultural and societal contexts within which their systems are used. As a result, the implementation of learning technologies in institutions of higher learning is assumed to be straightforward and unproblematic. This links back to the problems of technological determinism evident in the learning technology literature, which was discussed in *Chapter Two*.

From an epistemological stance, and in line with their ontological assumptions, positivist researchers believe that facts about the world can be discovered independently of the researcher's personal values and political, ideological and moral beliefs [Oates, 2006]. The researcher, therefore, is seen to play a passive, neutral role in building knowledge of reality, particularly during the process of data collection. Analogously, in IS or Learning Technology research, it is argued that the designer is an objective, dispassionate outsider who uses rational thinking, and tools and methods of the learning process that are based on foresight, prediction and formalization [Oates, 2006; Sorensen and Ó Murchú, 2006]. In gathering data from users, the researcher takes an "outsider's view" of the discussion, focussing not on the meaning that participants assign to comments but rather on the type of comment made, such as a new idea versus supporting an idea already given [Trauth and Jessup, 2000]. These objective facts provide the foundation for human knowledge and reality.

In terms of methodology, positivist research procedures employ deductive logic. This is based on the empirical testing of theories and hypotheses about some

observed aspect of the world, which further involves observing and describing results; confirming or refuting hypothesis; and accepting, modifying or rejecting theory [Oates, 2006]. For example, learning technology research premised on behaviourist ideas of operant conditioning and pre-determined/programmed instruction [e.g. early 'teaching machines'], generally was characterized by a methodology of "setting goals and objectives, analyzing resources, devising a plan of action and continuous evaluation/modification of the program" [Mergel, 1998].

Since emphasis is placed on measurable, observable data, positivists tend to rely on a range of scientific or quantitative research strategies such as laboratory experiments, field experiments, surveys, design creation, case studies, theorem proof, forecasting and simulation [Oates, 2006; Galliers, 1992]. Where experiments are often not feasible, many positivist researchers use surveys [Oates, 2006]. In terms of data-collection methods, predetermined instruments such as structured questionnaires, structured interviews and observation are used for gathering numerical data. Data is then analyzed statistically or through content analysis. For instance, early research into the use of online discussion fora focused on analysis of the content of the threaded messages [Oliver, Roberts et al, 2007]. There was a naïve assumption that this was enough to capture the whole event, without an understanding of the context within which the discussion took place [Jones, 1998 – see Oliver, Roberts et al, 2007]. In terms of validity, it is believed that a statement made by the researcher is true when it has a one-to-one mapping to the reality that exists beyond the human mind [a correspondence theory of truth] [Weber, 2004]. *"Models produced by the designer are held to be 'true' representation of reality"* [Oates, 2006; p. 302], and it is believed that the research results can be reproduced.

4.3.2 *Interpretivism*

Interpretivism[5] which was developed in the intellectual traditions of hermeneutics and phenomenology to study social and cultural phenomena, is seen as in direct contrast to positivism. A fundamental distinction is that while positivist studies are looking for consistencies in the data in order to deduce, prove or disprove scientific

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[5] Various terms have been used to identify this approach, such as anti-naturalist, anti-positivist or post-positivist [Blaikie, 1993].

laws [nomothetic], interpretive studies place emphasis on exploring and explaining people's social settings and the meanings behind their subjective actions [ideographic] [Gray, 2004]. Thus interpretive research in IS and Learning Technology, is concerned with understanding the social context of an information system, and the role of technology for developing knowledge: researchers look at the social processes by which technology is developed and construed by people and through which it influences, and is influenced by, its social setting [Oliver, 2007; Oates, 2006].

Ontologically, interpretivists adopt a position of idealism, relativism or instrumentalism, which holds that the world is not conceived of as a fixed construction of objects but rather as an emergent social process, based on human consciousness and subjective experience [Burrell and Morgan, 1979; Orlikowski and Baroudi, 1991]. For interpretivists, the world is taken to be very complex, problematical and mysterious. Given that reality is a subjective construction of the mind, reality cannot be separated from the person who observes it. However, it is important to point out here that within interpretivism one may assume that an independent reality exists, hence an interpretivist can also be a realist [Myers, 1997]. Nonetheless, what is foundational is that all interpretivists assume that our knowledge of reality [given or socially constructed] is gained only through social constructions of language, consciousness, shared meanings, documents, tools, instruments and other artefacts [Klein and Myers, 1999]. Whereas positivist E-Learning researchers see IT as hard, objective artefacts, independent of organizational, social, historical and cultural contexts, interpretive E-Learning researchers consider the contextual factors surrounding the learning technology: "*given that knowledge is constantly advancing, the design and development principles need to be aligned with teacher and students' emerging requirements*" [Kundi and Nawaz, 2010; p. 31]. Furthermore, researchers studying student-computer interaction [SCI][6], argue that learning cannot be separated from its social context, and that culture and language, therefore, heavily influence the way the learners update their world models [Ward et al., 2006].

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[6]   Student-computer Interaction [SCI] and is a variant of constructivism premised on the social contexts of learning [(Deaudelin et al, 2003;)].

Epistemologically, interpretivists intentionally constitute knowledge from multiple subjective realities or through social construction of the world [Weber, 2004]. The constructivist approach to E-learning is premised on interpretivism, viewing reality as internal and knowledge as constructed [Siemens, 2004]. Unlike positivist researchers who are presumed to 'discover' an objective social reality, interpretive researchers believe that social reality cannot be understood independent of the social actors [including the researchers] that construct and make sense of that reality [Orlikowski and Baroudi, 1991]. As such interpretivists argue that researchers can never assume a neutral, value-free position, given that they conceptualize their research based on their own personal assumptions, beliefs, values, interests, previous experience and on a particular theory, which itself is socially constructed. For instance, "*researchers usually interact with the people being studied [for example, by asking them questions], which makes it probable that they have some effect on them and the situation*" [Oates, 2006; p. 293]. One of the claims against positivism, therefore, is that it fails to appreciate the fundamental experience of life and neglects meaningful experience which is really the defining characteristic of human phenomena [Hirschheim, 1992].

Methodologically, the procedures of interpretivist research are characterized as "*inductive, emerging and shaped by the researcher's experience in collecting and analyzing the data*" [Creswell, 2007]. According to Creswell [2007] the researcher follows a logic that is inductive, from the ground up, rather than handed down entirely from a theory or from the perspectives of the inquirer. The research designs are not pre-specified, but facilitate flexibility during the research process and the emergence of rich, qualitative data. Since inquiry into reality is not with the objective of replicating, predicting or generalizing findings to other social contexts, but to describe, interpret, analyze and understand individual cases within their unique contexts [Gray, 2004], interpretivist researchers rely on interpretive strategies such as: subjective/argumentative, reviews, action research, descriptive/interpretive field studies, futures research and role/game playing [Orlikowski and Baroudi, 1991; Galliers, 1992].

Bearing in mind the full complexity and ambiguity of human sense-making, interpretive researchers deploy a wide variety of qualitative techniques and empirical materials, such as personal experience; interviews; observations, artefacts; cultural texts; documents; and interactive texts, to access unquantifiable facts about humans within their natural social settings. Using multiple techniques helps to avoid or reduce misunderstanding and misinterpretation. For example, soft IS approaches, such as SSM, recognize that different stakeholders in an organization have different needs and different *weltanschauung* or worldviews. As such researchers concentrate on obtaining a holistic view of the situation by discussing the main issues with stakeholders and hearing their description of the situation, in an effort to improve their understanding of the situation. The use of rich pictures – which describe the current situation, its main stakeholders and issues – serves as a starting point of exploratory discussion with people in a problem situation [Checkland and Scholes, 1999]. For the interpretive researcher, "truth" is fulfilled when interpretations of stakeholders' match the lived experience of the researcher [Weber, 2004]. Claims to knowledge are then defensible. Researchers are aware that the research results may not be reproduced, and as such, they recognize and address the implications of their subjectivity.

The above examination of the beliefs underlying the conduct of research and how they inform IS research practice, sets the foundation for discussing the philosophical stance to be taken in this current research. The next section is devoted to this discussion.

4.4 Discussion on an Epistemological and Methodological Choice

The above examination of the philosophical paradigms has laid the foundation upon which an appropriate research methodology can be selected for this research. As seen, quantitative and qualitative researches are clearly distinguished by their epistemological and ontological positions, though their research process is broadly the same. The author of this research acknowledges that no one methodology is superior or inferior to the other. She recognizes that both quantitative and qualitative methodologies have their own set of strengths and weaknesses, advantages and disadvantages, and moments of appropriateness and

inappropriateness.   For the researcher, the main priority is choosing the methodology and methods that will be relevant in addressing the research questions and achieving the overall aims and objectives of this research. A quick assessment of each methodology in relation to this study will help to achieve such priority.

4.4.1   The Researcher's Ontological Position

A gap identified in the literature suggests that a need exists to study rich, emergent approaches to the design of learning technologies that are flexible and can support multiple cultures. This gap served as a springboard for the fieldwork, which is primarily concerned with exploring and understanding.   The researcher acknowledges that a number of stakeholders exist within Institutions of Higher Learning [e.g. students, lecturers, Blackboard support staff, IT support staff, Teaching and Learning Unit], each with a different worldview and experience regarding university life in general and E-learning in particular. Thus in choosing to conduct a study of this nature, the researcher is already embracing the idea of multiple realities and is establishing her intent to report these multiple perspectives. The researcher recognizes that every individual that will be studied has his or her own cultural, technological and pedagogical assumptions and experiences. Given that reality is a subjective construction of the human mind, and that structural rules of behaviour and their associated resources enable actors to perceive concepts and act accordingly, reality in the classroom in terms of VLE/pedagogical activities, cannot be separated from the students and lecturers who experience it. In other words, there can be no separation of social reality from structural rules and resources which are drawn on in the shaping, reshaping and transforming of the VLE space.

The very nature of the current study reflects the researcher's own personal conceptions about the social world as an emergent, multi-dimensional and complex social process, based on human subjective experience. While the author agrees from a positivistic stance, that the physical and social worlds are objective and we are subjected to their constraints, she also recognizes that we can shape and reshape these worlds through our actions, which are guided by our assumptions. From an ontological standpoint therefore, reality, for the researcher, is subjective. This

stance appeals particularly to Giddens' Theory of Structuration which views human action and structure [rules and resources] as two aspects of the same whole – a duality. As discussed in *Chapter Three*, the notion of duality is an attempt to overcome the objective-subjective division between structure and human agency.

4.4.2   *The Researcher's Epistemological Position*

Having identified an ontological position based on subjectivity in this research, it is now necessary to identify a particular epistemological approach to obtaining and validating knowledge – an approach that is congruent with the researcher's ontological stance. The researcher recognizes that research is value-laden and that biases are present [Creswell, 2007]. As such she can never assume a neutral, value-free position, as she conceptualizes her research in terms of her own personal assumptions, moral beliefs and previous experience, and of the Theory of Structuration, which itself is socially constructed. Furthermore, the researcher's inquiry into multiple realities is not with the intention of replicating, predicting or generalizing findings to other social contexts, but of interpreting and describing individual cases within their unique circumstances. This means that her personal assumptions and beliefs will intervene and help to shape the issues being studied in their natural social settings. Also, the researcher will need to engage with her subjects, and not observe them from a "distance", in an effort to garner rich data about their VLE experience. She will need to rely on subjects to help explain certain linkages between their cultural structures/assumptions and the use of the VLE technology, *inter alia*.

From a positivist stance, while causal theories or models provide a general picture of trends, associations and relationships, they will not tell the researcher about why subjects responded as they did; the context in which they responded; and their deeper thoughts and behaviours that governed their responses [Creswell, 2007]. This account will not provide a "thick description" of the actions and their contexts. In this light, a positivist epistemology will not be suitable for this research. Therefore, in line with her ontological assumptions and relevant to the purpose of the study, the researcher has taken an interpretive epistemological stance.

4.4.3 The Researcher's Methodological Choice

Taking a subjective ontological stance and an interpretive epistemological position, means that an appropriate research methodology must be adopted to adequately capture the social and cultural complexity of the problem the researcher is investigating. In exploring the use of VLEs in multicultural using a structurational lens, the researcher requires access to unquantifiable facts about students and lecturers within their natural teaching and learning settings. She also requires an understanding of the situated use of the VLE from their viewpoint.

The researcher intentionally wants to cover the rich, multicultural contextual conditions within which the VLE technology is used rather than to isolate the phenomenon from its context, as with an experiment strategy. The researcher acknowledges that she cannot separate what people say from the context in which they say it [Creswell, 2007]. Furthermore the researcher wanted to focus on the natural field setting rather than a laboratory setting. Since she has no intention of manipulating the setting or controlling individual variables, but rather aims to gain rich insight into the full complexity of the real-life "VLE-Culture" phenomenon, an experiment strategy would not be possible.

While the survey strategy could attempt to address both phenomenon and context, its ability to investigate the thickly interweaving social, cultural and virtual contexts of this study would be extremely limited. Furthermore, the researcher's assumption is that it is impossible to capture stakeholders' experience and perceptions with any kind of count or statistics which can then be replicated. Therefore, survey as a strategy for this research would be inadequate.

An action research strategy could prove promising, as it requires an accurate and comprehensive understanding of the situation to be addressed, in order to solve the problems identified and improve the situation [Oates, 2006; Mumford, 2001]. It involves active intervention on the part of the researcher to effect change, based on a cycle of plan-act-reflect. However, active intervention is not required in this exploratory study, as the researcher is currently concerned with exploring and understanding the use of VLEs in multicultural settings rather than pragmatically

changing the current situation under investigation. The intended outcome of her fieldwork is to undertake a Structurational analysis of the empirical data to re-conceptualize technology, culture and education, and to help inform the choice and configuration of VLEs to accommodate multicultural settings. Action research, therefore, will be inappropriate for a study of this nature.

Case studies facilitate the investigation of an empirical topic or a contemporary phenomenon in its natural, real-life context [Yin, 2009]. Case study research is useful in areas where there is little understanding of how and why processes or phenomena occur, or where the experiences of individuals and the contexts of actions are critical [Darke et al, 1998]. The methodology is versatile, and in its versatility, can be used within the positivist, the interpretivist or the critical philosophical tradition [Dubé and Paré, 2003]. One of the main strengths of case research is that it captures 'reality' in greater detail and analyzes more variables than is possible using strategies such as experiments and surveys [Galliers, 1992]. In addition, it produces data that is close to people's experiences and can be more accessible than highly numeric studies [Oates, 2006].

The case study research methodology could meet the needs of this study: it would offer a means of investigating and clarifying the contemporary "Culture-VLE-Pedagogy" phenomenon within its complex, real-life context, and could illuminate conceptual and pragmatic understandings of the situation. Interpreting and reporting on stakeholders' real-life experiences would reflect the researcher's personal assumptions that there is no single version of truth, but rather a variety of people's perceptions, experiences, meanings and interpretations of their actions and settings. Given that the case study strategy can be used within various philosophical traditions, it will fit well with the Theory of Structuration which embraces both objective and subjective realities. In view of the key issues taken into account, the researcher argues that an in-depth qualitative case study simply would be the most appropriate fit for her research problem.

In summary, ontologically, the researcher's stance is subjective, while her epistemological position is interpretive. Methodologically, a qualitative case study

strategy is seen as most appropriate for the study and is therefore adopted. The next section discusses the case study methodology and its use in Information Systems, while the remainder of this chapter will be devoted to describing how the case study was designed to shape the research practice and address the research questions.

4.5   Case Study Methodology in Information Systems Research

The case study research methodology has a long, distinguished history across many disciplines, and is familiar to social scientists because of its popularity in psychology [Freud], medicine [case analysis of a problem], law [law case], and political science [case reports] [Creswell, 2007]. Although once considered to be the least systematic within the information systems [IS] discipline, the methodology has commanded respect in the field for at least a decade [Dubé and Paré, 2003]. Some of the earliest contributions toward the advancement of the case study methodology in IS came from researchers within the field [e.g. Benbasat et al, 1987; Lee,1989] and those from other disciplines [e.g. Eisenhardt, 1989; Yin, 1994]. These researchers called for more rigour in case research and, through their recommendations, contributed to its advancement [Dubé and Paré, 2003].

Case research is characterized by its focus on context and depth; natural settings; holistic investigation; and multiple sources and methods. These features of case research contribute to the development of knowledge in the IS field in the following ways [citing mainly from Oates, 2006 and Dubé and Paré, 2003]:

- *Context and Depth*. An information system cannot be understood properly without its context [Beynon-Davies, 1998]. Therefore, since understanding how technical artefacts are created and used within organizations is a central aspect of the IS research discipline, the case study method is particularly well-suited to IS research [Dubé and Paré, 2003; Braa and Vidgen, 1999]. Furthermore, in-depth case investigations open the way to new ideas and new lines of reasoning, and pinpoint the opportunities, challenges and issues facing IT specialists and managers [Dubé and Paré, 2003].

- *Natural, Real-life Setting.* In case research, one or few entities [person, group or organization] are examined in their natural setting, not in a laboratory or other artificial situation [Oates, 2006]. In this regard, having access to and reporting on real-life IT experiences, case researchers allow both academia and practice to keep up with rapid changes occurring in the IT world as well as in organizations [Dubé and Paré, 2003]. Altogether, "*a rich and natural setting can be fertile ground for generating theories*" [Benbasat et al, 1987].

- *Holistic Study.* The researcher focuses on the complexity of relationships and processes and how they are interconnected and inter-related, rather than trying to isolate individual factors [Oates, 2006]. Such holistic investigation suits well our need to understand the complex and ubiquitous interactions among organizations, technologies and people [Dubé and Paré, 2003].

- *Multiple Sources and Methods.* Case research typically combines several data collection methods – both qualitative and quantitative – such as interviews, observation, questionnaires, documentation, text analysis, observation and time series [Darke, et al, 1998; Dubé and Paré, 2003]. Ideally, evidence from two or more sources will converge to support the research findings [Benbasat et al, 1987]. The wide range of sources and data collection methods brings richness and flexibility to the overall research process, making case research particularly well designed for the study of a complex phenomenon such as IT [Dubé and Paré, 2003].

Yin [2009] identifies three basic types of case studies: [1] *exploratory case study*, which seeks to develop pertinent hypotheses and propositions for further enquiry or subsequent study; [2] *descriptive case study*, the analysis of which tells a story, including discussion of what occurred and how different people perceive what occurred [Oates, 2006]; and [3] *explanatory case study*, which attempts to explain how and why a particular event happened as it did or how and why particular outcomes occurred. Within IS, case research is widely used for exploration and hypothesis generation, but also can be used for providing explanations and for

testing hypothesis – all of which contribute to knowledge development in the field [Dubé and Paré, 2003].

Case research, whether exploratory, descriptive or explanatory, may adopt single-case or multiple-case designs. In a single-case design, the researcher focuses on an issue or concern, and then selects one bounded case to illustrate this issue, while in a multiple-case design, the researcher also focuses on an issue or concern, but selects multiple case studies to illustrate the issue [Creswell, 2007]. A single case is appropriate where it represents the critical case in testing a well-formulated theory; where it represents an extreme or unique case; or where it is the representative or typical case [Yin, 2009]. Multiple-case designs allow cross-case analysis and comparison, and the investigation of a particular phenomenon in diverse settings [Darke et al, 1998]. Although multiple-case designs have increased in frequency in recent years, the single-case is the most common design used [Yin, 2009; Oates, 2006].

The case study methodology has been selected as the appropriate approach to the research problem. Having explained this research strategy, it is now necessary to describe how the methodology was tailored and executed in the research.

4.6 The Case Study Design for this Research

A research design is the logic that links the data to be collected, and the conclusions to be drawn, to the initial questions of study [Yin, 2009; p. 24]. Yin posits that for case studies, five components of a research design are especially important:

1. The study's questions
2. The study's propositions or theory in context
3. The study's unit[s] of analysis: data collection activities
4. The logic linking the data to the propositions: data analysis
5. The criteria for interpreting the finding: Interpreting data in terms of the literature/theory

The design for this research will be discussed in *Subsections 4.6.1–4.6.5* below, in relation to these five components.

4.6.1   The Study's Questions and Objectives

Research questions refer to the questions researchers pose and which they try to answer by undertaking social research [Blaikie, 2010]. Yin [2009] argues that case studies are the preferred method when "*how*" or "*why*" questions are posed. This is because such questions are explanatory and deal with operational links needing to be traced over time, rather than mere frequencies or incidence.

The main objective of this research was to understand the use of VLEs in multicultural contexts using a Structurational framework. This is with a view to address the limited, deterministic conceptions of "culture", "technology" and "pedagogy" in the E-learning literature. The central question for this research was:

How Can Structuration Frameworks Provide an Understanding into the use of Virtual Learning Environments among Students of Diverse Cultures?

Channelled by this research question, the empirical study attempted to address five objectives:

Objective One: To investigate the main limitations of current pedagogical, E-learning and cultural theories, and how these limitations impact on E-Learning practice and multicultural settings.

Objective Two: To discuss and select an appropriate theoretical framework to address the limitations identified in *Objective One*. [The theoretical framework selected was the Theory of Structuration].

Objective Three: To formulate a Structuration Conceptual and Theoretical Framework [SCTF], using core concepts such as structure and agency, to reconceptualise Culture, Technology and Pedagogy.

Objective Four: To apply the SCT framework to empirical situations involving VLEs used by people of diverse cultures, so that we can understand more deeply the use of VLEs in multicultural contexts.

4.6.2   The Study's Propositions or Theoretical Lens

For case studies, theory development as part of the design phase is essential, whether the purpose of the ensuing case study is to develop or test theory [Yin, 2009]. Research propositions and conceptual frameworks reflect important theoretical issues and direct the researcher's attention to areas that should be examined within the scope of study [Yin, 2009; Miles and Huberman, 1994]. Without research questions and research propositions or conceptual frameworks the researcher might be tempted to cover "everything" about the study, which is impossible to do [Yin, 2009].

No hypothesis was developed in this research. However, a conceptual framework, established from the literature, guided the empirical study. *Chapter Two* discussed the predominant theories of culture, technology and pedagogy employed in the learning technology/IS literature and discussed how their limited conceptions impact on the design and use of learning technologies. The conceptual gaps in the literature generated the main research question and research objectives mentioned above. *Chapter Three* explored Giddens' [1984] Theory of Structuration, and discussed the potential value of developing technological, cultural and educational models of agency and structure to address these limitations. The core limitations of cultural, technological and pedagogicial theories, along with the ways in which the SCT framework could help to address them, were then discussed and summarized in a table at the end of the chapter. *Chapters Two* and *Three*, together, provided the theoretical base for the development of the Structuration Conceptual and Theoretical Framework [SCTF], which provided direction for the study and contributed to extant knowledge. The components or core concepts of the SCT Framework – labelled from **A** to **I** – were discussed and presented in diagrammatic form [*Figure 3.4*] in *Chapter Three*. The core concepts investigated were defined as follows:

A. *Structure*: *The VLE-supported Pedagogical Activities in Multicultural Settings*: This refers to the institutional culture or rules governing appropriate conduct in relation to pedagogical methods, VLE usage and the streamlining of multicultural or internationalized programmes. This serves as the environment

or context within which academic staff and students operated. Students and lecturers come to the classroom with their individual cultural, technological and pedagogical structures or assumptions which enable or constrain their actions. Collectively, these assumptions help to reinforce and simultaneously transform the existing institutional structures within the VLE-supported/E-Learning and multicultural settings.

B. *Culture and Cultural Structures:* Cultural structures concern the rules of behaviour associated with a particular society or social collectivity. They are rules of signification, domination and legitimation, held in the minds of human agents – which inform [enable and constrain] their actions.

C. *Technology and Technological Structures*: The meanings that users assign to the learning technology, which influence their appropriation of the interpretive schemes, facilities, and norms designed into the technology.

D. *Pedagogical/E-Learning Structures*: This concept overlaps with technological structures. It involves not only users' perceptions and expectations of the learning technology, but also their assumptions about how they should use the VLE technology to accomplish pedagogical tasks. It concerns the assumptions or rules regarding pedagogical practices which inform [enable and constrain] the ways in which actors accomplish E-Learning tasks/activities.

E. *Multiculturalism*: The co-presence, integration and interaction of culturally-diverse actors, resulting in diverse cultural structures or assumptions within the classroom/VLE setting.

F. *Conflict and Agency*: The differences in cultural, technological and pedagogical structures and assumptions enacted by human agents resulted in conflict. However, conflict of cultural, technological and pedagogical structures may occur, this opens up the door for agency or action, resulting in the production and reproduction of new structures.

F[2]. *Cultural Agency*: The ability of knowledgeable actors to overcome cultural issues they experienced, by drawing on their existing cultural structures and structures of the wider environment to create meaning, exercise power and legitimize actions.

F[3]. *Pedagogical and Technological Agency*: The ability of knowledgeable actors to draw on the learning technology, such as the VLE, to provide meaning, exercise power and legitimize actions in their pedagogical activities.

G, H and I. *Elements of Social Interaction [G]*, *Structural Resources [H]* and *Structural Rules [I]*: These dimensions of structuration [Giddens, 1984] were used as the primary tools in the SCT framework to analyse and test the empirical study.

4.6.3 Collecting Data: The Study's Unit[s] of Analysis

The unit of analysis identifies what constitutes a "case" or fundamentally defines what a "case" is [Yin, 2009]. For example, the unit of analysis or "case" may be an individual, group, organization or event. Since the unit of analysis – informed by the research question – suggests where the researcher will go to get answers, with whom the researcher will talk and what the researcher will observe [Darke et al, 1998; Miles and Huberman, 1984], the unit of analysis is interlinked with the procedure for data collection. Data collection involves a few closely, interrelated steps, such as locating the site and individual; gaining access and making rapport; selecting data sources; collecting the actual data; recording information; resolving field issues; and storing the data. A complete collection of data for one study of the unit of analysis forms a single case [Darke et al. 1998].

The objective of data collection for this study was to demonstrate how technological, cultural and educational models of structure and agency could help us understand the use of VLEs in multicultural contexts using the SCT framework. In meeting this objective, the research would further demonstrate how the SCTF can be employed to fill the gaps in the literature. In order to meet these objectives it was practical to apply the SCFT to an empirical study with individuals of diverse

cultural backgrounds who used the VLE technology systematically in their teaching and learning activities. Such events were likely to be found at an institution for higher learning and within a population of postgraduate students and their lecturers. This is because team learning has become popular in graduate schools, where students are encouraged, and in some cases, mandated to use the institutions' VLE to support their learning activities [Wilson et al, 2006; Larsen and McInerney, 2002]. The unit of analysis for this case research, therefore, was the use of the VLE technology by a cohort of culturally-diverse postgraduate students and academic staff to support pedagogical activities.

4.6.3.1 *Selecting the Case: Locating the Site and Individuals*

Purposeful sampling in qualitative study means that the inquirer selects individuals and sites for study because they can purposefully inform an understanding of the research problem and central phenomenon in the study [Creswell, 2009; p. 125]. The University of Salford, located in northwest England, was purposefully selected as the site for the study because the institution employed the VLE technology for some of its academic programmes and the institution recruited international students to its campus programmes.

In addition, the researcher wore two hats at the University of Salford: she was a postgraduate student pursuing a doctoral degree in Information Systems, in the Information Systems Institute [ISI] and she was also a Graduate Teaching Assistant [GTA] in that Institute. As a GTA, the researcher assisted three lecturers with the delivery of their modules, leading their respective tutorial sessions. Within this vein, she supported undergraduate and postgraduate students, both face-to-face and via Blackboard, the University's VLE.   The researcher, therefore, was aware of the usage of the VLE by some of the academic staff members.

Some of the ISI academics used the Blackboard VLE, which was designed and developed in North America and chosen by the University. Fundamentally, the Blackboard VLE facilitated the use of online materials, designed to complement face-to-face teaching, and allowed staff and students to participate in assessed and non-assessed educational activities.   A combination of different learning

179

technologies, such as Streaming Media [Video and Audio], Nuggets, Course Genie, Blogs, Wikis and Podcasting and Text Messaging [SMS] could be delivered through Blackboard. Fundamentally, with the Blackboard VLE staff was able to, *inter alia*:

- Lecture students in the physical classroom through PowerPoint or by accessing websites
- Upload/publish lecture notes and extra materials
- Configure discussion boards and host online discussions
- Make announcements
- Send emails to different groups of students.

With the Blackboard VLE, students too were able to:

- Access lecture notes and additional materials
- Participate in online discussion via discussion boards
- Search for staff information
- Communicate with staff through email and discussion board
- Use electronic diaries and calendars as support tools
- Do self-assessment and summative assessment.
- Share files and communicate with team members.

One of the lecturers employed CABWEB – a portal of the Moodle Open Source Course Management System – alongside Blackboard to support her module activities.   Moodle had features that could allow it to scale to very large deployments of hundreds and thousands of students. Like Blackboard, Moodle platform could be used by academics to, among others:

- Facilitate online courses or augment face-to-face courses.
- Facilitate forums and collaborative communities of learning
- Assess learning using assignments or quizzes.
- Input module jargons and their meanings into the glossary tool
- Encourage students to use reflections, feedback and ratings for a particular activity

Similar to Blackboard VLE facilities, CABWEB could allow students to

- Access lecture notes and additional materials
- Participate in online discussion via discussion boards
- Search for staff information
- Communicate with staff through email and discussion board
- Use electronic diaries and calendars as support tools
- Do self-assessment and summative assessment.
- Share files and communicate with team members.
- Use the feedback feature to rate and reflect on a particular activity or other students' work.

The researcher was also aware that classes particularly within the IS Institute were largely diverse, comprising of British, EU and international students. While student numbers varied from year to year, the enrolment figure was approximately sixty students on average. There were approximately fifteen academic staff members within the Institute who taught various programme modules, although the figures changed over the years.

The capacities of GTA and doctoral student gave the researcher direct access to students and their respective lecturers. Such opportunity helped to provide the data sources for this study in the form of students who were commencing Masters degree programmes in the IS Institute in September 2005, and academic staff members who taught the students. The usage of the VLE technology by students and academics within the IS Institute also provided the context which enabled the researcher to collect case study data.

The researcher selected the "Information Technology and Systems in Organizations" [ITASIO] module as the main MSc. module for the research. The reason for this was that the researcher provided support on this module, and she was cognizant of the fact that the module leader used Blackboard and CABWEB VLEs for non-assessed activities. An informal talk with the module leader also concluded that this was possible. The ITASIO module commenced at the

beginning of the academic year and lasted for one semester, which covered a period of twelve weeks. The researcher therefore used this time to observe, document and participate in VLE activities as well as to interview students. The researcher also needed to select at least one other module which ran in the second semester and used the VLE for activities, in order to capture a range of student and staff experience over the academic year. This was explored with two other lecturing staff members within the IS Institute, and arrangements were made with them for the selected modules and VLE activities.

4.6.3.2 *Gaining Access and Making Rapport: Ethical Considerations*

Gaining access and inviting students and module leaders to participate in the study involved legal and ethical issues [Oates, 2006]. Therefore, before commencing fieldwork, it was essential for the author of this research to seek permission from the Institution's ethics committees and reach an agreement concerning the rights of participants. Participants' rights include: their right not to participate; their right to withdraw; their right to give informed consent; their right to anonymity; their right to confidentiality; their data protection rights; and their intellectual property rights [Oates, 2006].

Ethical approval was sought from the Salford University's *Research Governance and Ethics committee* prior to the commencement of the field study at the institution. Once the committee was satisfied that those affected by the research would be treated fairly, with dignity and that they would not be harmed or placed at risk in any way, the project was approved and the researcher was able to commence her empirical study [Oates, 2006; Creswell, 2007].

Upon gaining ethical approval, the next step was to recruit the target participants, that is, students and lecturers identified in *Sub-subsection 4.6.3.1,* and gain their consent for this study. To this end, three lecturers were approached and their permission was sought in allowing the researcher to recruit their students for her research. The lecturers granted the researcher permission to do so.

The researcher attended an induction session held in the IS Institute for students who were enrolled on the MSc programmes, in September 2005. There, the researcher introduced herself to the students and apprised them of her research. She then invited them to participate in the study. A formal letter, written and signed by the researcher, was circulated to all the students. Forty-two [42] postgraduate students were in attendance. The letter outlined the purpose of the study; the value of students' participation; the request for their participation; and the timeframe within which the study would take place. The letter also assured students that their confidentiality and anonymity would be maintained. Since the researcher was aware of her role as a GTA in the IS Institute, the letter also assured students that their participation or non-participation in the study would not affect their course assessment or any other aspects of their education.

Similar invitation was given to ten [10] ISI lecturers, who were approached privately, on an individual basis. Each staff member was apprised verbally about the researcher's study. Like students, they were then given a formal letter and invited to consent to participation in the research. They were also assured that they were not obligated to participate in the researcher's study and that they could withdraw at any time.

4.6.3.3 *Selecting the Sample*

The researcher aimed to interview no less than fifteen [15] students and ten [10] lecturers in the IS Institute. She was aware that not all students who received letters at the induction session would consent to participation in her study. It was practical for the researcher, therefore, to select individuals who openly volunteered – those who signed and returned their consent forms. Thus, while the UOS students and academics of the ISI department were purposefully sampled as sites for this study, the researcher accepted whoever agreed to participate in the research or whoever was willing to help [Corbin and Strauss, 2008; Oates, 2006]. Of the 42 students who were given letters of consent, 23 of them consented to participation and returned their signed letters. All twenty-three students were interviewed.

Of the ten [10] staff members who were approached, nine lecturers consented to participation in the study, returning their signed consent forms. One lecturer did not sign the consent form, as he would no longer be at the university. All nine lecturers were interviewed.

4.6.3.4 *Data Collection Approaches, Data Recording and Data Storing Procedures*

One of the virtues of qualitative research in general, and case studies, in particular, is that there are many alternative methods of data collection and data sources [Corbin and Strauss, 2008; Oates, 2006; Yin, 2009]. It is argued that a case study should use as many sources as are relevant to the study. Yin [2009] identifies six sources of evidence that are most commonly used in conducting case studies: documentation, archival records, interviews, direct observations, participant-observation and physical artefacts [p. 101].

The author's fieldwork mainly involved the conducting of face-to-face, semi-structured interviews, as well as the gathering of information through institutional documents, observation and physical artefacts. This array of methods and data sources available helped the researcher build an in-depth picture of her case [Creswell, 2007].

- **The Interview Design**

Semi-structured interviews are particularly useful for getting close to the participants' meanings and interpretations and to their accounts of the social setting in which they have been involved [Blaikie, 2010]. Prior to conducting the interviews, two sets of Interview Pro-forma or Scripts were designed: one for students outlined in *APPENDIX C* and one for academic staff. The templates for both students and staff pro-forma were created in Word document and stored on the researcher's computer. The SCT framework informed the researcher about what data to collect and which questions to ask. The student interview pro-forma was comprised of 10 questions, some of which contained open questions, closed questions and sub-questions or "prompt questions". The pro-forma covered three

main categories based of the SCT framework: **Component B** – "*Culture/Cultural Background*"; **Component C** – "*The VLE Technology*"; and **Component D** – "*Pedagogy Concerning Learning Technologies*". The researcher argues that data garnered from these sections will help her to identify other concepts such as *Multiculturalism* [**Component E**]; conflict [**Component F**]; cultural agency [**Component F2**]; and technological agency and pedagogical agency [**Component F3**].

Culture/Cultural Background: This was the first section of the interview pro-forma and was based on **Component B** of the SCT Framework. It was comprised of two items – Questions 1 and 2. Question 1 was open-ended: "*Would you like to describe your cultural background?*" It included a number of "prompt questions"[7] or sub-questions, aimed at eliciting information about students' country of origin, language, race and ethnicity, age, religious faith and any other culture-related information [e.g. dietary restrictions if any] that students would like to share. Question 2 sought to establish students' registration status at the University, that is, whether the student was registered as a Home, European Union [EU] or International student. These three options were pre-specified on the interview script, from which the researcher selected accordingly during interviews.

Generally speaking, obtaining basic information about interviewees' background is often useful to enable researchers to provide a thumbnail sketch of the population as a starting point in the study [Bell and Opie, 2002]. Obtaining cultural information, in particular, enabled the researcher to identify students' various cultural structures [**Component B**]. The differences in students' cultural structures indicated the cultural diversity among participants and helped the researcher to identify the concept of *Multiculturalism* [**Component E**].

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[7] These serve as a mechanism for probing and stimulating responses or for eliciting further detailed information which are relevant to a particular topic. Prompt question do not necessarily incite biased or pre-determined answers.

The VLE Technology: This section is based on **Component C** of the SCT Framework. It contained 2 items – Questions 3 and 4. Question 3 focused on obtaining descriptions of any previous online learning experience which students might have had. It contained several prompt questions and facilitated both open-ended and closed responses. For example, the closed questions solicited "Yes" or "No" response to the question "*Have you ever studied a course or part of a course online?*" and "*Have you any prior E-learning experience?*" Though soliciting "Yes" or "No" responses, the researcher also provided extra space on the interview script to make additional notes if necessary, for example, if the student wished to expound upon his/her response. If yes, the open-ended question invited those students who had prior E-Learning experience to indicate the extent to which they used the learning technology in their learning activities. Question 4 aimed to obtain information about students' VLE expectations or perceptions: "*What are your expectations of the VLE?*"

This section on students' VLE expectations and previous online learning experiences was important as these in part helped the researcher to identify concepts of technological structures [**Component C**] and pedagogical structures [**Component D**] with which students came to study at the University of Salford. It also helped her to identify ways in which such structures influenced students' studies and online learning experiences.

Pedagogy, Concerning Learning Technologies: This category marked the final section of the interview pro-forma, and is based on **Component D** of the SCT Framework. It was comprised of 6 items – Questions 5, 6, 7, 8, 9 and 10. The category aimed at garnering details about students' current learning experience concerning the use of the VLE technology in their learning activities. Question 5, aimed to establish which Masters programme students were currently enrolled on, and contained a list of pre-specified responses from which the researcher selected accordingly, during interview sessions. Question 6 obtained students' experience so far in relation to their general studies, and extracted information about their actual engagement with the VLE technology. Question 7 invited students to describe any technological and pedagogical issues arising, which impacted on their

VLE interaction and overall learning. Question 8 invited students to talk about any cultural issues arising, which impacted on their VLE interaction and overall learning. As a follow-up to questions 7 and 8, students were asked to describe how they overcame these issues [Agency]. Questions 9 and 10 brought the interview session to a close by asking students to summarize their overall educational and VLE experience. Question 9 asked students about their overall online learning experience, and contained sub-questions such as: "*What was the best things?*" and "*What was the worst things?*" Question 10 asked students specifically about the VLE technology: "*What Do You Wish to Keep?*" and "*What Do You Wish to Change?*" Responses to these two latter sub-questions, in particular, helped provide ideas and direction for the inclusions of certain VLE artefacts or features that proved useful for cross-cultural and intercultural communication. Therefore, capturing students' perspectives as to some of the things they appreciated about the VLE and those they did not, and those features they would like to see added, could provide possible solutions toward a Multicultural VLE.

The information in this section helped the researcher to identify concepts such as conflict [**Component F**], cultural agency [**Component F2**], and technological agency and pedagogical agency [**Component F3**].

Academics' interview script covered four main categories: The interview questions in both student and staff scripts were aimed at probing and eliciting rich, meaningful stories about participants' experience of using VLEs in multicultural settings, in an attempt to meet the research objectives. The interview scripts enabled the researcher to take notes during the interview about the responses of the interviewee [Creswell, 2007].

All handwritten interview and observational scripts for this research were held in a filing cabinet with a lock placed on its door. The researcher's computer was password protected. Hence no one except the researcher had access to the raw interview data or processed information stored her computer. Presentation of research findings preserved the anonymity and confidentiality of interviewees by the use of pseudonyms.

- **Semi-Structured Interviews**

The empirical study involved the conduct of face-to-face, semi-structured interviews with students and lecturers at UOS in the academic year of 2005-2006. Interviews lasted between one hour and one and a half [1½] hours. A total of thirty-two interviews were conducted, 23 of which with students and nine of which with lecturers, within the Information Systems Institute. At the start of each interview session, the researcher formally introduced herself, and provided a brief explanation about the purpose of her study and about the terms that she was going to use during the interview. Interviews with students commenced in November 2005 and ended in May 2006. All interviews with staff were conducted in May 2006. Interviews with students took place in the researcher's office, while those with academics took place in their respective offices.

Given the sensitive nature surrounding cultural topics, the researcher reminded students of their right to decline answering questions with which they felt uncomfortable during the interview. Since students' culture and cultural background was the first category on the Pro-forma, the researcher approached the questions in the form of an "opening" or "introductory conversation". For example, the researcher invited students to talk about themselves: "*Please tell me about yourself and the country that you are from*". This was followed by prompt questions "*Would you like to describe your cultural background? Your racial and ethic heritage? The language that you speak in your country*?". Students' cultural backgrounds were entirely self-descriptive, and the researcher reported any cultural elements verbatim – in the exact words of students.

All interview responses were documented on interview scripts and, with participants' permission, were also audio-taped. At the end of each interview session, the researcher thanked students and lecturers for their time and willingness to participate in her research. To maintain anonymity and confidentiality, student interviewees were characterized as STUD-INT-1 through to STUD-INT-23. Academics were characterized as STAFF-INT-1 through to STAFF-INT-9. Students and staff were labelled in the exact order in which they were interviewed.

Both student and staff interviews provided "retrospective accounts of events" [Jarvenpaa and Leidner, 1998] as lived by them. For academics, the interviews drew out results relating to their VLE expectations and usage; their perceptions about their culturally-diverse student cohort; issues arising in the multicultural E-Learning setting; the ways in which they accommodated diversity; their viewpoint on possible solutions for enriching the multicultural E-Learning environment; and critical issues that they felt needed to be addressed or explored. For students, the interviews drew out results relating to their cultural background such as countries of origin, language, race, etc.; their prior E-Learning experience and VLE expectations; their current pedagogical experience and VLE activities; and perceptions of VLE; technological, cultural/social and pedagogical issues that arose; the best and worst aspects of their VLE experience; and aspects of the VLE they wished to keep and those they wished to change. The SCT framework guided the empirical data generated from staff and student interviews.

Recording of naturally occurring interaction allowed the researcher to return to the data in their original form as often as she wished [Silverman, 2010]. Responses documented on paper-based pro-forma were checked against the taped/digital versions for accuracy, clarification and confirmation. Audio recording during interviews was particularly useful as the researcher was able to obtain data that were not fully captured in writing during interview sessions, from the audio-recorded file. Each interview was then transcribed electronically into Word documents and stored on the researcher's computer. Clarification and confirmation were also sought from interviewees.

- **Institutional Documents**

Background information about the University of Salford was gathered mainly through the Institution's website, as well as through its Student Prospectus, Department Bulletins, Strategic Framework [2005-2015] and Annual Report and Financial Statements [2003; 2015 and 2016].

- **VLE Artefacts and Observation**

Observational protocol, which includes "descriptive notes", enables researchers to record a description of activities [Creswell, 2007]. The researcher recorded in her field notes, data obtained from her observation of students' initial reactions to the "Blog" ice-breaker activity on CABWEB and Blackboard which they were instructed to participate in. She also observed interactions among students and lecturers in the wider classroom as well as students' subsequent contributions to VLE activities. While these notes and materials were used to confirm the impressions gained from the interviews, such confirmation was not in an attempt to validate the accuracy of the stories, but rather to aid their understanding and context [Dubé and Robey, 1999].

4.6.4 Analysing Data: The Logic Linking the Data to the Propositions or Theoretical Lens

When analysing data, the qualitative researcher attempts to make sense of and interpret participants' social settings and the meanings behind their subjective actions [Gray, 2004]. In case study research, a variety of analytical techniques, such as pattern matching, explanation building, time-series analysis, logic models and cross-case synthesis, represent ways of linking data to propositions or the theory in context [Yin, 2009]. Explanation building, for example, is a type of pattern-matching technique, and its goal is to analyze the case study data by building an explanation about the case. The explanation-building process is iterative in nature: "*the case study evidence is examined, theoretical positions are revised and the evidence is examined once again from a new perspective in this iterative mode*" [Yin, 2009; p. 143]. Whatever technique is employed, the actual analyses will require that you combine or calculate your case study as a direct reflection of your initial study propositions [ibid].

The SCT framework was applied to the empirical results to make sense of the data, in terms of developing an understanding of the use of VLEs in multicultural contexts. The researcher was aware of the contradictions of employing pre-conceived notions to analyze the qualitative data. She acknowledged that analyzing qualitative data with theoretical preconceptions within an interpretive

paradigm resembled that of a deductive, positivist research procedure. Some researchers who use qualitative data argue that one should not analyze data with any pre-conceived ideas or theories in mind, but rather one should analyze the data in its own terms [grounded theory] [Oates, 2006]. However, Miles and Huberman [1994] argue that there were a few trade-offs of this "loose" approach to the initial design, and that in the life of a conceptualization, we need both a deductive and an inductive approach to pull a mass of facts and findings into wide-ranging, coherent set of generalizations. The researcher agreed with such purports and tried to strike a balance in her empirical research. As such, although the SCT Framework was developed to guide the analysis in terms of pre-figured concepts, the researcher initially embarked upon an inductive analysis as soon as she started collecting data during interviews [Shaw, 1999]. This inductive approach continued throughout the process of examining, categorizing, coding, reducing and tabulating the data. The researcher did not tightly prescribe to the SCT framework to the extent of missing out on other emergent themes or interesting issues which the data had thrown up. The researcher, therefore, remained open during the analysis process to allow the initial data to speak in its own terms. This led to a new version of the SCT Framework – SCTF2. The data analysis process is discussed below.

Miles and Huberman [1994] describes the analysis of qualitative data as consisting of three concurrent flows of activity: data reduction, data display, and conclusion drawing and verification [1994, p. 10]. These flows of activity facilitated the application of the SCT framework.

4.6.4.1 *Data Reduction*

Data reduction refers to the process of selecting, focusing, simplifying, abstracting and transforming the data that appear in written-up field notes or transcriptions. It occurs continuously throughout the life of any qualitatively oriented project.

Following the interviews with students and academic staff, the researcher read through the responses on each paper-based interview script several times to get a sense of the interview as a whole, and to familiarize herself with the data. Given that the templates for both student and staff interview pro-forma were created and

stored in Word document on the researcher's computer, interviewees' audiotaped responses as well as those handwritten on paper-based scripts, were then transcribed electronically. This involved replicating the template for each interviewee on the computer and keying in his or her responses to the respective questions under each category. Organizing the data into computer files enabled the researcher to type notes, list ideas and establish codes on each interview "write-up".

In order to reduce the overwhelming data generated by all staff and student interviews, the researcher created some matrices. Each matrix represented a category of the interview pro-forma in which responses to all its associated questions were then placed. In this way, it was easy for the researcher to see the various responses to a particular question. Some of the interviewees provided more detailed responses than others. Thus, the researcher looked at the most succinct responses first to establish codes and then went through the more detailed responses looking for similar or other codes. Putting all the responses to their respective questions into one matrix made it easier for the researcher to compare the data and assigned codes.

This inductive approach to selecting, focusing, coding and simplifying data allowed the researcher to be open to viewing themes and concepts which emerged from her empirical study. For the most part, the researcher composed and applied code names that seemed best to describe the data. The researcher also employed "*in vivo codes*", that is, names that were the exact words used by interviewees [Creswell, 2009]. For example, when asked what were their VLE expectations, some of the lecturers responded that they used the VLE "as a place to put handouts" or "to store information" or "as a repository store for all PowerPoint slides and materials created". Since these responses were similar, the researcher coded the data as "repository" – a word used by more than one lecturers. The researcher also found this to be an appropriate code, given that a repository is "a place where, or a receptacle in which, things are stored or may be stored" [The Oxford Dictionary, 2006]. Initial counting of codes was done to determine their

pervasiveness. Codes were colour-coded, hence each code was highlighted in a different colour for responses that had more than one codes.

Figure 4.2 presents a data matrix for analysing patterns of response concerning "Module Leaders' Technological Experience and VLE Expectations". All nine lecturers were asked similar questions, and the matrix allows the researcher to see similarities and differences in their responses to each question. The matrix also shows how interview data was reduced and how responses were coded [e.g. STAFF-INT-1's interview data]. Altogether, the researcher coded related data, then aggregated code labels and placed them together under the relevant category. This coding and data reduction procedure was replicated for all categories of staff and student interview data.

In working to reduce data, some of the themes were combined and placed under relevant categories that the researcher used at the end to write up her narrative [Creswell, 2007]. Some of the responses were used to form part of the case study background information about the participants in text as well as quantitative formats. For example, "*The age of students ranged between 21 and 40 years, with the majority [44%] of the students being between 21 and 25 years of age*". "*There were five female and four male lecturers*". "*All nine lecturers taught modules as well as managed projects at both the undergraduate and postgraduate levels*".

Figure 4.2: **Example of the Data Matrix Developed and Used by the Author of this Research for Analysing Patterns of Response**

MODULE LEADERS' TECHNOLOGICAL EXPERIENCE AND VLE EXPECTATIONS				
Module Leaders' Code	**How many modules do you currently teach at the University?**	**What are the tools and technologies that you employ to support your teaching?**	**How long have you been using these technologies in teaching?**	**What are your expectations of teaching/delivering educational materials via the Virtual Learning Environment?**
STAFF-INT-1 Female	**4 Modules** *Undergraduate*: 2 *Postgraduate*: 2	• VLEs • PowerPoint slides • Links to multiple websites • Discussion boards.	**10 Years**	My current expectations are, I simply use it as a place to put the resources that I hand out in lectures and some additional resources for students that they so desire. But over the years my expectations of online involvement have changed…". **REPOSITORY**
STAFF-INT-2 Male	**4 Modules** *Undergraduate*: 3 *Postgraduate*: 1	• Course Website • VLE • PowerPoint.	**7 Years**	I see the VLE primarily as providing additional resource for students. It is an added quality at not too great inconvenience to me. It can add quality to module without adding too much to my workload. This is good. **REPOSITORY**
STAFF-INT-3 Male	**5 Modules** *Undergraduate*: 2 *Postgraduate*: 3	• PowerPoint • VLE • Websites. .	**6 Years**	I expect it to make life easier and it does make life easier to a certain extent, because lots of things I want students to have can be sent out at one go, through the communication or announcements tools. You can have supporting materials ready before you even meet the students. **REPOSITORY**; **COMMUNICATION TOOL**.

STAFF-INT-4 Female	**4 Modules** *Undergraduate*: 3 *Postgraduate*: 1	• Blackboard VLE, • PowerPoint and • Course website	**5 Years**	The VLE should be there to support the things that I am trying to teach in the modules. It should be used as a tool more than just a document repository. It gives new possibilities of how to enhance teaching strategies. It should be a tool for communicating with students and for supporting group assignments through discussion boards, chat rooms, any tools available. **A TOOL TO BE FULLY-EXPLOITED**.
STAFF-INT-5 Female	**6 Modules** *Undergraduate*: 4 *Postgraduate*: 2	• VLE • Email • Internet • PowerPoint and Word • Links to websites and online materials	**8 Years**	I use it all the time to store lecture notes and to teach my class. It would be quite serious if there is a down time with the VLE as I depend on this for PowerPoint slides for my class. If it is not available then it is very serious for me when my class is on. **REPOSITORY**; **TOOL FOR TEACHING**
STAFF_INT_6 Male	**3 Modules** *Undergraduate*: 2 *Postgraduate*: 1	• Blackboard • Access • Oracle • Course website.	**7 Years**	It gives me that flexibility of putting notes on Blackboard for students who missed the lecture, particularly for postgraduate students. Extra materials are also available on the VLE. It gives that extra support to students via VLE. **REPOSITORY**
STAFF-INT-7	**2 ½ Modules**: Undergraduate: 2 Postgraduate: 1 ½	• VLEs • DVDs • PowerPoint, • Internet • Video Clips • Music • Films on DVDs • Mobile phones Video games • Chairs	**5 Years**	I am a bit of a luddite. I use the VLE to store information. I don't use it in an interactive way. I don't really have an expectation. With the ITASIO module, I use the VLE only because I share that module with another lecturer and we share notes for lectures and tutorials. I haven't seen much value in it except for getting things out to students who did not get to come to lectures. **REPOSITORY**

		• Books		
STAFF-INT-8	<u>**5 Modules**</u>: **Undergraduate:** 4 **Postgraduate:** 1	• PowerPoint slides • VLE • All Microsoft Office • MS Project • Grade Book Banner.	**18 Years**	==I use it as a repository store for all PowerPoint slides and all materials I create==. It is useful for students who are absent from lecture. ==**REPOSITORY**==
STAFF-INT-9	<u>**3 Modules**</u>: **Undergraduate:** 2 **Postgraduate:** 1	• VLEs • Overhead projector • YouTube video-clips • Websites,	**21 Years**	I am interested in VLEs, because I am very interested in ICTs generally. Once there's any opportunity to use ICT in teaching, I use it fully. I see the VLE as a tool to be used in a proper institutional manner and to be fully exploited in terms of all its features: communication, announcements, discussion boards, Internet/Website access, timetabling and so forth. I first used Blackboard VLE in a pilot project at the University then used it in a proper institutional manner. **A TOOL TO BE FULLY EXPLOITED**.

4.6.4.2 Data Display

The second major flow of the analysis activity, *data display*, generically is an organized, compressed assembly of information that permits conclusion drawing and action. Data displays can be in the form of graphs, matrices, tables, etc, and designing such displays has clear data reduction implications. Miles and Huberman [1994] contend that all displays are designed to assemble organized information into immediately accessible, compact form so that the analyst can see what is happening and either draw justified conclusions or move on to the next step of analysis the display suggests may be useful.

Data drawn from the interviews were presented mainly in tables with selective quotations in *Chapter Five*. While the matrices helped with the data-reduction process and facilitated within-case analysis, the researcher wanted to make the results for each question – for example, aggregated codes – immediately accessible. As such, the matrices were pulled apart to create independent tables. Each table or display presented interviewees' responses to a single question, and had a title or theme which was developed from the question. *Table 4.3*, for example, represents an independent table, which was pulled out of the matrix representing "Module Leaders' Technological Experience and VLE Expectations".

Table 4.3: **Academicians' Expectations of the VLE Technology**

ACADEMIC STAFF VLE EXPECTATIONS: EVIDENCE FROM THE STUDY
A repository for lecture notes and additional resources for students.
"*My current expectations are, I simply use it as a place to put the resources that I hand out in lectures and some additional resources for students that they so desire…*" [STAFF-INT-1]   "*I see the VLE primarily as providing additional resource for students…*" [STAFF-INT-2]   "*…You can have supporting materials ready before you even meet the students.*" [STAFF-INT-3].   "*I use it all the time to store lecture notes and to teach my class*" [STAFF-INT-5].   "*…Putting notes on Blackboard for students who missed the lecture, particularly for postgraduate students*" [STAFF-INT-6].   "*I use the VLE to store information. I don't use it in an interactive way*." [STAFF-INT-7].   "*I use the VLE as a repository store for all PowerPoint slides and all materials I create.*" [STAFF-INT-8]
7 Lecturing Staff   STAFF-INT-1, STAFF-INT-2, STAFF-INT-3, STAFF-INT-5, STAFF-INT-6, STAFF-INT-7, STAFF-INT-8

A resource not only for providing lecture notes and additional materials, but for communication, discussions and collaborations.
"*It should be used as a tool more than just a document repository…It should be a tool for communicating with students and for supporting group work assignments through discussion boards, chat rooms...*" [STAFF-INT-4] "*A tool to be used in a proper institutional manner and to be fully exploited in terms of all its features: communication, announcements, discussion board, Internet/Website access, timetabling and so forth*" [STAFF-INT-9]. **2 Lecturing Staff** STAFF-INT-4 and STAFF-INT-9

The table's title or theme, "Academicians' Expectations of the VLE Technology", was produced from the question "*What are your expectations of teaching/delivering materials via the Virtual Learning Environment?*" From the table, it is readily seen that seven out of nine lecturers viewed the VLE as a "repository", while two lecturers saw the VLE as "a tool to be fully exploited". Altogether, the displays in this research reflected the inductive analysis that began with the raw data. The classification of interviewees' responses is not claimed to be definitive or universal, but provides a general flavour as to some of the main words and phrases participants used to describe their VLE experience in the multicultural setting. The independent tables presented aggregated code labels for each theme, paving the way for the next step of the analysis, which involved the application of the SCT framework to the empirical study.

4.6.4.3 *Conclusion Drawing and Verification: Modification of the Conceptual Framework*

Miles and Huberman [1994] distinguishes between conclusion drawing and verification, the third stream of the data analysis activity. "Conclusion drawing involves stepping back to consider what the analyzed data mean and to assess their implications for the questions at hand". On the other hand, verification entails revisiting the data as many times as necessary to cross-check or verify these emergent conclusions. Final conclusions may not appear until data collection is over, but they often have been prefigured from the beginning, even when a researcher claims to have been proceeding "inductively" [Miles and Huberman, 1994].

The displays in this research provided organized, easily-accessible information which enabled the researcher to apply the SCT framework to make sense of the data, in terms of developing an understanding of the use of VLEs in multicultural contexts. A diagrammatic model of the SCTF can be found in *Chapter 3* [Figure 3.3] and *Chapter 6* [Figure 6.1]. An attempt was made to apply all the concepts, from A to F [3], to the data using Giddens' [1984] dimensions of structuration [G, H, I] as the primary analytical tools.

A. Structure: The VLE-supported Pedagogical Activities in Multicultural Settings.

B. Culture and Cultural Structures.

C. Technology and Technological Structures.

D. Pedagogical/E-Learning Structures.

E. Multiculturalism.

F. Conflict and Agency.

F [2]. Cultural Agency.

F [3]. Pedagogical and Technological Agency.

G. Elements of Social Interaction,

H. Structural Resources

I. Structural Rules

Since the SCTF concepts are abstractions, which cannot be seen or observed, the researcher examined data which manifested descriptions of the above constructs. For example, students' description of their culture and cultural background – nationality, race and ethnicity, language, gender, age and religion – was important as it helped the researcher to identify concepts and themes within the SCTF, such as *Cultural Structures*. The differences in students' cultural structures indicated the cultural diversity among participants and helped the researcher to identify the concept of *Multiculturalism*. Likewise, data gathered from students about their VLE expectations and previous online learning experiences, helped the researcher to identify concepts of the *Technological Structures* and *Pedagogical Structures* with which students came to study at the University of Salford. It also helped her to identify ways in which all three structures enabled and constrained students' studies and online learning experiences.

Altogether, thematic data was mapped unto relevant SCT framework categories, and multiple forms of evidence in the form of quotations and observations were used to support each concept from A to F[3]. This process is similar to explanation-building, a type of pattern-matching technique for aligning data to the theoretical concepts and building an explanation about the case. The explanation-building process is iterative in nature: "*the case study evidence is examined, theoretical positions are revised and the evidence is examined once again from a new perspective in this iterative mode*" [Yin, 2009; p. 143]. Rich insights were gained through the constant process of analyzing and iterating between the interconnected themes and concepts in the study. This level of analysis showed how the findings emerged from the empirical results.

In conclusion, having applied the SCT Framework to the empirical study, the results showed that the model was important overall and that it was a good approach to understanding VLE use in multicultural settings. However, the results also showed that the model needed some modifications, as it did not accommodate certain data. The framework was therefore, modified, and an improved SCT framework – SCTF2 – emerged. All the modifications made, the justifications for such changes and a diagrammatic model of the new SCTF2 were documented in *Chapter Six*.

4.6.5 *The Criteria for Interpreting the Findings: Interpreting Data in terms of the Literature*

All empirical research studies, including case studies, have a "story" to tell, and as such, an analytic strategy is needed to guide the crafting of this story [Yin, 2009].

Having updated the SCT framework, the researcher looked at the larger meanings of what had occurred in the research settings. Lessons learnt from the findings were discussed in terms of their relevance to the Learning Technology and Information Systems literature. For the most part, the empirical findings were confirmed by the literature. However, there were points of departure between the findings and what had been reported in the literature. The researcher then presented

an interpretation of the findings in light of her own views along with perspectives in the literature.

4.7 Evaluating the Research

In qualitative studies, the adequacy of the research is judged from the perspective of the reader, listener, participants/insiders or audience, all of whom are the "judge and jury" of the research [Weber, 2004]. The author of this thesis acknowledged that "*rigour must be built into the research process, or the findings would not hold up to scrutiny, would not fit similar situations, and would be invalidated in practice*" [Corbin and Strauss, 2008; p. 301]. It follows, therefore, that if her research was to be deemed valid, "*an appropriate process has been used, the findings do indeed come from the data and they do answer the research question[s]*" [Oates, 2006; p. 10].

Klein and Myers [1999] developed seven principles for the conduct and reporting of interpretive research and argued that the same principles can also be used for post hoc evaluation. These principles are summarized in the *Table 4.4* below. According to the authors,

> "*Some readers may feel that, in proposing a set of principles for conducting and evaluating interpretive field studies, we are going too far because we are violating the emergent nature of interpretive research, while others may think just the opposite. In this debate, we have adopted a middle position. While we agree that interpretive research does not subscribe to the idea that a pre-determined set of criteria can be applied in a mechanistic way, it does not follow that there are no standards at all by which interpretive research can be judged*" [Klein and Myers, 1999; p. 68].

Table 4.4: **Seven Principles for the Conduct and Reporting of Interpretive Research [Klein and Myers, 1999]**

1. **The Fundamental Principle of the Hermeneutic Circle:** Suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. This principle of human understanding is fundamental to all the other principles.
2. **The Principle of Contextualization:** Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.
3. **The Principle of Interaction Between the Researchers and the Subjects:** Requires critical reflection on how the research materials (or "data") were socially constructed through the interaction between the researchers and participants.
4. **The Principle of Abstraction and Generalization:** Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.

5. The Principle of Dialogical Reasoning: Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ("the story which the data tell") with subsequent cycles of revision.
6. The Principle of Multiple Interpretations: Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study. Similar to multiple witness accounts even if all tell it as they saw it.
7. The Principle of Suspicion: Requires sensitivity to possible "biases" and systematic "distortions" in the narratives collected from the participants.

Klein and Myers' [1999] set of principles for conducting and evaluating interpretive research were incorporated into the overall design and conduct of this research.   The researcher evaluated her research against these set of principles when reflecting upon the quality of the study and assessing its soundness in *Chapter Eight*.

4.8 Chapter Summary and Conclusions

This chapter has introduced the broad research methodologies and their underlying philosophical paradigms, which have been examined within the domains of Information Systems and Learning Technology Research. The selection of the qualitative case study methodology premised upon an interpretive epistemology has been justified as being appropriate for this study. The research design as well as a set of criteria for evaluating the research has been discussed.

The next chapter presents the results of the empirical research.

CHAPTER FIVE

Case Study: The Use of Virtual Learning Environments in Multicultural Settings

"Case Studies facilitate the investigation of an empirical topic or a contemporary phenomenon in its natural, real-life context" [Yin 2009]

5.1   Introduction

The previous chapter discussed the methodology for guiding the data collection for this study. The methodology adopted was an in-depth interpretive qualitative case study to facilitate rich understanding of a real-life situation into the use of VLEs by students and educators in multicultural settings. This chapter presents data from the empirical study. *Section 5.2* presents the results of interviews with academic staff members.   *Section 5.3* then presents the results of the interviews with postgraduate students. *Section 5.4* presents a summary of the case study. The overall results of this chapter are analysed in *Chapter Six*.

5.2   VLE-supported   Pedagogical   Activities   in   Multicultural Context: Results of Academic Staff Interviews

This section presents the results of academic staff interviews. Staff members' expectations and overall usage of the VLE technology, their perceptions about their culturally-diverse student cohorts, the issues and challenges which arose in the multicultural E-Learning setting and the ways in which academic staff addressed these issues are reported as contextual information.

5.2.1 Academic Staff VLE Expectations and Overall Usage

5.2.1.1   VLE Expectations

More than half of the academic staff in the study viewed the Institution's Blackboard VLE mainly as a repository for lecture handouts and additional resources for students, as revealed in *Table 5.1*.   Only two staff members viewed the technology as more than just a file store. They considered the VLE as a tool to be fully "exploited" in teaching and learning.

Table 5.1: Academicians' Expectations of the VLE Technology

ACADEMIC STAFF VLE EXPECTATIONS: EVIDENCE FROM THE STUDY
A repository for lecture notes and additional resources for students.
"My current expectations are, I simply use it as a place to put the resources that I hand out in lectures and some additional resources for students that they so desire..." [STAFF-INT-1] *"I see the VLE primarily as providing additional resource for students…"* [STAFF-INT-2] *"…You can have supporting materials ready before you even meet the students."* [STAFF-INT-3]. *"I use it all the time to store lecture notes and to teach my class. It would be quite serious if there is a down time with the VLE as I depend on this for PowerPoint slides for my class"* [STAFF-INT-5]. *"It gives me that flexibility of putting notes on Blackboard for students who missed the lecture, particularly for postgraduate students. Extra materials are also available on the VLE..."* [STAFF-INT-6] *"I am a bit of a luddite. I use the VLE to store information. I don't use it in an interactive way...I use the VLE only because I share that module with another lecturer and we share notes for lectures and tutorials. I haven't seen much value in it except for getting things out to students who did not get to come to lectures."* [STAFF-INT-7]. *"I use the VLE as a repository store for all PowerPoint slides and all materials I create."* [STAFF-INT-8]
A resource not only for providing lecture notes and additional materials, but for communication, discussions and collaborations.
"The VLE should be there to support the things that I am trying to teach in the modules. It should be used as a tool more than just a document repository. It gives new possibilities of how to enhance teaching strategies. It should be a tool for communicating with students and for supporting group assignments through discussion boards, chat rooms, any tools available" [STAFF-INT-4]. *"I see the VLE as a tool to be used in a proper institutional manner and to be fully exploited in terms of all its features: communication, announcements, discussion boards, Internet and Website access, timetabling and so forth. I first used Blackboard VLE in a pilot project at the University then used it in a proper institutional manner"* [STAFF-INT-9].

5.2.1.2 *Overall Pedagogical Activities and VLE Usage*

In terms of usage, all nine academics used the Blackboard VLE in some manner to support their pedagogical activities. As revealed by *Table 5.2* below, all nine staff members employed the VLE to publish lecture slides/notes and assignments, and to make announcements. Also, all lecturing staff used the facility to send emails to respective groups of students. Two-thirds of the participants provided information about themselves on the VLE. Less than half of the academic staff used the resource to provide links to other documents and websites, and to arrange timetable for sessions. Four staff members configured group discussion areas and facilitated online forums.

Table 5.2: **Academicians' VLE Usage**

ACADEMIC STAFF VLE ACTIONS AND ENGAGEMENTS: EVIDENCE FROM THE STUDY
Publish lecture slides/notes and assignments
"*I use Blackboard for publishing lecture notes for every module I teach, although this varies among modules*" [STAFF-INT-2] "*… I provide all materials for the module on the VLE …*" [STAFF-INT-3] "*I make sure to put slides on the VLE right after the lecture. I never put slides before lecture as students may not turn up for the lecture…*" [STAFF-INT-8]. **9 Academic Staff** STAFF-INT-1 – STAFF-INT-9
Make announcements and send emails to students
"*I occasionally use announcements*" [STAFF-INT-1]. "*I make announcements fairly frequently, especially about hand-in dates, but I do not use online submission*" [STAFF-INT-2]. "*On the VLE, I use it to email all students and make announcements…lots of things I want students to have can be sent out at one go, through the communication or announcements tools…*" [STAFF-INT-3]. "*The VLE communication tools such as announcement and emails are very useful. I use outlook so Blackboard is very brilliant for me*". [STAFF-INT-7] "*I make announcements about exams plus I use emails, as not all students access Blackboard*". [STAFF-INT-8] **9 Academic Staff** STAFF-INT-1 - STAFF-INT-9
Provide information about themselves
"*I provide information about myself on Blackboard. I also had my personal website with all my teaching materials*". [STAFF-INT-3] "*Just a little*". [STAFF-INT-4] "*I provide just a little bit of information about myself*". [STAFF-INT-7] **6 Academic Staff** STAFF-INT-1, STAFF-INT-3, STAFF-INT-4, STAFF-INT-6, STAFF-INT-7 and STAFF-INT-9
Provide links to other documents and websites
"*…I put links to other websites and online resources. If I look at the tracker, one or two students will go there...*" [STAFF-INT-1] "*I use links, email and timetable for session*" [STAFF-INT-7] **4 Academic Staff** STAFF-INT-1, STAFF-INT-7, STAFF-INT-8, STAFF-INT-9
Configure group discussion areas and facilitate online forums
"*I had a group of students whom I required to do online discussions….They had to read this paper and discuss it online…*" [STAFF-INT-1].

"… *I use it* [the VLE] *for all the modules I teach. I make discussion board available to support group work assignment...*" [STAFF-INT-4].
"*I set up the discussion boards as I want students to have group discussion areas…*" [STAFF-INT-9].
3 Academic staff STAFF-INT-1, STAFF-INT-4 and STAFF-INT-9
Arrange timetable for sessions
"*I put schedules up and modules and course list*" [STAFF-INT-5]
3 Academic staff STAFF-INT-5, STAFF-INT-7, STAFF-INT-9

5.2.1.3 Use of Other Media and Technologies

All lecturing staff encouraged their students to access materials placed on the VLE and to check for announcements and schedules. All lecturers also used other media and technologies to actively engage their students in the learning process. Other media and technologies that academics employed, included: PowerPoint Slides, VLEs, Internet, links to multiple Websites, including course websites; DVDs and Video Clips; Music; Mobile Phones; Video Games; Grade Book Banner; Books; MS Office Suite; MS Project; Oracle/Database. STAFF-INT-6, for example, used software package that was directly related to the module he taught: "*I use Access and Oracle as I teach Database*", while some lecturers used videos and other media to enhance their pedagogical activities [STAFF-INT-5; STAFF-INT-7]. For example STAFF-INT-5 reported: "*I show videos occasionally and provide students with a set of questions to answer about the video*", while STAFF-INT-7 divulged:

> "*Because I don't use the VLE in an interactive way, I look at how I can engage students to interact with other technologies. For example, I encourage them to watch "X-Men" and then take the theoretical framework on "Gender and Technology" from the film. Using this strategy is more an interesting way for students to learn*" [STAFF-INT-7].

In summary, all lecturing staff interacted with the Institution's VLE in some form, with some lecturers engaging with the technology more interactively than others. Also, all lecturers used other media, methods and technologies to engage their students.

5.2.2 Academic Staff Perceptions about their Culturally-diverse Student Cohort

All lecturers were aware of the multicultural environment in which they were operating, and many observed different cultural behaviour among their students, as summarized in *Table 5.3*. Two members of staff, for example, reported that some of their international students were overly formal in the way the students addressed them in class and online. STAFF-INT-4 observed: "*Particularly, foreign students tend to address me in very formal ways in their emails*". The majority of the staff interviewees also noted the differences in learning styles among students, pointing out that most students, in general, expected academic staff to provide them with all the lecture notes in class or on the Blackboard VLE. Interviewees also reported on the passivity of some international students, particularly pointing out that Chinese students tended to be quiet and withdrawn, and that some students were from Eastern cultures where learning by rote was the norm [e.g. STAFF-INT-6, STAFF-INT-8 and STAFF-INT-9]. STAFF-INT-1 also observed a few other differences among students:

> "*There are students who are shy. Those are students who are not prepared to disagree with an argument and are reluctant to take part in online discussions. Some students give one-line responses, some in-depth responses. I do see the difference in personality and perhaps cultural type. Muslim Asian women will participate in online discussions, yet four or five Muslim lads will sit down and not do it. Greek students are very focused and will settle down and do their work*" [STAFF-INT-1].

Language and religious practices were other cultural elements that lecturers also observed among students. One member of staff talked about the perceived aggressiveness of some international students, who tended to be demanding in terms of his time.

Table 5.3: **Academic Staff Perceptions/Assumptions about their Culturally-diverse Student Cohorts**

DIFFERENT CULTURAL ELEMENTS OBSERVED BY ACADEMIC STAFF: EVIDENCE FROM THE STUDY
Some International Students being Overly Formal
"*Particularly, foreign students tend to address me in very formal ways in their emails*" [STAFF-INT-4]
"*I have received emails from some International students addressed as 'Most Honourable Madam'…*"

[STAFF-INT-9]

Differences in Learning Styles [teacher versus student roles; students who learn by rote; passivity among some international students; students who do not use the VLE in learning activities]

"…*Some students give one-line responses, some in-depth responses. Muslim Asian women will participate in online discussions, yet four or five Muslim lads will sit down and not do it. Greek students are very focused...*" [STAFF-INT-1].

"*Most students expect to see lecturers have weekly lectures. They regard the VLE as an additional resource to learning and not as a substitute for teaching*" [STAFF-INT-2].

"*Students who are 'Net savvy will engage with the VLE and those who are not won't…*" [STAFF-INT-3].

"*Some students find it easier to ask the lecturer or other students for information rather than check online…*" [STAFF-INT-7].

"*Some international students, especially my Chinese students, tend to be quiet and withdrawn…*" [STAFF-INT-8].

"*Students of Eastern cultures tend to learn by rote and this is a bit dangerous because it can be deemed as plagiarism in the Western world. In the Eastern Culture they tend not to interpret other people's word, as this might be "rude". So they tend to take people's say word-for-word. However, there is danger of plagiarism…Particularly in online settings, students feel stressed or pressured to make postings to the discussion board. If students feel vulnerable, they might cut and paste other people's work into an online forum without providing reference, thereby plagiarising*" [STAFF-INT-9].

Language

"*I will get students in my lecture room coming back to say 'what does this mean?' This happens even when I use less complex language. And to be frank, tough. I shouldn't have to be using simple language to students. If we have foreign students who don't understand a word, there's a dictionary. I used to teach HND a long time ago. Most of these stuff I was delivering at an HND level. I now deliver at degree level, and now I'm reluctant to do any further from a language point of view*" [STAFF-INT-1].

"*From time to time I experience language barrier…*" [STAFF-INT-3].

"*Some students clearly have difficulty in expressing themselves in English. However, with experience you can understand what they mean*" [STAFF-INT-4].

"*…The language difficulty is usually evident in assignments and I find instances where students plagiarize when I am marking essays*" [STAFF-INT-5].

"*With email, there is a language barrier. Particularly overseas students, they tend to be anxious. Some don't bother to email because they don't know what to say, especially Chinese students*" [STAFF-INT-6]

"*Some Chinese students have not been attending lectures and to make matters worse they have not been using the VLE…They tend not to use blackboard perhaps because of the language and then having to do something else extra*" [STAFF-INT-8].

Perceived Aggressiveness of some International Students [demanding attitudes/behaviours]

"*Sometimes it would appear as if some students are demanding things or asking for things in a demanding fashion. Sometimes they demand time of me and this appears to be "aggressive" in my culture. From a cultural aspect, misunderstandings sometimes occur in these situations*" [STAFF-INT-7].

5.2.3 Issues Arising in the Multicultural E-Learning Setting

Lecturers reported various issues and challenges which emerged in the multicultural online setting. Some of these issues and challenges were social and cultural in nature, while others were related to the VLE technology.

5.2.3.1 *Social and Cultural Issues*

From a social viewpoint, one main issue was that of students' overall attitude toward the VLE and E-Learning activities. More than half of the lecturers implied that students were reluctant to use the VLE, and had little or no engagement with the technology. Some lecturers pointed out that some students preferred conventional teaching and learning and face-to-face interaction, while others claimed that some students had a preference for personal tools and personal means of communicating, such as YouTube, MSN Messenger and personal emails. Lecturers also reported that some students found it easier to ask the lecturer and other students for information than to go online. Some observed that undergraduate students used the VLE more than postgraduate students]. Most lecturers asserted that students were looking for a system or learning technology which was flexible and easy to use in different circumstances. Some of the overall students' attitudes toward the VLE, as perceived by lecturing staff, are summarized in *Table 5.4* below.

Table 5.4: **Students' General Attitude toward E-Learning/VLE activities: Lecturers' Perspectives**

LECTURERS' PERCEPTIONS OF THEIR STUDENTS' VLE/E-LEARNING ATTITUDES
"Students should be logging onto their course, but there is a bit of reluctance…In terms of online culture, I think this is a big issue. I look at the different discussion groups that I have: there are people who are shy; people who are unsure about their responses on the discussion board and people who are not really prepared to stick their head up and say 'I disagree' or 'I don't understand' or 'can you clarify'. To do that takes guts…" [STAFF-INT-1].
"A lot more students tend not to use the VLE because they are engaged in using more commercial tools such as "YouTube" online video sharing; 3G Networks; Mysite.com; Winksite.com, which are geared toward mobile use…" [STAFF-INT-3].
"Students prefer to use their personal means of communicating, for example, their personal email, MSN Messenger, text messages etc., which they are most comfortable with" [STAFF-INT-4].
"Students expect the lecturer to cover everything that they need to know in lectures, so they can't be

bothered with Blackboard. Although they find the VLE useful, they generally have a lack of enthusiasm to go beyond the repository for stuff" [STAFF-INT-6].

"Some students find it easier to ask the lecturer or other students for information rather than check online. A few students did not know about the things I had placed on the VLE" [STAFF-INT-7].

"…Undergraduate students use Blackboard more extensively than postgraduate students…Postgraduates are far more selective than undergraduates. If they feel they have access to other repository of information then they would not come to lectures" [STAFF-INT-8].

"Students are interested in how easy it is to find their way around and to learn how to use and manage the materials. They want the VLE to be flexible and to be able to use it in different circumstances" [STAFF-INT-9].

In most cases, lecturers' perceptions about their students' VLE/E-Learning attitudes influenced or changed how lecturers interacted with the VLE. For example, although STAFF-INT-1 engaged her students in online discussions on Blackboard, she argued that students' general reluctance to use the VLE had changed her VLE expectations. In a similar vein, STAFF-INT-2 reported that he had tried to experiment with the "*chat*" feature, encouraging students on two modules to actively participate on the VLE. However, he ended that experiment as he did not find it useful, and students were not willing to engage with the technology. STAFF-INT-2 concluded: "*the experiment has changed my expectations of the VLE*". Some staff members also pointed out other general characteristics and attitudes of their students, and how they have impacted on their VLE actions. STAFF-INT-8, for instance, observed a particular trend in VLE usage between undergraduates and postgraduates. She saw where the undergraduates used the VLE more extensively than her postgraduate students and argued: "*if postgraduates feel they have access to other repository of information then they would not come to lectures*". As such, STAFF-INT-8 ensured that lecture notes and slides are placed on the VLE right after lecture and "*never*" before lectures, "*as students may not turn up for the lecture…*". All in all, most lecturers felt that it would be pointless if they provided VLE activities and students did not participate. They felt that their time and efforts would be wasted. Lecturers' viewpoint can be summed up in the words of STAFF-INT-5: "*if students don't use the VLE, then I feel I have wasted my time in putting materials online*".

Alongside the main social issue which lecturers faced, were cultural issues which academic staff identified. The most prevalent cultural issues were that of language and learning styles. With respect to language, almost all lecturing staff reported on the difficulty some students had in speaking and understanding the English language. They cited different issues, such as plagiarism and ineffective communication that arose from this language barrier. With respect to learning style and practice, all lecturing staff talked about the different issues which arose in the classroom and online, such as plagiarism; the over-reliance on lecturers and lecture notes; the over-reliance on blackboard as the main source of additional materials; the reluctance to actively use the VLE in learning activities; and the passivity of some students or the lack of student participation. Some lecturers reported that students were not enthusiastic about doing further research activities or going beyond the VLE technology for materials and resources.

Some of these cultural issues were already outlined in *Table 5.3*, which presented lecturers' perceptions about their students, and some can be seen in *Table 5.4*, in relation to E-Learning/VLE activities. Taken together, some of the social issues concerning students' general VLE attitudes overlapped with cultural issues such as students' learning styles, practices and preferences.

5.2.3.2 *Technological Issues*

All lecturers pointed out various technological issues which impacted on their VLE usage and online activities. An aggregate of these technological issues and related matters are provided in *Table 5.5* below. Some lecturers reported that the general interface and the instructor interface of Blackboard were poorly designed. They argued that due to its hierarchical nature it cannot be interlinked to other tools, technologies and resources. STAFF-INT-1 pointed out that students were given university email accounts which were not linked to Blackboard, and argued that students would be reluctant to check messages on Blackboard if they had to use different communications tools to check for messages. Most lecturers also asserted that the VLE system was provider-centric and was not user-friendly, intuitive or flexible.

Lecturers further claimed that Blackboard created overhead on time as it did not do the things it ought to do. They pointed out the difficulty in integrating the activities; navigating the system; and finding materials and discussion threads. STAFF-INT-5 argued: *"It is frustrating when students can't find stuff in the VLE and I know I had spent a lot of time preparing and putting materials online"*. In a similar vein, STAFF-INT-3 reported:

> *"…I find that although it* [the VLE] *is supposed to be time saving, it ends up that I spend lots of time sending individual emails to students instructing them on where to find things placed on Blackboard"* [STAFF-INT-3].

Some lecturers also pointed out that the Blackboard software was culturally different from what they would like it to be [e.g. STAFF-INT-2 and STAFF-INT-9].

A related technological issue reported by staff members was the lack of Blackboard training for staff and students. Some of the lecturers reported that the lack of training and technical support for students and staff was a problem area impacting on the nature of interaction between lecturer and students online. They claimed that training for staff was inadequate and that the induction period for students, especially International students, was not long enough to incorporate Blackboard training. Another technologically-related issue reported by staff members was the lack of Internet access in most classrooms.

Altogether, lecturers claimed that these technological issues and related matters not only affected them, but also affected their students' ability to have an enriching E-learning experience. Lecturing staff argued that as a result of these factors, students generally would find the VLE a "nuisance" and would not want to engage with the technology.

Table 5.5: Main Technological Issues and Related Matters Cited by Academic Staff

Blackboard's poor organization and design make the technology difficult to interlink with other tools and resources.
"*Students were given university email accounts which were not linked to Blackboard…Students would be reluctant to check messages on Blackboard if they had to use different communications tools to check for messages*" [STAFF-INT-1]. "*It is difficult to set up the technology support for group collaboration on Blackboard and to find threads. This has defeated me, but does not have much effect on my teaching*" [STAFF-INT-4]. "*I find Blackboard a bit "clumpy". It is a bit of a nuisance. If students are interacting with Blackboard, they will find it just the same – as a nuisance*" [STAFF-INT-6]. "*Blackboard…is very hierarchical and so resources are not interlinked…*" [STAFF-INT-9].
Blackboard is time consuming and not user-friendly.
"*…Although I post all the instructions and materials to Blackboard for students, students still send me emails on how to find materials, which make it time consuming…I find that although it is supposed to be time saving, it ends up that I spend lots of time sending individual emails to students instructing them on where to find things placed on Blackboard*" [STAFF-INT-3]. "*The time-consuming nature of Blackboard imposes additional burden on lecturers as we have to make sure it is being used properly and address the appropriate issues*" [STAFF-INT-4] "*It is frustrating when students can't find stuff in the VLE and I know I had spent a lot of time preparing and putting materials online*" [STAFF-INT-5].
Blackboard is culturally different
"*In general, the system works…but culturally, the idea of the Blackboard software is different from what I would like it to be*" [STAFF-INT-2]. "*Blackboard allows me to do the basic things that I want to do. However…It has a North American mentality, whereby it treats the teacher in a way as if she knows everything about the student. This is my impression of Blackboard. It is designed with a lot of North American things in mind, e.g. quizzes and tests which is not our style…*" [STAFF-INT-9].
Lack of Blackboard Training for Staff and Students
"*Although they made group space available to students on Blackboard, they haven't gone through the lengths and details of what to do and how to use it. It is basically left up to students*" [STAFF-INT-4]. "*If students are enthused from day one with the potential of Blackboard, then that would encourage them to use it more*" STAFF-INT-6] "The *induction for International students should be longer and should incorporate Blackboard training*" [STAFF-INT-8]
Lack of Internet/Network Access and Hardware Provision.
"*I need Internet connection to access and display websites in order to teach effectively, but these are not provided in every room in Maxwell*" [STAFF-INT-3].

5.2.4 Accommodating Diversity in Multicultural E-Learning Settings

Many lecturers reported on the different ways in which they addressed social, cultural and technological issues, as captured in *Table 5.6*. For instance, in getting students to interact with the VLE technology in a meaningful way, some lecturers assessed VLE activities and/or made them compulsory. Some lecturers uploaded lecture notes and materials to the VLE in a consistent manner and made announcements, sent emails and uploaded schedules fairly frequently, thus providing stability to students; and some lecturers used other technologies and media alongside the VLE to facilitate active learning. With regard to issues concerning language, for instance, lecturers attended to such matter by using simple terms, words or phrases; refraining from the use of slang and colloquial terms; avoiding acronyms and abbreviations that will not be understood; introducing module topics at a level that is understandable to everyone; and making instructions as clear as possible. With regard to issues concerning learning styles and practices, lecturers attended to such matter by making materials appealing and culturally-sensitive; encouraging communication; introducing topics at basic level; being consistent with students in terms of instructions; and changing the style of teaching in particular situations.

Table 5.6: Accommodating Students' Social and Cultural Differences
Some of the ways in which Academic Staff Addressed Social and Cultural Issues: Evidence from the Study
Students' reluctance in using the VLE: Incorporating the use of the VLE in the main lesson plan and in the assessment process; Being consistent with students in terms of VLE usage; Using other tools and technologies.
"*Assessing online activities…I had a group of students whom I required to do online discussions….They had to read this paper and discuss it online. There was a marking scheme which highlighted the number of discussions they needed to contribute to the forum; the depth of discussion; the number of responses they made to other people's comments, and so forth...This accounted for 20% of the module…That dragged them – kicking, screaming – on to the discussion board*" [STAFF-INT-1]. "*It is all about consistency on my part. Whatever I tell to students, I do as I promised them. I put lecture notes online before lectures, provide links and check materials for accuracy. I customize the relevant options, not the unnecessary ones, and facilitate peer-to-peer discussions*" [STAFF-INT-2]. "*I incorporate the use of the VLE in the assessment process...This seemed to have worked as all students participated in online discussions. Students had an enriching experience and they learnt a lot from each other*" [STAFF-INT-4]. "*I use email a lot and do encourage students to email me if there is a problem or difficulty…*" [STAFF-INT-5]. "*I use the VLE, DVDs, PowerPoint presentations, the Internet, Video Clips, Music, films on DVDs, mobile phones screen savers on "Gender and Technology", video game – a big mix of technologies, including chairs and books to support my teaching. It's like an ANT approach to teaching*" [STAFF-INT-7].
Differences in Learning Styles/Practices: Making materials appealing and culturally-sensitive; encouraging communication; introducing topics at basic level; and changing the style of teaching and class schedules.
"*...some of the case studies I have used in the past I wouldn't use anymore. So for example, I used to have a case study of a "Wine Shop". Although it is a great case study it is perhaps not ideal because of the Muslims. So I don't use that anymore. So I guess for that reason I try to be a bit sensitive*" [STAFF-INT-1]. "*Because of the […] course that I teach, I am aware that there are different legal systems in different countries or cultures. I use cases that overseas students might have heard about. I try to recognize that students will not always have that same knowledge of those of UK students. I make materials appealing to students of different cultures… I put papers online that give a wide range of perspectives on students' culture*" [STAFF-INT-4]. "*I have a class between 5:00 and 7:00pm. During Ramadan when Muslim students are extremely hungry, I change the style of teaching somehow to make it more bearable for them and sometimes end the sessions a little earlier than usual*" [STAFF-INT-5]. "*I would teach something in the way I've taught before and then use Blackboard to support, where appropriate*" [STAFF-INT-6]. "*…I have an online forum to invite students to ask questions about the assignment. This way others [students] will see their questions and may have their answer*" [STAFF-INT-9].
Language: Using simple terms; refraining from abbreviations, slang, colloquial terms,

etc.; taking language barrier into account when assessing presentations; making clear instructions;
"[I] *possibly use slang in lectures, but in particular use of the discussion board, this has never been the case*" [STAFF-INT-2] "…*My PowerPoint slides are "shorthand", but students get the "longhand" when they come to the lectures*" [STAFF-INT-3]. "*I had a Lebanese student doing his presentation a few weeks ago who had strong language barrier. However, despite this barrier we could tell that he knows what he is talking about, so we made allowance for this when grading his presentation*" [STAFF-INT-3]. "…*I use simple terms and no slang at all*" [STAFF-INT-4]. "*I don't use slang but I use abbreviations that are well-known. I avoid abbreviations that would not be understood by students whose first language is not English, and only use those relating to subject matter. For example, CMC, I.S., etc.*" [STAFF-INT-6]. "*When teaching postgraduate Chinese students, if there was a term that seemed to be too complex then I try to simplify it*" [STAFF-INT-8]. "*I try very hard when writing an assignment to make it very clear. I make a glossary and refer students to it*" [STAFF-INT-9]. [SHARED MEANING].

5.2.4.1 *Lecturers' Perspective: Possible Solutions for an Enriching Multicultural E-Learning Setting and Critical Issues to be Explored*

Staff members were invited to talk about measures that could be employed in accommodating diversity and enriching students' E-Learning experience. They were also invited to talk about critical issues that could be explored in designing, developing and delivering quality online materials and activities.

Lecturers believed that all students in the multicultural classroom could have an enriching E-learning experience if the following measures are taken: encouraging teamwork and incorporating the use of the VLE in the assessment process. Ensuring accessibility: – providing quality and highly relevant content and amending the structure and organizational layout of the VLE. Ensuring that references and resources are available in the library, and directing students to the relevant persons or departments Allowing someone or a dedicated department to manage the online part of Teaching and Learning. Keeping pedagogical values in mind and taking students' different learning needs into account – lecturers asserted

that pedagogical values must be kept in mind as each learner is an individual with different learning styles. More than half of the interviewees argued that a blend of media should be employed rather than relying on one; encouraging students to engage with other technologies and incorporating more interactive online activities. Almost all lecturing staff called for a move beyond the Blackboard online community, stating that the University needed to know the technologies that students are willing to engage in. Some lecturers believed that if everything was more interactive, more students would use the VLE more. This could include using videos in lectures or video-taping lectures that can be downloaded to mobile technologies where students can watch from the comforts of their homes. Providing VLE training for students and academic staff. Improving and increasing the consistency of VLE usage among students and staff members. Obtaining students' E-Learning experience. Some participants also argued that incorporating the use of the VLE in the assessment process, could be a useful strategy. On the other hand, others said that excluding assessment and marking from online learning activities, would be a possible solution for enriching students' E-Learning experience.

Some lecturers had already put some of the measures listed above, in place.

Table 5.7: **Academic Staff Viewpoints on Possible Solutions to an Enriching Multicultural E-Learning Setting and the Critical Issues to be Explored**

Encouraging Teamwork and Incorporating the use of the VLE in the assessment process.
"*Encouraging carefully structured teamwork proves useful….Team presentations are useful in bringing structure to a particular subject matter*" [STAFF-INT-1].   "*I include Blackboard in the assessment process. One of the reasons for this is to make students use it and this has achieved the effect. This has made a big difference*" [STAFF-INT-4].
Ensuring accessibility: providing quality and highly relevant content; amending the structure and organizational layout of the VLE.
"*The configuration of the VLE is such that a student needs to be enrolled on a particular module in order to see what is happening on that module. There is privacy of modules. The VLE should be configured to alleviate the issue of access to certain modules.*" [STAFF-INT-2]   "*Quality is seen from my view as "fitness for purpose". Content is very important…we need to pay attention to the language used, make sure materials are presentable; and make slides accessible – putting enough slides online so that students can read on their own as it were*" [STAFF-INT-7].

"*Content must be highly relevant. The points on slides must be understood by students even three months later*" [STAFF-INT-8].

"*People are interested in the quality of the content just like any print media…the aesthetics should be considered…The look. The feel…It is all about the aesthetic experience that will help students learn….*" [STAFF-INT-9]

Ensuring that references and resources are available in the library; directing students to the relevant persons or departments; allowing someone or a dedicated department to manage the online part of Teaching and Learning.

"*For it [Blackboard] to become successful it needs to be managed by someone. some of the VLE responsibilities should be taken from staff and given to someone or a particular department to manage the online part of it….Someone needs to monitor the things that are being put online*" [STAFF-INT-1].

"*…Attention should be paid to resources that are out there and other lecturers should make sure that references and resources are available in the library*" [STAFF-INT-5].

"*It is dangerous to think that we can translate face-to-face design to the VLE. In designing and developing quality E-learning materials and activities, issues such as appearance, flexibility and manageability must be taken into consideration…Help could be provided by the Learning Technology Centre [LTC], Information Systems Department [ISD] and the Education and Development Unit [EDU]*" [STAFF-INT-9].

Keeping Pedagogical Values in Mind and Taking Students' Different Learning Needs into Account

"*Not all students like to learn the same. By using Blackboard fairly frequently, then students have the option to use online more as well as face-to-face*" [STAFF-INT-2].

"*More diagrams should be used rather than using too many words in PowerPoint slides, for difficult topics*" [STAFF-INT-3].

"*The entire module should be placed online beforehand so that students with different pace of learning can see all the topics that will be discussed…*" [STAFF-INT-5].

"*Students should be given automated assessment to give them an idea of how they will be marked. Students also should get some formative feedback. This makes a better interaction between students and lecturers and will also improve the quality of the relationship when you are able to give students feedback and show them where they are going wrong*" [STAFF-INT-7].

Taking a Blended Approach to teaching rather than relying on one Medium or Technology; Encouraging students to engage with other media and technologies; Incorporating more interactive online activities

"*We need to know our students we have to know the technology that students are willing to engage in. Move on from the Blackboard online community to another type…Students may not have a computer but they certainly have IPODs and MP3 players. We need to move toward podcasting…*" [STAFF-INT-1].

"*If you combine various techniques you have a stronger hold. Blended learning and assessment is good for enrichment rather than pure face-to-face*" [STAFF-INT-2].

Students could organize RSS from Flickers and Videos from Youtube and put it on their own space "My Space". If students could establish their own presence and work collaboratively to enhance each other's learning then this would be good. I think this would help to enhance students' online learning experience. I think every student who joins the ISI should be given personal web space. If we are an IS institute in the 21st century we should be trailblazing these

possibilities. However, how the VLE is set up this is not accommodating" [STAFF-INT-3].

"*Allow students to stick with things they are most comfortable with to support their work, rather than imposing a particular technology… Since students prefer to use their personal means of communicating, it would be good to look at the possibility of these being integrated into the online experience. A chat function would be good to include in Blackboard*" [STAFF-INT-4].

"*A particular technology should not be forced upon students and staff. Instead they should be given the freedom of choice to engage with the technology. Not everybody wants to read proposals online and mark documents online*" [STAFF-INT-7].

"*Students are becoming sophisticated users of media and so we need to understand how they are using various technologies and media such as mobile phones; MP3s; instant chat; and private emails, and provide lecturers and students with more choice and freedom in the use of these electronic media*" [STAFF-INT-9].

Excluding assessment and marking from online learning activities.

"*It all has to do with the fundamentals of how we teach – no pressure; no marking; no assessment, only peer assessment*" [STAFF-INT-3].

Providing VLE training for students and Academic staff; Improving/Increasing the consistency of VLE usage among students and Staff Members; Obtaining students' experience

"*It would be good if there was better interaction between ISD and staff so that they can look at more ways in which Blackboard can be used*" [STAFF-INT-4].

"*We need a growth in the use of Blackboard in an imaginative and innovative way*" [STAFF-INT-6].

"*In order for E-learning to work, students must be introduced to the VLE technology from the start and must be informed about its purpose. There must be standardization of VLE usage across all modules This would encourage students to use it*" [STAFF-INT-8].

"*Students' own view about their experience should be obtained regularly…There is a British standard on E-learning…we should look into how students value the experience; look at their contribution; their learning and achievement…*" [STAFF-INT-9]

Providing Internet access and hardware facilities.

"*Every teaching room in Maxwell Building needs to be installed with data projectors and desktop PCs in order to enable electronic delivery in classrooms*" [STAFF-INT-3].

Student interviews are reported in the ensuing section.

5.3 VLE-supported Pedagogical Activities in Multicultural Settings – Results of Student Interviews

This section presents the results of student interviews. It presents data about Students' cultural assumptions, VLE expectations, the ways in which they made use of the VLE artefacts to accomplish learning tasks and their best and worst online experience.

5.3.1 Students' Culture and Cultural Background

Students were invited to describe their culture and cultural backgrounds. It was important to obtain information about students' cultural background in order to identify some of the cultural structures that existed in the wider classroom and to examine how these influenced individual action. A culturally-diverse group of twenty-three postgraduate students were interviewed, with a total number of 13 countries being represented. Students in this study were happy to self-report on their cultural backgrounds.

The overall results portray a wide variety of cultural realities among students, including their nationality, race and ethnicity, language, gender, age and religion. The majority [sixteen] of the student interviewees were international. This included students from nations within the European Union [EU]. Seven students were British. Of the total student interviewees, fifteen were males and eight were females. The age of students ranged between 21 and 40 years, with the majority of the students being between 21 and 25 years of age. In terms of race and ethnic heritage, 15 of such kinds were provided. Less than half of the students spoke English as a first language. Other first languages or mother tongues included: Greek; Polish; Philippino; Yoruba; Malay; Hausa; Urdu/Punjabi; Spanish; and Arabic. Students' cultural backgrounds and their different cultural elements, as self-described, are outlined in *APPENDIX D*.

5.3.2 Students' Prior E-Learning Experience and VLE Expectations

5.3.2.1 Prior Online Learning Experience

Students described various online learning activities in which they participated prior to enrolling on the masters programme. Their previous E-Learning experience were classified under three broad categories, as listed in *Table 5.8* below. Key features of each category are also portrayed in the table. The data revealed that only three participants had substantial online learning experience, while eleven participants had moderate online learning experience and nine had no online learning experience at all.

Table 5.8: **Students' Prior Online Learning/VLE Experience**

Students' Prior Online Learning Experience
No Experience: **Students' Previous Classes were Done Entirely Via Traditional Face-to-Face Teaching and Learning**.
"*I have no online learning experience. They do not make the best use of technology in* [Home Country]*...they make use of the theories of technologies*" [STUD-INT-1]. "*I have never had any form of IT or online learning experience...*" [STUD-INT-5]. "*Salford University did not have CABWEB or Blackboard VLE at the time when I was doing my Bachelors degree. The University only had the ISD electronic resource for books and journals. The online resources are made more available and made more to be part of the MSc programme*" [STUD-INT-6]. "*I have had no online experience in terms of schooling. However, my job is basically working with computers and linking with the outside world*" [STUD-INT-10]. "*I have never had any form of online or networking experience*" [STUD-INT-12]. "*Registration for the correspondence course at Cambridge University was via the Internet and Intranet but the course materials were being mailed to me...*" [STUD-INT-14]. "*I have never had any online learning experience as this is just at the introductory stage in* [Home Country]" [STUD-INT-15]. "*I have had no online learning experience. The main online technologies at MMU were the University's Intranet and Website. There was no such thing as online collaboration or anything. You couldn't communicate with somebody. Just general things...you go in, you see the slides what the lecture was about and nothing else basically…*" [STUD-INT-19].
9 Students: STUD-INT-1; STUD-INT-5; STUD-INT-6; STUD-INT-10; STUD-INT-12; STUD-INT-14; STUD-INT-15; and STUD-INT-19.
Moderate Experience: **Students were Introduced to the Concept of Online Learning in a Practical Way [e.g. Accessing Material from the VLE; Electronic Submission of Assignments], but not on a Large Scale**.

"Online was supplementary to everything going on. It was used as a support tool. If you missed a lecture, you could get the slides..." [STUD-INT-2].

"Online learning is very new to us. It is more a concept than practice. There were two instances when professors introduced the online concept while I was pursuing a part-time MBA programme. The VLE was not used as much; it was used only for one particular subject – Accounting. It was accessed only 3 times throughout the course....Generally, not very much technology is used in [Home Country]*"* [STUD-INT-3].

"Although the Blackboard VLE was there, it was not used much during my undergraduate degree programme here at Salford. However, I had done an online course a few months ago with W3Schools.com. On this portal I was taught how to develop websites. I did tutorials in ASP, PHP, JAVA Script, SQL. This course was free and entirely on the Web, and I did not need to register. The tools and technologies used were the Internet and Macromedia" [STUD-INT-8].

"I had done an Accounting course partially online, using SAGE Software" [STUD-INT-9].

"I have had online learning experience, but not in terms of academic learning. I had done many online and Internet courses, such as computer courses in Stock Exchange Market, online…" [STUD-INT-11].

"Blackboard VLE was used during BSc. degree but not as much as it is used now. Then, it was used for distribution of assignments, posting exam grades, class and tutorial notes, accessing lecturers' website, uploading assignments for one of the modules..." [STUD-INT-13].

"UMIST did not have the VLE. The main technologies used were emails and websites. We did not have access to lecture notes online. We did not have discussion forums. But we could email lecturers if we needed anything. This was not too bad because I got response to emails sent. Teaching and learning was mainly face-to-face except for one of the modules – Programming – where we had to submit our programming assignments online" [STUD-INT-16].

"It was not much of a collaborative environment. We downloaded assignment sheet from the school website…" [STUD-INT-17].

"...The City Technology College where I attended had a very basic VLE and interactive whiteboards which we had to use. The college was basically trying the software on revision for GSCE" [STUD-INT-18].

"...I came into contact with WebCT when I enrolled in the Marketing course in my third year at Manchester University. The lecturer used WebCT for our Marketing subject to publish other things and to exchange information. But other than that it was like other lecturers would just post the lecture slides to the university's webpage where students can download them..." [STUD-INT-21].

"...we had to submit electronic copy of our assignments on CD as well as the hard copy to the administrative department. We also had to submit assignment via the email technology. The idea was to get us acquainted with sending work via email, and we were required to do this so that we could learn to zip files and send. It also teaches us how to burn CDs....We also used the intranet to get information and the library catalogues. However there was no VLE" [STUD-Int-23].

11 Students: STUD-INT-2; STUD-INT-3; STUD-INT-8; STUD-INT-9; STUD-INT-11; STUD-INT-13; STUD-INT-16; STUD-INT-17; STUD-INT-18; STUD-INT-21 and STUD-INT-23.

Substantial Experience: **Students' Previous Studies Entailed Considerable amount of Teaching and Learning Online [Including Collaborations/Forums].**

> "*The Information Technology course at the Open University had a chat forum called "First Class" which is similar to the Blackboard VLE here at Salford. We had to work in groups. Part of the assignment was to do online discussions; cut and paste parts of classmates' assignment into our assignments and then send assignments by email…Part of the structured learning was done online as well... It was a prerequisite to have a computer or have access to computer*" [STUD-INT-7].
>
> "*I was a member of two E-learning groups...I used tools and technologies such as Blogs; email groups or groupware; the Internet and News Group Software. I also developed E-Learning software for a company in Altringham, here in the UK*" [STUD-INT-20].
>
> "*In* [Home Country] *male students have different universities and different locations from female students. Male lecturers were not allowed to teach in the same room with female students, and female lecturers were not allowed to teach in the same room with male students. If we had male lecturers, then they would use videoconferencing. This technology played a very important role as this was the only way for them to communicate with the female students…We previously used televisions but now we use screen projectors that you pull down and then roll up after it is being used. We also used other general tools and technologies. For example, students could send emails to lecturers and they could get grades as well as the term schedule from the University website. My group was the first group to graduate from this Computer Science department as it was a very new department*"" [STUD-INT-22].
>
> **3 Students**: STUD-INT-7; STUD-INT-20 and STUD-INT-22.

5.3.2.2 *VLE Expectations*

The majority of the students, including those with no prior online learning experience, had varying perceptions and expectations about the purpose and role of VLEs. Most students expected the VLE to be a resource where lecturers provide updated information, grades and materials [such as lecture notes], which students can access at any time. A few students perceived it to be a facility with audio- and video-recorded lectures, tutorials and additional materials which students can retrieve. Other students expected the VLE to be a resource with forums, discussion boards, quizzes and video-conferencing facilities for collaboration between lecturers and students. That is, they perceived the VLE to be a collaborative tool with online forums/discussions and quizzes in which they can participate.   While not directly stating his expectations, one student commented that he had E-learning background, and so he knew exactly what he was going to see later on.

Some students, however, had no clear expectations of the VLE. Some of the reasons they provided for this lack of VLE expectation were that they had never used the VLE before or had never experienced an online learning setting.   For instance, STUD-INT-1 stated: "*I have never thought of how a virtual class would be, as now is my first time…*". Other reasons students provided were that such E-

learning activity either was not available in their home country or that E-learning was very new to their home country. STUD-INT-12 asserted: *"I don't know what to expect because we don't have this kind of experience in my country…"*.   *Table 5.9* displays the different expectations that students had concerning the role and purpose of the VLE technology.

Table 5.9: **Students' Expectations of the VLE Technology**

STUDENTS' VLE EXPECTATIONS: EVIDENCE FROM THE STUDY
A resource where lecturers update information, materials and grades, and where students can access these information and documents.
"*I expect that the moderator or lecturer would update the VLE with course materials before the actual session so that students would be more prepared for classes. Assignments should be published the same time as lecture notes for it to work properly and be useful to students. Also the grades and feedback sheet – if the "scaling" form was online then the grades could be typed in and then made available online*" [STUD-INT-3].   "*I expect the VLE to be an online information source where one can effectively find information from lecturers or links. It should be a kind of a means for a lecturer to put any information and make it available in one place for everyone to access*" [STUD-INT-7]. "*If I miss a lecture then I know the notes are there online…*" [STUD-INT-13]. "*I expect to be able to access lecture notes there…*" [STUD-INT-16]. "*I expect the VLE to be a tool to publish materials; to give information about the subjects; to give advice; and maybe share comments…*" [STUD-INT-21]. "*I think it is a good way of posting grades, lecture notes and marks. It is a good way of communicating between lecturers and students. It saves time and effort in terms of travelling*" [STUD-INT-22]. **6 Students:** [STUD-INT-3, STUD-INT-6, STUD-INT-7, STUD-INT-8, STUD-INT-13; STUD-INT-16, STUD-INT-21, STUD-INT-22].
A tool with online forums, discussions and quizzes which facilitate collaboration between lecturers and students.
"*You need to have forums and communications. It should be a place where you can take quizzes, and have question-and-answer scores…*" [STUD-INT-2]. "*My VLE expectations are to discuss issues online and to understand or obtain other people's viewpoint – how and what they are thinking*" [STUD-INT-9]. "*I expect it to be a medium to interact with students and lecturers and to access information generally as well*" [STUD-INT-10]. "*I expect it to be a tool for collaboration between lecturers and students*" [STUD-INT-17]. **4 Students:** STUD-INT-2; STUD-INT-9; STUD-INT-10 and STUD-INT-17
A resource with audio- and video-recorded lectures and tutorials which students can retrieve.

"*There should be voice recording of lectures in class attached to the written materials or topics on the VLE*" [STUD-INT-4].

"*From previous experience I expected to hear and view recorded lectures for all modules. I expected all course documents to be there so that I can retrieve these documents. I wanted to be able to submit assignments via the VLE, as sometimes I have other commitments and cannot come on campus to submit assignment*" [STUD-INT-18].

"*I expect the VLE to be a tool where every lecture and every tutorial is taped and made available…by voice recording or if you listen to a tape, you can understand more. You can pause it, rewind it, hear it, write it down yourself, and all that…*" [STUD-INT-19].

"*It should be like a classroom where lecturers deliver the lecture. So the VLE should not be text-based only, but should have videos, audios, graphics…*" [STUD-INT-20].

4 Students: STUD-INT-4, STUD-INT-18, STUD-INT-19, STUD-INT-20.

No VLE expectations.

"*I have never thought of how a virtual class would be, as now is my first time experiencing online learning…*" [STUD-INT-1].

"*I have never done any IT or online learning before, so I don't know much about the VLE. I had no clear expectations as I did not see the point in using the VLE…*" [STUD-INT-5].

"*I don't know what to expect because we don't have this kind of experience in my country…*" [STUD-INT-12]

"*In my country we don't usually use the Internet seriously….So I don't have that much expectation*" [STUD-INT-14].

"*I have never used a VLE before, so my current views of it are based on my first time experience of Blackboard and CABWEB…*" [STUD-INT-23].

5 Students: STUD-INT-1; STUD-INT-5; STUD-INT-12; STUD-INT-14, STUD-INT-15 and STUD-INT-23

VLE expectations are based on previous E-learning experience.

"*I have background about E-learning, so I know what to expect. I knew exactly what I was going to see later on. Maybe the shaping and the design would be different but the core ideas are all the same*" [STUD-INT-11].

1 Student: STUD-INT-11.

5.3.3 Students' Pedagogical Activities Concerning the VLE

5.3.3.1 Non-assessed VLE-Supported Module Activities

The main VLE-supported module included in the study was *Module A*, which was led by STAFF-INT-9. *Module A* was one of the first modules that required students to use the VLE at the start of the academic year. STAFF-INT-9 also employed the CABWEB VLE, alongside the Institution's Blackboard VLE, to support her non-assessed online forums and activities. While STAFF-INT-9 did not assess VLE activities, she made them compulsory as part of her main lesson plan and students' learning activities.

Conventional face-to-face teaching sessions for *Module A* commenced in late September 2005 and lasted for a period of 12 weeks [one semester], ending in mid-December, 2005. There were fifty-five [55] students taking this module. The group was a mixture of British, EU and international students, all spread across the different postgraduate programmes. STAFF-INT-9 introduced herself to the class and encouraged students to interact with their classmates. Subsequent to introducing students to the Blackboard and CABWEB VLEs, STAFF-INT-9 discussed an ice-breaker and non-assessed collaborative activity, termed as the "Salford Blogging Exercise", in which students were mandated to participate. Students were instructed to register on both the Blackboard and CABWEB VLEs. They were required to create their personal home page on Blackboard and to provide a brief description of themselves on CABWEB. Students were also required to form themselves into groups of six or seven to do a research on the concept of "Blogs", using CABWEB to collaborate with their respective group members. They were also asked to use the "Glossary" feature on CABWEB, to define and discuss different types of blogs and to contribute to the glossary page. Each group had to deliver PowerPoint presentations on the topic of "Blogs" both face-to-face and online [by uploading the document to CABWEB] by the end of October 2005. All instructions were posted on Blackboard as well as circulated on paper to students in the classroom. Eight groups were formed.

5.3.3.2 *Assessed VLE-supported Module Activity*

Students taking *Module A* in the first semester were also required to use the Blackboard VLE intensively in the second semester, for *Module B* and *Module C* led by STAFF-INT-1 and STAFF-INT-4, respectively. These modules each entailed an assessed coursework assignment, which was compulsory.

Module B's and *Module C's* coursework activities were structured in a similar fashion and had similar goals: they required students to participate on Blackboard, answering questions posted by STAFF-INT-1 and STAFF-INT-4 on respective module topics. The module topics and related questions also served as a platform for students to engage in meaningful discussions and to provide comments or feedback on their classmates' postings. Failure to participate in the activities would result in students' losing twenty percent [20%] of their overall coursework grade for each module.

Generally speaking, most lecturers at Salford used a marking or an assessment template, which helped them to grade students' presentations and essays/assignments. This is included as *APPENDIX D*. The sheet outlined a set of criteria which students should meet to obtain a pass: it outlined the different categories against which students were assessed and the allocated marks for each category.   A copy of this template is usually circulated to students to help them meet certain standards, when preparing their presentations and essays or assignments. If students met all the criteria to the fullest, then they would get excellent marks; partial compliance would yield average marks; while non-compliance would yield poor marks or result in failure.

5.3.3.3 *Students' VLE Interactions*

Students' general E-learning experience, in terms of how they engaged with the VLEs to accomplish learning tasks over the two semesters, is displayed in *Table 5.10*. Some of the VLE tools that students engaged with are presented in *Table 5.11*. All students registered on both CABWEB and Blackboard VLEs at the commencement of the first semester, and all students participated in online

227

discussions and forums throughout semesters one and two. These forums included icebreaker activities on CABWEB for *Module A* [most students], as well as assessed activities for Modules B and C [all students].

Table 5.10: **Students' VLE Interaction**

EVIDENCE FROM THE STUDY
"*I started using CABWEB because it was compulsory, although not assessed. Generally, students used it in a social way. In my group, the "Forum" tool was not used in the best way. One member of the group was not able to meet as he was part time, and so he used emails and mobile texts to communicate rather than the Forum. We did not make the best use of the CABWEB facility, as group members preferred email and text facilities. Also, the group had a conflict on PowerPoint template – we all had our own ideas for the design, layout and colour for the template. We all had our own suggestions of which template and colours were appropriate and which were not. Apart from that, the CABWEB experience is really helpful. There are no big difficulties. It was interesting that after the Blogging exercise, people used CABWEB to socialize. For example, there was an ongoing forum on football tournament*" [STUD-INT-1]*   "*Based on the blogs presentation experience, I would say technology can make you distant with your group rather than closer. Instead of linking people it could be a barrier because it hinders you from meeting with people and discussing things more. On the other hand, you get left behind if you have no technology. While we were preparing for the blogs presentation each of us researched on specific aspects of blogs and submitted to the group. Everyone had a different background template: I used one template; another group member used another; and another member used another and so on. But it showed how each person perceived the background: one particular template looked professional and crisp to one person; to another it looked dull; to another it did not matter – she said 'why would background template matter?' So it was a little awkward selecting the background for the presentation. But we got through it in the end*" [STUD-INT-3].   "*I use Blackboard to check on module information. I was apprehensive about CABWEB as I have never done any IT or online learning before. I enrolled on it, but I didn't really participate much…I lacked confidence as I was not sure how to use it and I did not see the benefits and point of using it. People were only using it to send emails. I did not see the point in this as emails could be sent directly otherwise…I communicated with my group members by mobile phone and personal email, and I also saw them in class anyway. So my group used CABWEB to arrange meetings, but we met face-to-face as well to put together the Blogs presentation*" [STUD-INT-5].   "*Blackboard is a very useful tool in terms of getting lecture notes and grades. It is easier for me not having to come to university to get grades and lecture notes. The slides of speakers are placed there as well. CABWEB was used at the beginning of the semester because we were told to use it. I logged on to it a few times to have a look at the forums and discussions, and to contribute to the activity. It was easy to connect with my group and other groups, and to compare other presentations with ours. My group used CABWEB to arrange meetings, but we met face-to-face. Besides, members in the group saw each other everyday, so we did not see the need to use CABWEB. It was there when we needed it though. It was easier to send text messages as you get quick response, rather than send messages on CABWEB, which will take a little while for you to log on and then view responses. The glossary of different terms helped me with my presentation and to understand the topic. But I have not used CABWEB since the group exercise. I only log on to have a look around, to see if any messages are posted…Once message is posted to CABWEB, a duplicate email is sent to my email account…*" [STUD-INT-6].   "*I did not participate in the chat room or on the discussion board on CABWEB during the Salford Blogging Exercise. But I made inputs to the glossary and participated in my group activities in preparing the Blogs PowerPoint Presentation. The group met mainly face-to-face and we used cell*

phones and texts to communicate and arrange group meetings. I only use Blackboard for announcements and printing of documents. Unless required to do so, for example for [Module B], *I do not use the discussion boards or chat rooms as I prefer face-to-face communication. I may be a bit old-fashioned*" [STUD-INT-7]

"*It is very good". I had never participated in online discussions before. So I find it very good that I could reply to discussion at my own leisure. CABWEB was very good as it could let everyone know what is going on. For example, the trip to the Science Park; exam revision; football tournament; etc. were very good discussion forums*" [STUD-INT-8].

"*I use Blackboard for discussion only. I love these forums. I love the discussion board on Blackboard. It gives more time for me to translate and understand discussions and answer to messages… I am able to cut messages or questions or instructions that students or lecturer put on the discussion board and "paste" them into the translating tool. This help me to understand what is going on and what to do. I write all my answers in Arabic and then translate them back to English with the translating software. I then post my answers to the discussion board. But this can take time and sometimes some of the sentences mean nothing – they make no sense when I translate from Arabic into English*" [STUD-INT-9].

"*It has been very, very interesting as it gives a lot of opportunity to do things outside the school hours. The most interesting part is the Athens Network, online community with journals, and you have free access to this website as a student with university ID*" [STUD-INT-10].

"*I use Blackboard every 10 minutes. It is amazing, very robust. The design is great; it is so easy to use and information is so easy to reach. I think it's great and every student should use it all the time*" [STUD-INT-11].

"*Normally I use MSN. During the online activity on CABWEB, we had a silent group of MSN users, and we still use MSN. We participated in the CABWEB activities but we prefer MSN because it is more interactive and more user-friendly compare to CABWEB. I think it is how MSN function – they will automatically log you on once you are connected to the Internet. But with CABWEB you have to go to this website and log on, then lots of other access things to do before you start the communication in CABWEB. MSN is more straightforward. CABWEB is a bit slow as well. I use the Blackboard as well….The good thing is the quick action and response to the technical bits of the VLE…like CABWEB. For example, if we ask for a link to be placed here or there, then the technical bit is done within few days. It will take few months in* [Home Country] *just to change the links because there is no clearly defined technical support in my country like here. So I like the quick action*" [STUD-INT-12].

"*It was alright. CABWEB was fine. Actually you get to meet and chat with people from the start. That was quite good then…Recently I have been having a good experience on Blackboard because of the discussion forum for the [Module Name]…I have been providing a lot of entertainment…it is more entertaining than academic*" However, with Blackboard…from the start I had a very, very bad experience with Blackboard because first they said that had to use my CS log-in for the course, but this didn't work…it was finally solved. I'm sorry it could not have been solved through phone calls*" [STUD-INT-13].

"*I found the CABWEB very interesting. I like to use it. It was fun. I participated a lot on CABWEB. The Blackboard is easy to use but I think it is time consuming. We have this course, [Module Name], and we need to post answers and then comment on answers. Most of the students posted their opinions and started to comment on others and made lots of comments. Sometimes I don't understand the postings. I think this is time-consuming because if I'm to spend time reading these posts I won't really have any time to do other assignments…*" [STUD-INT-14].

"*It is very interesting and educative. I can effectively access the library catalogue and lecture notes, and view assignment feedback. It has been rewarding. You are able to access wherever you are. Some assignments have to be done online in team work, for example, [Module Name], where we have to make contributions to the online forums…*" [STUD-INT-15].

"*The experience has been good. Sometimes I post questions or messages and students respond as*

well as the lecturer. The discussion board is good for explanation and clarification. If a lecturer posts a question or gives us an assignment and it is not really clear, another student would try to re-explain. Also I would consult with the lecturer who will try to explain it clearer. So the VLE is also an easier way to communicate with lecturers. I don't have to be knocking on their doors to ask questions all the time" [STUD-INT-16].

"The online Blog activity on CABWEB was a surprising introduction to learning. I was not sure what the purpose was. Was it because no one has ever really used it?" [STUD-INT-18].

"In terms of collaboration, not many people are used to collaborating facilities. I am not used to it and I am a bit reserved in expressing my thoughts online. In my collaborations sometimes I don't give 100%. I don't know why I am reluctant to use it. But I do use it when I have to use it. I think I need to be motivated more. I prefer the essays than the online collaboration because people will criticise you if you get it wrong or not, and that can affect your personal ego, your personal understanding. And it can stop certain people from contributing. I did contribute to the discussions though" [STUD-INT-19].

"Blackboard is not very easy. People still have a problem in using the VLE for social purposes. If you try to make a community, VLE can make an academic community but cannot make a social community. If you have more than just text, such as videos and graphics, then more people will get involved. Culture should not really be a big problem within a particular VLE... But the overall VLE concept is good. The VLE is updated frequently and this is good too." [STUD-INT-20].

"I tend to use the Internet for everything. I'm very technological. The first thing, when I'm assigned a project or when I have a problem in life, is to go the Internet first to find out what's going on in that situation, find out what I can do, find out people who can help and so on. So my first resource is always the Internet then everything else. That's why I'm maybe a bit disappointed that lecturers here are not using the VLE so much. The social value of the resource has got so much potential and they are not making the best of it...I understand that some people are afraid of the novelty, afraid of the Internet. But I think that at least people in the education field have to get familiar with these tools, because it is of no use if you make all these things available and you do not use it. At least one lecturer makes use of it, but this is another extreme." [STUD-INT-21].

"It has been good. I enjoyed the experience. Blackboard has been beneficial. We used the discussion board actively this semester, as we had to participate in online discussions for one of our modules. We used CABWEB in the first semester for the blogging activity, where we added to the glossary and prepared the "Blogs" PowerPoint presentation... With CABWEB there was lack of privacy regarding when someone logged on; how long they were logged on for; when they actually logged off and for how long... All these details could be seen on the pages.... Blackboard was used in a different way – more for academic purpose. CABWEB was more for socializing" [STUD-INT-22].

"The experience has been good. We were introduced to CABWEB in the first semester when we did the Blogs activity for the ITASIO module. We used the Blackboard in the second semester for the Professional Issues module. The discussion board was used widely for this module. But after a time it got confusing as to who was responding to who on the discussion board. I spent a lot of time trying to understand the discussion and looking to see where the argument was leading. Apart from this, I really like the VLE. I'm able to check the Blackboard when I am at home and relaxed and calm. I was able to get 50% of what was missed in class on Blackboard. So I really think Blackboard and class teaching balance out each other" [STUD_INT-23].

Table 5.11: Students' VLE Interaction: Tools Students Engaged With

STUDENTS: EVIDENCE FROM THE STUDY
Participate in online discussions and forums [Blackboard and CABWEB]

"…*CABWEB was used at the beginning of the semester because we were told to use it. I logged on to it a few times to have a look at the forums and discussions, and to contribute to the activity. It was easy to connect with my group and other groups, and to compare other presentations with ours*." [STUD-INT-6]

"*I had never participated in online discussions before. So I find it very good that I could reply to discussion at my own leisure*" [STUD-INT-8].

"*I use Blackboard for discussion only….I love the discussion board on Blackboard. It gives more time for me to translate and understand discussions and answer to messages… I am able to cut messages or questions or instructions that students or lecturer put on the discussion board and "paste" them into the translating tool. This help me to understand what is going on and what to do*" [STUD-INT-9].

"*...CABWEB was fine. Actually you get to meet and chat with people from the start. That was quite good then…Recently I have been having a good experience on Blackboard because of the discussion forum for the [Module Name]…I have been providing a lot of entertainment…it is more entertaining than academic*" [STUD-INT-13].

"*…I participated a lot on CABWEB…We had lots of discussion with classmates. The Blackboard is easy to use but I think it is time consuming. We have this course, [Module Name], and we need to post answers and then comment on answers. I think this is time-consuming...*" [STUD-INT-14].

"*...Some assignments have to be done online in teamwork, for example, [Module Name], where we have to make contributions to the online forums...*" [STUD-INT-15].

"*The discussion board is good for explanation and clarification. If a lecturer posts a question or gives us an assignment and it is not really clear, then another student would try to re-explain...*" [STUD-INT-16].

"*The online Blog activity on CABWEB was a surprising introduction to learning…Using the discussion board was good although I was forced to use it.*" [STUD-INT-18].

"*For* [Module Name], [Module Leader] *expected us to actively contribute towards these three different topics which she posted on the forum...she was expecting us to make a daily contribution to topics and keep up to date with topics and what was going on with the topics and what other people were saying about the topic…I contributed to the forums for the last four or five days...*" [STUD-INT-21].

"*Blackboard has been beneficial. We used the discussion board actively this semester, as we had to participate in online discussions for one of our modules. We used CABWEB in the first semester for the blogging activity, where we added to the glossary and prepared the "Blogs" PowerPoint presentation...Blackboard was used in a different way – more for academic purpose. CABWEB was more for socializing*" [STUD-INT-22].

"*We were introduced to CABWEB in the first semester when we did the Blogs activity for the ITASIO module. We used the Blackboard in the second semester for [*Module B*]. The discussion board was used widely for this module*" [STUD-INT-23]

23 Students: STUD-INT-1 – STUD-INT-23

Access E-learning materials and Module Information [Blackboard and CABWEB]

"*I use Blackboard to check on module information*". [STUD-INT-5]

"*Blackboard is a very useful tool in terms of getting lecture notes and grades. It is easier for me not having to come to university to get grades and lecture notes. The slides of speakers are placed there as well*". [STUD-INT-6].

"*I think that it is good that when you need to access lecture notes they are there. I am always on the VLE trying to find out all the updates*". [STUD-INT-8]

"*I find Blackboard easy to use and it is suitable for me to download materials*" [STUD-INT-9]

"*...I can effectively access the library catalogue and lecture notes, and view assignment feedback. It has been rewarding. You are able to access wherever you are*" [STUD-INT-15].

"*Access to the lecture notes online saves me from carrying my notes and books everywhere I go. For example, if I am going to be in London, then I can just access the online notes. I do not have to carry my notes and books everywhere*" [STUD-INT-16].

"*I really like the VLE. I was able to get 50% of what was missed in class on Blackboard. So I really think Blackboard and class teaching balance out each othe*r" [STUD_INT-23].

23 Students: STUD-INT-1 – STUD-INT-23

Check for announcements and emails; Communicate with Staff [Blackboard and CABWEB]

"*I have not used CABWEB since the group exercise. I only log on to have a look around, to see if any messages are posted...*" [STUD-INT-6]

"*I only use Blackboard for announcements and printing of documents. Unless required to do so, for example for* [Module B]*, I do not use the discussion boards or chat rooms as I prefer face-to-face communication* " [STUD-INT-7]

"*Any announcements, you can find it in the Blackboard*" [STUD-INT-11].

"*Sometimes I post questions or messages and students respond as well as the lecturer...If a lecturer posts a question or gives us an assignment and it is not really clear...we can consult with the lecturer who will try to explain it clearer. So the VLE is also an easier way to communicate with lecturers. I don't have to be knocking on their doors to ask questions all the time*" [STUD-INT-16].

"*I'm able to check the Blackboard when I am at home and relaxed and calm*" [STUD-INT-23].

23 Students: STUD-INT-1 – STUD-INT-23

Upload documents [Blackboard and CABWEB]

"*…it was easy to incorporate and upload document and attach it to the VLE...*" [STUD-INT-3].

"*The "file attachment" tool is not like the standard one...but we used it to upload documents*" [STUD-INT-20].

23 Students: STUD-INT-1 – STUD-INT-23

Glossary
"…*The glossary was useful to other people as [STAFF-INT-9] had sent an email saying that it was viewed many times*" [STUD-INT-5].

The glossary of different terms helped me with my presentation and to understand the topic…"
[STUD-INT-6]

"…*I made inputs to the glossary and participated in my group activities in preparing the Blogs PowerPoint Presentation…*" [STUD-INT-7] |
| **Social Forums [CABWEB]** |
| "…*It was interesting that after the Blogging exercise, people used CABWEB to socialize. E.g. there was an ongoing forum on football tournament*" [STUD-INT-1].

"*CABWEB was very good as it could let everyone know what is going on. For example, the trip to the Science Park, exam revision and the football tournament, were very good discussion forums*" [STUD-INT-8]. |

- *Other Methods and Media Used Alongside the VLEs*

Although all of the students used the VLEs for assessed and non-assessed learning activities, they also relied on other methods and media to interact with their respective group members. These alternative media and tools are presented in *Table 5.12*.

Table 5.12: **Other Media Employed by Students in their Learning Activities**

Methods and Media of Interaction	Number of Students
Face-to-Face	**23 Students** STUD-INT-1 – STUD-INT-23
Other Electronic/Digital Tools and Devices [e.g. MSN, Mobile Phones, Personal Email Accounts etc]	**23 Students** STUD-INT-1 - STUD-INT-23
Translating Software	**1 Student** STUD-INT-9

All of the interviewees reported that they met with their group members face-to-face most of the time, to prepare group presentations and assignments. In addition to meeting face-to-face, the students reported that they used other electronic devices instead of the VLE to communicate with group members. These devices included mobile phones, personal email accounts and instant messaging tools [e.g.

MSN]. For example, with regard to the non-assessed CABWEB VLE activity, STUD-INT-5 divulged:

> "*I communicated with my group members by mobile phone and personal email, and I also saw them in class anyway. So my group used CABWEB to arrange meetings, but we met face-to-face as well to put together the Blogs presentation*" [STUD-INT-5].

One student reported that he used external translating software to help him participate on the VLE discussion board. STUD-INT-9, an Arabic student who found it difficult to speak English, said he did not participate in the non-assessed discussion forum on CABWEB in the first semester because of the language barrier. However, in his second semester he had to interact with the Blackboard VLE for *Module B*, which involved active participation on the discussion board and was being assessed. Faced with this "dilemma", STUD-INT-9 decided to employ an external translating tool to aid his participation in the online forums. Firstly, STUD-INT-9 would "cut" instructions, messages, questions, etc., posted to the discussion board by lecturers and classmates, and "paste" them into the translating tool. Having understood what was being discussed or what he was required to do, he would then write his responses in Arabic and translate them back to English, using the translating software. Finally, he would then post his responses to the discussion board. Although STUD-INT-9 employed the translating tool with the intention of understanding and participating in the online forums, he acknowledged that "*this can take time and sometimes some of the sentences mean nothing – they make no sense when I translate from Arabic into English*". He also pointed out that by the time he posted a comment to the online forum, the discussions had already moved far ahead.

- *Students' Selective Engagement with the VLEs*

Some students asserted that they preferred face-to-face classroom learning activities, over and above online/E-Learning activities. In light of this, some students participated in discussion forums on the VLE, using the technology at the bare minimum to satisfy the lecturers' instructions. STUD-INT-7 and STUD-INT-19, for instance, argued that they used the VLE "*only if*" they had to.

Some students expressed preference for personal technologies and devices, as students considered them to be more interactive and much faster for expediting communication than CABWEB, during the "Salford Blogging" exercise. As such, they used the CABWEB VLE mainly to arrange meetings, but used other technologies or met face-to-face to communicate with group members and prepare group activities [e.g. STUD-INT-5, STUD-INT-6, STUD-INT-12].

Some students expressed disappointment with the limited use of the VLE by academic staff members, with a few stating that this made them demotivated to use the VLE. For instance, STUD-INT-2, argued: *"The VLE should not be about putting or uploading a PDF file...You need to have forums and communications. I only log on once every five days because I'm not really motivated"* [STUD-INT-2].

Taken together, interviewees' preference for face-to-face pedagogical activities, their preference for other tools and devices and their disappointment with the limited use of the VLE by academic staff, accounted for their selective engagement with the VLEs. Within this context, some interviewees claimed that they used the VLE "only to get by" or "only if they had to", in terms of accomplishing compulsory or assessed learning activities. Some of the reasons for students' selective engagement with the VLE technology is captured in *Table 5.13*.

Table 5.13: **Students' Selective Engagement with the VLE Technology [A Few Quotes]**

"The VLE should not be about putting or uploading a PDF file...You need to have forums and communications. I only log on once every five days because I'm not really motivated" [STUD-INT-2]
"...I was apprehensive about CABWEB as I have never done any IT or online learning before. I enrolled on it, but I didn't really participate much...I lacked confidence as I was not sure how to use it and I did not see the benefits and point of using it. People were only using it to send emails.   I did not see the point in this as emails could be sent directly otherwise...I communicated with my group members by mobile phone and personal email, and I also saw them in class anyway. So my group used CABWEB to arrange meetings, but we met face-to-face as well to put together the Blogs presentation" [STUD-INT-5].
"I communicated with my group members by mobile phone and personal email, and I also saw them in class anyway. So my group used CABWEB to arrange meetings, but we met face-to-face as well to put together the Blogs presentation" [STUD-INT-6]
"I did not participate in the chat room or on the discussion board on CABWEB during the Salford

> *Blogging Exercise. But I made inputs to the glossary and participated in my group activities in preparing the Blogs PowerPoint Presentation. The group met mainly face-to-face and we used cell phones and texts to communicate and arrange group meetings. I only use Blackboard for announcements and printing of documents. Unless required to do so, for example for* [Module B], *I do not use the discussion boards or chat rooms as I prefer face-to-face communication…*" [STUD-INT-7].

> "*When I use the translating software, this can take time and sometimes some of the sentences mean nothing – they make no sense when I translate from Arabic into English*" [STUD-INT-9].

> *"During the online activity on CABWEB, we had a silent group of MSN users, and we still use MSN. We participated in the CABWEB activities but we prefer MSN because it is more interactive and more user-friendly compare to CABWEB. I think it is how MSN function – they will automatically log you on once you are connected to the Internet. But with CABWEB you have to go to this website and log on, then lots of other access things to do before you start the communication in CABWEB. MSN is more straightforward. CABWEB is a bit slow as well"* [STUD-INT-12].

> "*In terms of collaboration, not many people are used to collaborating facilities. I am not used to it and I am a bit reserved in expressing my thoughts online. In my collaborations sometimes I don't give 100%. I don't know why I am reluctant to use it. But I do use it if I have to use it…I prefer the essays than the online collaboration because people will criticise you if you get it wrong or not, and that can affect your personal ego, your personal understanding. And it can stop certain people from contributing. I did contribute to the discussions though*" [STUD-INT-19].

5.3.3.4 *Technological and Pedagogical Issues in the Multicultural E-Learning Setting*

Students reported on their educational experience at the University, both generally and in terms of the VLE. Some students talked about differences they observed between Salford and the university in their home country, in relation to the mode of teaching and learning. For example, STUD-INT-10 commented:

> *"I am familiar with seeing PowerPoint presentations being used mainly for job and professional training sessions, but now I am getting used to it in an academic environment. I was accustomed to getting handouts and lecture notes on paper, but now I am getting lecture notes in electronic forms such as PowerPoint slides both in class and online. This method is different from what I was used to in my school days, but I have now gotten used to it in terms of a school setting. It has encouraged me to read more in order to build up and support the slides uploaded to the VLE, as I cannot understand the slides alone. This is a good thing"* [STUD-INT-10].

While students reported that their overall studies and E-learning experience were good, many students reported some of the pedagogical as well as technological challenges and related issues which they faced when using the VLE for different module activities. Some of the main technological and pedagogical challenges, as reported by students, are presented in *Table 5.14* below.

Almost all of the students talked about the poor design of the Blackboard and CABWEB VLEs, in terms of their interface, ergonomics and organization. STUD-INT-5, for example, claimed: "*I found CABWEB difficult to navigate. I found it unwieldy. It was not user-friendly….The system frustrates you before it works...*". In addition, students talked about the inability to keep pace with discussion forums on Blackboard because of its disorganized interface, leading to confusing threads.

Further, students also claimed that the Blackboard VLE is limited in options, is not user-friendly and is disengaged from other tools such as students' email accounts: "*I have to log on to two separate tools whenever I am checking for updates*" [STUD-INT-16]. Students also described other technology-related issues such as inactive web links to information and discussion, and the lack of blackboard training for students. Others talked about network downtime, when there is no online access; slow network. Some of these technological issues also accounted for students' preference for alternative technologies and for the VLEs being used in a selective manner.

Table 5.14: **Technological and Pedagogical Issues Faced by Students**

TECHNOLOGICAL AND TECHNOLOGICALLY-RELATED ISSUES
Poor design of the VLE, in terms of its Interface, Ergonomics and Organization: Not user-friendly; Incompatible with other technologies and tools
I found CABWEB difficult to navigate; I found it unwieldy. It was not user-friendly. Initially my username and password did not work as the system did not accept it. It also stated that I needed to download "things" and prompted me to install cookies. The system frustrates you before it works. I was more inclined to use Blackboard rather than CABWEB" [STUD-INT-5]. *I thought that announcements would be linked to students' university email, but it is not. As such I have to log on to two separate tools whenever I am checking for updates…"* [STUD-INT-16]. "*Both CABWEB and Blackboard are a failure. They cannot do anything to satisfy the client. Blackboard does not have a user-friendly interface. The way in which Blackboard is designed, you need to go through many options to get to what you want. The way it is designed, each message is followed after the other in a disorganized way…*" [STUD-INT-17]. "*You can't save documents to hard drive. The ergonomics of Blackboard is not very user-friendly*" [STUD-INT-18]. "*…The email interface is not good. It is not like other formal standard email interface…Filtering emails – not many options available if I want to filter by subject or by email address, and so on*" [STUD-INT-20].

"*The actual interface is sometimes a bit disorganized. I feel it could be better. For example, messages posted to the discussion board after a time gets confusing. I cannot keep up with the arguments as there is no proper order of how they appear on the discussion board*" [STUD-INT-23].

Other technologically-related issues: network downtime, inactive web-links; restriction issues, such as access to certain modules; lack of blackboard training; unable to personalize

"*I had no online access at the university accommodation because of downtime or because it was very slow. I had the physical technology but no access to the network, and so I got lagged behind. This prevented me from being updated. I had to come to university to log on before I could be part of everything. Here, technology is being a hindrance. I was not able to access assignments and participate in group discussions from my flat*" [STUD-INT-3].

"*I think the Blackboard module page is too restricted, in that if I do not do a particular module – for example, the "e-Government" module, then I am not able to access it because it is kept "confidential" to only those students taking that particular module. This is a drawback. At the end of the day we are all students on similar Masters programmes.*" [STUD-INT-8].

"*There will be need for more emphasis to be placed on training on the usage of library sites during induction because most students whom I have spoken to did not take it very serious at first...But then I had to learn by force when I had to do my research proposal in the first semester*" [STUD-INT-10].

"*...Sometimes there is a link or sub-link to discussion, but when I click on the link, there's nothing...no discussion...*" [STUD-INT-12].

"*There should be some form of curriculum on how to use the Blackboard facility. Initially, I was at a loss as to how to use it, and so I did not use it much. I was not able to pick up very fast...*". [STUD-INT-15]

"*In terms of Blackboard...I think it should be more updated and made more fun and made more personalized. Since they have students of different cultural backgrounds, they should have given students the flexibility to personalize the VLE so that they will feel comfortable using the system*" [STUD-INT-19].

"*...With CABWEB there was lack of privacy regarding when someone logged on. How long they were logged on for; when they actually logged off and for how long... All these details could be seen on the pages....*" [STUD-INT-22].

PEDAGOGICAL ISSUES

"*I had no problem from the technical side. It is okay technically. However, most people use Blackboard as a file store and then call it a VLE*" [STUD-INT-2].

"*It is okay. But my expectations were that the E-learning environment would be a full room where you could get all the information from the VLE – lectures, tutorials, materials – without physically attending the lecture or tutorials*" [STUD-INT-4].

"*I am not pleased with some of the modules for example,* [Module Name]. *I feel that this module was not started at a basic level – the lecturer started at an advanced level. This is supposed to be an IT conversion course. I have never done* [Module Name] *or programming before, so this is proving to be difficult. Students are expected to identify an existing project to work on, for example, Open Source, and then research it. Then they do the programming or provide codes for it. But how do you expect students to do this if they do not understand?* [STUD-INT-5]

"*It was difficult at first to write essays and assignments as I am coming from a background where the answer is either right or wrong. My undergraduate programme was a very technical, hands-on, practical course. It was difficult for me to read a lot of papers. Lecturers pile papers upon papers.*

I had set aside to read one paper per day, but this was no longer possible" [STUD-INT-8].

"The programme is okay, but it's a lot of reading. I complained to [STAFF-INT-2] the last time that this is too much reading and he said 'if you're going to keep up your post-grad programme, you must read'. So I said okay then, I will pretend I will. This is the first in my whole lifetime that I read a lot and write a lot.." [STUD-INT-12].

"The VLE is good, but I prefer to be at the lectures because I like when the notes are read to me – that makes more sense. You can't get the explanation you get in class on the VLE" [STUD-INT-13].

"When we have to do something in Blackboard and it is assessed, I think this is not good. We have this course, [Module Name], and we need to post answers and then comment on answers. I think this is time-consuming because I have other assignments to do. If I keep on sticking to the monitor just to check who added and what they posted and then I have to post something, then I just won't have time to do anything else, so I don't read most of the postings. I really wasn't comfortable with this part of the course. When I feel interested in something I will read, and when I feel that it makes no sense then I have no interest. Sometimes I don't understand the postings. It happens especially when they use signs and abbreviations related to the field. I'm not familiar with them because my background is not related to this field. I get frustrated sometimes. I think it might be more fun if it wasn't assessed, because when you start taking things seriously then you don't enjoy it. That's why I enjoyed using CABWEB. We had lots of discussions with classmates and it wasn't assessed. When I don't feel I have to write because I am not being assessed, then I can relax and be myself. It's more comfortable" [STUD-INT-14].

"The programme is not very difficult, but for some modules, the lecturers give us a lot of materials to read...We had a recent group work assignment which I think was too easy for group work. Yet there was a very difficult assignment, which was individual. That should have been a group work assignment as it was difficult to cope on my own, but I was able to manage in the end. Sometimes the words and sentences are put in a complicated manner, when the task itself is not at all that complicated. Once I get to understand what the instruction is all about then it is easy for me to do my work..." [STUD-INT-16].

"Sometimes there are technical words and technical jargons that staff and other students use which they don't explain, and this is a bit difficult to understand even for me, although I speak English. So I have to try to get a flavour of what this person means. It is all about trying to understand what they have written or said…It was nice doing the blogging exercise on CABWEB, but when it comes to having discussion where you have to think, apply and then post it to the discussion board [on Blackboard], *I think I need more time for that. I need to be able to research…"* [STUD-INT-19].

"I'm from a technical background but the MIT course is more of a sociological topic. This poses a problem for me not only at the beginning of the semester but also now as I still find it difficult to write essays. Otherwise, apart from the essay-writing, everything else is okay. The lecturers are good…" [STUD-INT-20].

"For [Module Name], [Module Leader] *expected us to actively contribute towards these three different topics which she posted on the forum. But I think she didn't take into account that we had other modules to take care of. So she was expecting us to make a daily contribution to topics and keep up to date with topics and what was going on with the topics and what other people were saying about the topic. I mean, I didn't even have the time to actually update myself daily with the forums. I contributed to the forums for the last four or five days, no more than that. Before that we had the Easter Break and from the break I was doing all the assignments, so I couldn't research everything and contribute towards everything. So I think there is lack of coordination among the lecturers where they expect you to use, maybe say the VLE, as a medium for community collaboration, and they think you have all the time in the world just for their module. [Module Leader]…asking us to contribute towards three topics at once, plus do group assignments at the same time. Plus we had to do other assignments. Lecturers have to get together and try to schedule their assignments and the VLE resource"* [STUD-INT-21].

5.3.3.5 *Cultural Issues Arising in the Multicultural E-Learning Setting*

Generally, students were aware of the multicultural environment in which they were operating. They spoke about various cultural differences they observed among their classmates and lecturers in the classroom and online. Some of these differences are included in *Table 5.15* below. For some students, these cultural differences did not have any impact on their studies. For example, STUD-INT-6 reported:

> "*In terms of cultural impacts, my culture is quite open, so there are no conflicts with other cultures whether on the VLE or in class. During my undergraduate studies my class was of a fairly mixed culture although they were British. I am used to speaking to people of other cultures in university as well, so it is easy for me to understand people of different cultural background.*" [STUD-INT-6].

In a similar vein, STUD-INT-11, an international, student reported:

> "*There is no cultural barrier, really. Everything is very fine. The communication between instructors and fellow students is fine. I understand fully what is being expressed. I am totally fine with everything*" [STUD-INT-11].

STUD-INT-4, also reported:

> "*There is no cultural impact, especially in language. [Home Country] was colonized by the British so our official language is English. There was no problem understanding terminologies and phrases. However, using the VLE, there is no social or private room to have one-and-one contact with the tutor*" [STUD-INT-4].

Some international and EU students stated some of the differences they observed in how they interacted with academic staff in their respective home countries and those at Salford [e.g. STUD-INT-1 and STUD-INT-3; and STUD-INT-21]. For example, STUD-INT-1 and STUD-INT-3 pointed out that lecturers at Salford were addressed on a first name basis, but that in their home country they were accustomed to addressing university lecturers by their titles and surnames. STUD-INT-21 shared:

> *One thing I notice about this university is that lecturers overall know your name. They know you personally. They know who you are. They know what you study. Whereas in Manchester University, you're just another number on the list. They have*

no idea of who you are. That's the same in [Home Country]. But here it is much more personalized" [STUD-INT-21].

While some students reported that there was no cultural barrier, some students reported different cultural issues they experienced online and in the classroom. The main cultural issues described by students resulted from differences in teaching and learning styles, languages and difficulty in socializing both in the classroom and online for fear of offending others. For example, with regard to teaching and learning styles, STUD-INT-2; STUD-INT-21 and STUD-INT-23 made comparisons between the pedagogical style at Salford and that of the universities in their respective home countries.

Further, as it relates to teaching and learning styles, some students reported that they were not accustomed to using ICTs in their learning activities, because this was not done in their home country. According to STUD-INT14:

"*In my country – and I mentioned this in my presentation – we don't usually use the Internet seriously for studying. We use it for fun ...It's wrong because technology now is dominating and we should really reconsider that. But, I think I can learn lots of things even without the blackboard*" [STUD-INT-14].

As it pertains to language, some of the students whose first language was not English, did not speak or understand the English language very well. This barrier presented challenges not only when they attempted to communicate with their classmates and academic staff, but also in carrying out online activities. The language barrier also presented a challenge to lecturers and fellow students as they were unable to understand the comments posted to the online forums, due to some students' poor English. STUD-INT-8 remarked: "*English is not first language for some students, so it was very difficult to understand the arguments and comments they posted online…*".

As it further pertains to language and resultant issues, some students did not understand the jargons, "shorthand" or abbreviations posted on discussion boards. According to STUD-INT-12, "*…I don't like when students use shortcuts and jargons on discussion boards. Some students like to use shortcuts, like 'em' for*

241

'them'. This is difficult to understand…". A similar difficulty was also shared by STUD-INT-14.

Some students expressed concerns about how challenging it was to socialize. STUD-INT-5 divulged:

> "*Although my parents are originally from India, I was born here and brought up more as a British. So I have not experienced many cultural differences or experiences outside my own British culture. I try to mix with everyone but sometimes it is difficult to communicate with people of different countries, especially online. But I make the effort. It is a very broad mix of students in the Masters programme. So in terms of online communication or even in the class, people do not want to get involved or socialize…People only meet in lectures and you do not see them again until the next lecture*" [STUD-INT-5].

Some students were afraid of offending fellow students in the classroom and online environment. STUD-INT-3, for instance, reported:

> "*Because the class is varied in race, culture and religion, I had to be very careful of what I say face-to-face and even online. For example, shaking hands with a Muslim – some male Muslims in the class do not touch or shake hands with women. Because of these cultural differences, where there were discussions about "Christmas Dinner" and "Class Party", I also had to be careful what I say about these events online in order not to offend anyone*" [STUD-INT-3].

All in all, some students reported that some of the cultural issues encountered [e.g. language barrier, religious differences], made them reluctant to participate in online discussions.

Table 5.15: **Types of Cultural Issues and Challenges Identified in the Study**

STUDENTS: EVIDENCE FROM THE STUDY
Teaching and Learning Styles/Practices: Students expecting more lectures and lecture notes from lecturers, Students not accustomed to using ICTs in their learning tasks/activities.
"*…The [lecturers] here make great use of technologies whereas in* [Home Country] *they make use of theories of technologies…*" [STUD-INT-1]. "*…I am used to doing a lot of classes and labs and less assignments. But here in the UK, it is the other way around – few classes and more assignments. You do most of the research on your own…*" [STUD-INT-2]. "*…I lacked the confidence as I have never done any IT or online learning before*" [STUD-INT-5]. "*I am familiar with seeing PowerPoint presentations being used mainly for job and professional training sessions, but not in an academic environment. I was accustomed to getting handouts and lecture notes on paper, but now I am getting lecture notes in electronic forms such as PowerPoint*

slides both in class and online. This method is different from what I was used to in my school days in [Home Country], *but I have now gotten used to it in terms of a school setting*" [STUD-INT-10].

"*In my country – and I mentioned this in my presentation – we don't usually use the Internet seriously for studying. We use it for fun …It's wrong because technology now is dominating and we should really reconsider that. But, I think I can learn lots of things even without the blackboard*" [STUD-INT-14].

"*… for me the most significant difference was that lectures here* [Salford] *are just an introduction to the topic. In* [Home Country], *they teach you the bulk of the topic in the lecture; they are supposed to teach you the core things, and you can read further on the topic if you want to. But here, it is the other way around. They just give you the basics and you are supposed to go and research the core things…*" [STUD-INT-21].

"*One of the things about the* [Home Country] *style of teaching is that they* [teachers] *tell you everything you need to know. Teachers provide you with the information, you memorize it and then you sit the exams…I was not used to the style of teaching in the UK. For example, the teachers here give us assignments that are all essay-based, and they usually allow us to choose our own topic whenever they give us two or more different topics of choice. The teaching style back in* [Home Country] *was more a homework-based style where you are given a set of questions to answer. You just answer them and move on to the next question. I was used to being given instructions about what to do and the topic would have already been chosen by the teacher. But here in the UK we choose the topic for our essays. We have to structure the introduction, structure our argument, and so on. This was a challenge as I didn't know how to structure assignment essays…*" [STUD-INT-23].

Language: Some students do not speak or understand the English Language very well. Some students and lecturers cannot understand some students' poor English.

"*There are International students who can barely speak English yet are on the Masters programme…From my culture, being a fluent English native speaker – I'm not trying to be pompous – it is hard to clarify or discern what is being said online sometimes. I face this problem on the* [Module B] *on Blackboard. If the student was face-to-face, probably it would have been easier to grasp. But sometimes I read comments posted to the discussion board and I just cannot understand the point that they are trying to make. There are limitations to learning online*" [STUD-INT-7].

"*English is not first language for some students, so it was very difficult to understand the arguments and comments they posted online…*" [STUD-INT-8].

"*The language barrier affects me on Blackboard and in the classroom. Some words are difficult to understand and write because I speak Arabic. I also write in Arabic*" [STUD-INT-9].

"*I like English but it is not up to my own expectation...I did it in high school, but in [Home Country] we mainly speak [Home Country Language]. When I press F7 I find a lot of grammar and spelling mistakes…English is not my main medium of communication even though I did it in school…As for online discussion, I don't like when students use shortcuts and jargons on discussion boards. Some students like to use shortcuts, like 'em' for 'them'…this is difficult to understand…I sometimes wonder what are they talking about…I don't understand them*" [STUD-INT-12].

"*When my classmates don't know English properly, it is quite difficult. When there's no structure in the sentence, just random words slapped on the page, it is quite difficult…commas and full-stops are in the wrong place, and they are collected altogether…I hope I don't sound like I'm against foreigners…When I read posts, I like to critique or criticize the posts, but if I don't understand the posts it is quite difficult to criticize. I just leave it alone. I just say 'next', then go on the next post*" [STUD-INT-13].

"*Sometimes I don't understand the postings. It happens especially when they* [students] *use signs and abbreviations related to the field…I get frustrated sometimes…*" [STUD-INT-14].

"We needed to use the discussion board on Blackboard for [Module Name], but this was a bit challenging. We had to comment on the discussions and different view, which students posted to the online forum. It was a bit challenging trying to coordinate the various views of the students. There was a strong language barrier. I could not understand some of the comments posted to the board. But the good thing is, I also spoke face-to-face with my group, so I was able to clear up any misunderstanding. However, in the wider class, there is a language barrier...." [STUD-INT-15].

"For the sake of foreign language students, I use emoticons during online discussions so that they will know whether it is a joke or not..." [STUD-INT-18].

"I notice that there are a lot of international students and most of them, their grammar is not very good comparing to our home students. The way they structure their sentence seems like the way they would talk. The way they talk is unstructured sometimes. This sometimes can be difficult to understand online". [STUD-INT-19]

"There is language barrier…I speak and think in Urdu language, but I use the basis of my Urdu language to speak English. Culturally, I use the words that we use in Pakistan, in our culture, and try to convert those words into English. Maybe they do not have any meanings here, but this is important for me to do, then my brain will convert it to English. Other students sometimes don't understand me. But teachers understand me, maybe because they have experience in teaching other international students. Sometimes people send email or use the discussion board and I read their comments for a particular topic. I couldn't understand what they are trying to say just because their concept of expressing views and their language is different as compared to me…." [STUD-INT-20].

"There were some people who posted some things on the Blackboard which I have no clue what is being said. I wonder if they were speaking in their own language…" [STUD-INT-21].

"Some students' English is not so good, as English is not their first language. It is difficult sometimes to understand their comments on the discussion board. Apart from this, the online discussions have been enjoyable…" [STUD-INT-22].

"I sometimes find it difficult to understand the discussion board. This is mainly due to the language barrier as some messages are not properly written in English. Sometimes I read it three different times but yet find it hard to understand and follow…I just do not understand it'. So the main difficulty here online is the language barrier" [STUD-INT-23].

Socializing: Difficult to Integrate; Fear of offending classmates; Contradicting views

"Because the class is varied in race, culture and religion, I had to be very careful of what I say face-to-face and even online. For example, shaking hands with a Muslim – some male Muslims in the class do not touch or shake hands with women. Because of these cultural differences, where there were discussions about "Christmas Dinner" and "Class Party", I also had to be careful what I say about these events online in order not to offend anyone" [STUD-INT-3].

"Although my parents are originally from India, I was born here and brought up more as a British. So I have not experienced many cultural differences or experiences outside my own British culture. I try to mix with everyone but sometimes it is difficult to communicate with people of different countries, especially online. But I make the effort. It is a very broad mix of students in the Masters programme. So in terms of online communication or even in the class, people do not want to get involved or socialize…People only meet in lectures and you do not see them again until the next lecture" [STUD-INT-5].

"I have cut down on my swearing since I started the course. Some people don't appreciate swear words. When I am telling jokes around my peers, I usually use swear words to emphasize my jokes. Actually the swear words just pop up while I'm telling the joke. But some people, especially international students, don't appreciate it. They find it offensive. I got to realize this the hard way. So now I have cut down on my swearing – I have no choice. Otherwise, I'll have no friends. I think I'll be back to full vocabulary after I've completed my MSc. course" [STUD-INT-13].

"The British tend to have sexual innuendos and jokes but students of other cultures find this

offensive. For the sake of foreign students, I use emoticons so that they will know it is a joke….It would be good to have a society on the VLE – just as how you have Muslim or Christian or Asian Societies in universities – for international students to join…" [STUD-INT-18].

"*…Sometimes people talk about their cultural issues, for example 'Islam does not allow this and does not allow that'. Being a Muslim myself, I don't know whether it is true or not. So, people do bring in their own culture and their own background knowledge and put it into it. This is interesting but it is not validating and there's no proper concrete evidence*" [STUD-INT-19].

"*I know that the Muslims are sensitive to their own issues, so I became afraid sometimes to say things which I might have said back home, where even if they were Muslims or whatever, they would not have gotten upset… But, here they might get offended. So sometimes I feel kind of scared to express myself in a natural way on Blackboard because they might take it the wrong way*" [STUD-INT-21].

Addressing Academic Staff: Students accustomed to addressing lecturers in a formal way; Lecturers know students on a personal basis

"*Lecturers are generally addressed by the title 'professor' in my country to show respect…*" [STUD-INT-1].

"*In my country professors do not know the students on a name basis, as they do here. Also, students do not call lecturers by first name in* [Home Country]. *However, here in the UK they do. In my country, titles such as Professor or Sir or Mrs. or Dr. are used to address lecturers. It is more out of respect that titles are used*" [STUD-INT-3].

One thing I notice about this university is that lecturers overall know your name. They know you personally. They know who you are. They know what you study. Whereas in Manchester University, you're just another number on the list. They have no idea of who you are. That's the same in [Home Country]. But here it is much more personalized" [STUD-INT-21].

5.3.3.6 *Best Aspects of Students' VLE/E-Learning Experience*

The best aspects of students' VLE/E-learning Experience are captured in *Table 5.16* below. Among the best things that students expressed about their online experience were the benefits and convenience the VLEs offered, the online forums and discussions, and the overall concept of the VLE. The benefits and convenience were particularly related to the 24-hour access to resources: more than half of the students liked the idea of real-time information and the access to materials and resources – such as lecture notes, grades, assignments and library catalogue – anytime and anywhere. One student highlighted the convenience this brings to him as he has a physical disability.

Some students reported that they enjoyed the online forums and discussions, claiming "*it's the fun part of the online experience*" [e.g. STUD-INT-14]. Some participants reported that they liked the overall concept of the VLE, and enjoyed exploring various VLE features and resources particularly on Blackboard: "*The*

Blackboard concept is a good idea. A lot of features and tools are good ideas"
[STUD-INT-18]. Students liked features such as "anonymous", "calendar and
schedule" and "announcements". Some students were also pleased about the spam-
free nature of the VLE; the idea of the Glossary on CABWEB; and the
personalized effects of the Blackboard module page, claiming that these things
made their E-Learning experience pleasurable. About one-third of the students
shared that they were pleased with their overall Blackboard experience, to the point
that they used the VLE very frequently: "*I use Blackboard every 10 minutes. It is
amazing, very robust. The design is great; it is so easy to use and information is so
easy to reach. I think it's great and every student should use it all the time*"
[STUD-INT-11].

***Table 5.16*: Best Aspects of Students' VLE/E-Learning Experience**

"*To actually log on and find lecture notes prepared for next lecture or tutorial. Also, the library system is good – the online catalogue; we can renew book loans online*" [STUD-INT-1].

"*The ability to get grades; the discussion forums; and the ability to get staff information*" [STUD-INT-2].

"*Real time information – if you are always logged on. It is easy to get feedback from lecturer and assistants, and get help with revision. The discussion boards are very useful – usually for the student who has a question, it would be a good "Question and Answer" forum. The anonymous feature is good. Easy to incorporate and upload document and attach it*" [STUD-INT-3].

"*For it to be there is a good thing. Also to have access to materials at one's own convenience is also a good thing*" [STUD-INT-4].

"*It helped me to stay on top of things – I am not losing out on information if it is online. It keeps a log of what people have written, so it's like a written conversation. The glossary was useful to other people as [STAFF-INT-9] had sent an email saying that it was viewed many times*" [STUD-INT-5].

"*Blackboard is more useful to me than CABWEB. The resources I needed were there, such as lecture notes, grades and assignments. Blackboard is easier to use than CABWEB*" [STUD-INT-6].

"*The fact that I can access course materials. For someone like me who has a disability, I can work from home and access information anytime. However, it is not utilized by all the lecturers*" [STUD-INT-7].

"*The layout is good – it is easier to read; it is not cluttered. The idea and general concept of the VLE is good. The discussions and forums going on which are very good. The calendar and schedule concepts are good as well, although no one uses these*" [STUD-INT-8].

"*I am able to have discussions with students online and in class and have their idea about the subject or anything. I am able to download lecture notes and assignments. I am able to get information and background on lecturers who teach me*" [STUD-INT-9].

"*The online communication with lecturers and peers. This is my first online experience in the school environment. I am actually satisfied with what I have seen so far*" [STUD-INT-10].

"*Downloading slides and lecture notes from students. Any announcements, you can find it in the Blackboard. The email system embedded in the VLE. It is spam-free – this is great. It is a complete system – whatever you want you can find there. There's the discussion board and stuff like that. It is quite sufficient, everything*" [STUD-INT-11].

"*The green colour...I like the green colour. I mean, the colour is well blend with the university own colour... My friends in Bristol university have blackboard too, but it is an ugly blue colour...I say to them, 'what ugly colour do you have here...'... *" [STUD-INT-12].

"*The online discussions*" [STUD-INT-13].

"*The discussion between classmates – it's the fun part of it*" [STUD-INT-14].

"*It affords me the opportunity to learn at my own leisure, where I can actually plan my work and follow my plan. I can access the "classroom" and the lecture notes 24-hours-a-day, so it's like learning all the time*" [STUD-INT-15].

"*The discussion forums and access to lecture notes online*" [STUD-INT-16].

"*Using the discussion board was good although I was forced to use it. Instant messaging programme as well...*" [STUD-INT-18]

"*In terms of Blackboard, I liked the online collaboration. The online chat is good*" [Stud-Int-19].

"*All the assignment materials and lecture notes. This is good if you are absent from lecture. I also like the network aspects – you can save work from F-Drive and still access it anywhere you are*" [STUD-INT-20].

"*Generally, I think the overall university online services are great...The access to online materials like journals and books are great...I think the amount of material they make available to us online is good. It's a lot, really. There are a couple of times when the servers are down and I'm not able to access email, but this is expected and it happens everywhere. Overall I think it's a great experience*" [STUD-INT-21].

"*It is very beneficial and it is a great way to communicate*" [STUD-INT-22].

"*The fact that I have access to learning materials anytime and at my own comfort*" [STUD-INT-23].

5.3.3.7 *Worst Aspects of Students' VLE/E-Learning Experience*

Among the worst things which students reported were the poor design and organization of Blackboard and CABWEB VLEs, in terms of their interfaces and ergonomics. Students also reported the network and technical challenges, such as downtime and other access issues. A few students highlighted the surveillance nature of CABWEB as being part of their worst experience. STUD-INT-22 talked about the feelings of exposure and surveillance she experienced on CABWEB, while STUD-INT-1 stated: "*During the Blogging exercise on CABWEB, my group and I felt exposed using the forums because other groups could see our work*".

The lack of training on the usage of the VLE and the exclusiveness of the module page were also cited by few students as being among the worst aspects of their online experience. Interestingly, while some students enjoyed the exclusiveness of Blackboard's module page, others found this to be off-putting. According to STUD-INT-8:

> *"I think the Blackboard module page is too restricted, in that if I do not do a particular module – for example, the "e-Government" module, then I am not able to access it because it is kept confidential to only those students taking that particular module. This is a drawback. At the end of the day we are all students on similar Masters programme"* [STUD-INT-8].

Another aspect of their worst online experience, which students reported was lecturers' infrequent and inconsistent use of the Blackboard VLE. Some of the interviewees commented that lecturers did not use the VLE in an interactive manner, but merely as a file-store [e.g. STUD-INT-2; STUD-INT-21]. In terms of the inconsistent use of the VLE, STUD-INT-7 commented: *"Sometimes you can access slides; other times you cannot. Some lecturers do not use the VLE at all"*.

Another aspect which participants listed as their worst experience was the inappropriate use of the VLE resources by fellow students. Some students reported that "*students used the VLE in a social way*" [STUD-INT-1], and some claimed they were not pleased with "*the way in which the discussion boards were monitored*" [STUD-INT-7]. STUD-INT-20 commented: "*I have a problem with people using the VLE for social purposes. If you try to make a community, VLE can make an academic community but cannot make a social community*".

Language barrier was another aspect which many students claimed to be part of their worst online experience. One interviewee was against online activities being assessed or graded, and therefore highlighted this as one of the worst aspects of her online experience. "*When we have to do something in Blackboard and it is assessed, I think this is not good….*" [STUD-INT-14].

While all the other students listed various aspects of their worst VLE experience, STUD-INT-11 asserted that he enjoyed his entire online experience and that he found no fault with the VLE. He maintained: "*The communication between*

instructors and fellow students is fine. I am totally fine with everything. The Blackboard is good…I don't see anything bad about it, to be honest".

Some of the worst things that students listed about their VLE experience coincided with the technological and cultural challenges they encountered, as reported in *Section 5.3.3.2* and *Section 5.3.3.3*. It also coincided with some of the reasons for their using the VLEs in a selective manner, as discussed in *Section 5.3.3.1*.

***Table 5.17*: Worst Aspects of Students' VLE/E-Learning Experience**

"*During the Blogging exercise on CABWEB, my group and I felt exposed using the forums because other groups could see our work*" [Stud-Int-1].

"*The lack of use and the way in which it is being used. People [everybody] do not use the VLE as it should be used. If lecturers used it as it should be used, then students would be more inclined to use it. Lecturers do no promote it. In Belgium, students including myself used the VLE quite a lot more because each week we had to hand in assignment via the VLE*" [Stud-Int-2].

"*I had no online access at the university accommodation because of downtime or because it was very slow. I had the physical technology but no access to the network, and so I got lagged behind. This prevented me from being updated. I had to come to university to log on before I could be part of everything. Here, technology is being a hindrance. I was not able to access assignments and participate in group discussions from my flat*" [Stud-Int-3].

"*Having to make sense out of limited information or limited materials provided on the VLE*" [Stud-Int-4].

"*I found CABWEB difficult to navigate; I found it unwieldy. It was not user-friendly. Initially my username and password did not work as the system did not accept it. It also stated that I needed to download "things" and prompted me to install cookies. The system frustrates you before it works. I was more inclined to use Blackboard rather than CABWEB*" [Stud-Int-5].

"*Sometimes lecturers take a while to put lecture notes on, so notes are not found when I log on. CABWEB was quite limited to use as a learning resource*" [Stud-Int-6].

"*Inconsistency of use of the VLE by course lecturers – they are not consistent. Sometimes you can access slides; other times you cannot. Some lecturers do not use it at all. The discussion boards are often not used in the appropriate manner. Maybe I am a bit of an "educational snob", but I don't like the way in which the discussion boards are monitored'*" [Stud-Int-7].

"*I was not able to access the server at some point over the Christmas as it was down*" [Stud-Int-8].

"*Blackboard can be pressuring for me because I have to type on the forum and keep up with the class. I have to translate all the messages to Arabic to understand the discussion and then translate it back to English. After I translate my answers from Arabic to English, I still have to type and make corrections, and then cut and paste my answers to the forum. Sometimes, by the time I do all this, the discussion is gone…way ahead*" [STUD-INT-9].

"*There will be need for more emphasis to be placed on training on the usage of library sites during induction because most students whom I have spoken to did not take it very serious at first during induction. But then I had to learn by force when I had to do my research proposal in the first semester*" [Stud-Int-10].

"*The blackboard is good…I don't see anything bad about it, to be honest*" [Stud-Int-11].

"*The missing links and missing information. S*ometimes there is a link or sublink to discussion, but when I click on the link, there's nothing…no discussion. Also, I cannot access Brunei from Matthias Court, but my friends in Bristol can access in London…they can access in Salford. I need to access Brunei especially for my research*" [Stud-Int-12].

"*The logging-in problems were the worst experience. It was a horrible experience. It felt like I was missing out on something; everything*" [Stud-Int-13].

"*When we have to do something in Blackboard and it is assessed, I think this is not good…*" [STUD-INT-14].

"*Lack of training. There should be some form of curriculum on how to use the Blackboard facility. Initially, I was at a loss as to how to use it, and so I did not use it much. I was not able to pick up very fast. However, I was persistent and determined to learn and this was facilitated by my fellow students who willingly assisted me. In less than no time I was able to catch on*" [Stud-Int-15].

"*I thought that announcements would be linked to students' university email, but it is not. As such I have to log on to two separate tools whenever I am checking for updates. Also, modules that I am not enrolled in are there on my Blackboard page and these are cluttering the space. When I am trying to find my module I have to go through the list before I find what I am looking for, while there are some students who have only the modules they are enrolled in, on their Blackboard space*" [Stud-Int-16].

"Blackboard does not have a user-friendly interface – you have to go through too many options.…" [Stud-Int-17].

"*You can't save documents to hard drive. The ergonomics of Blackboard - it is not very user-friendly*" [Stud-Int-18].

"*It can be difficult finding information for some staff. Not every lecturer uses the blackboard properly. For example, some do put the marks on the blackboard; some don't; some prefer not to put it on; some prefer just to hand-submit it. But I think if you have blackboard you should just put it there rather than have students coming to your office asking for their marks. Also the slides are not there all the time*" [Stud-Int-19].

"*I have a problem with people using the VLE for social purposes. If you try to make a community, VLE can make an academic community but cannot make a social community*" [Stud-Int-20]

"*I have not really seen anything too negative except for when it is down because of maintenance. Some lecturers do not answer questions posted to the discussion boards until very later on. Some lecturers are more efficient*" [Stud-Int-22].

"*The actual interface is sometimes a bit disorganized. I feel it could be better. For example, messages posted to the discussion board after a time gets confusing. I cannot keep up with the arguments as there is no proper order of how they appear on the discussion board*" [Stud-Int-23].

5.3.3.8 *The VLE: Aspects Students Wish to Keep*

Students reported on aspects of the VLEs which they wished to keep. These are summarized in *Table 5.18*. More than half of the students reported that they liked the overall concept of the VLE and thus would keep it: "*The concept of the VLE itself is one which I would like to keep*" [STUD-INT-4]. Some students particularly

showed preference for a particular type of VLE. STUD-INT-6, for instance, remarked:

> "*Keep the Blackboard". I am quite pleased with various aspects of Blackboard: the personalized touch; the discussion boards; access to Web Mail and library resources. In terms of CABWEB I was able to compare presentations where this could not be done in Blackboard. Perhaps they could have that as a link to Blackboard but get rid of everything else on CABWEB*" [STUD-INT-6].

As it relates to specific features, more than half of the students asserted they would keep the discussion boards/forums and the idea of having access to lecture notes and the library catalogue. Other students reported various other aspects such as emails and announcements.

Table 5.18: **Aspects of the VLE Students Wished to Keep**

The overall concept of the VLEs "*The concept of the VLE itself is one which I would like to keep*" [STUD-INT-4]. "*The idea of having the VLE...The VLE is a useful tool to have at home especially for me as long as information is there. Although you expect lecture notes to be there, they are not sometimes*" [STUD-INT-7] "*Keep the VLE concept. The VLE is still early days yet at Salford – it just started about 5 years ago. We had Lotus Notes before, then Pegasus and now Blackboard*" [STUD-INT-8]. "*Keep everything. I find Blackboard easy to use and it is suitable for me to download materials*" [STUD-INT-9]. "*All what is there at the moment. All the module information, tutorial notes, assignments. Basically everything that is there just now*" [STUD-INT-13]. "*I wish to keep the whole VLE….The whole VLE is great*" [STUD-INT-21].
The discussion forums "*I enjoyed the discussion forums…*" [STUD-INT-16]. "*I would keep the idea of the discussion board. But it needs to be revised in terms of structure and look*" [STUD-INT-23].
Access to lecture notes, Library catalogue "*The lecture materials online, but it would be good to do this way ahead. ..*" [STUD-INT-3]. *The VLE is a useful tool to have at home especially for me as long as information is there...*" [STUD-INT-7] *Keep the link to the library cataloguing, which is a good thing.* [STUD-INT-12] "*I would keep the slides page in terms of lecture notes and further readings...*" [STUD-INT-23].
Contacting lecturers and classmates: "*The VLE has the option to send group emails which is very useful. It is useful for getting in touch with tutors and lecturers, and classmates whose email address you do not have*" [STUD-INT-5] **Announcements**: *Announcements are useful*" [STUD-INT-3]

251

5.3.3.9   The VLE: Aspects Students Wish to Change

Most students wished to see an improved design of the VLEs in terms of discussion boards, general interface and user-friendliness.   Also, more than half the students called for a more interactive VLE, "*To get away from text…*" [STUD-INT-18]: "*They need to make it more interactive, especially with the current technologies available. It is less likely that people will look at plain text – people do not really want to use it*" [STUD-INT-2].   As an extension to this, many students called for more contribution by lecturers to the development of the VLE, that lecturers should update the VLE much faster and more frequently, and use the VLE more interactively.   STUD-INT-20 argued that *assignment materials and lecture notes should be changed to video format so even if a person misses it he can replay*". A few students also called for the inclusion of animated agents, such as "AVATARS, *to put life to the VLE*" [STUD-INT-17]. STUD-INT-19 called for more languages to be made available on Blackboard. According to:

> "*I notice that there are language options, but the list is limited. They should make more languages available rather than just the core ones. I think there should be a language interpreter here sometimes interpreting things – a physical person. But I think that would be very expensive. But they should at least install a translating software so that students can use it and interpret things for themselves*" [STUD-INT-19].

STUD-INT-14 maintains that VLE activities should not be assessed: "*…any task that we have to do or any posting that we have to do shouldn't be assessed because it increases the stress more…*" [STUD-INT14]. A few students claimed that there was nothing they wished to change about the VLE: "*There is nothing I would like to change. The VLE is sufficient*" [STUD-INT-11].

5.4 Summary of Staff and Student Interviews

For the most part, lecturers' perceptions about the students they taught corroborated with the results of student interviews. For example, all lecturers and students were aware of the multicultural E-Learning environment in which they were operating. They observed different cultural elements and practices, such as language, learning styles and religion, which presented challenges in the classroom

and online. Both academic staff and students also listed similar technological issues and related challenges, which they encountered with the VLE technology.   The main results of staff and student interviews are summed up in Table 5.16 below.

Table 5.16: **Summary of Staff and Student Interviews**

ACADEMIC STAFF
All nine staff members were British.
More than half of the lecturing staff viewed the VLE as a repository for lecture notes and additional resources for students.
All lecturers used the VLE to support their pedagogical activities, but only one-third [three lecturers] used the VLE in an interactive way, in terms of configuring group discussion areas and facilitating online forums.
Lecturers' VLE engagement ranged from extensive usage to bare minimum usage.
Most lecturers perceived a sense of reluctance in VLE usage among students.
Some lecturers used other technologies alongside or outside the Blackboard VLE, to engage students. One particular lecturer used another VLE – the CABWEB portal – alongside the Institution's VLE.
The main cultural issues arising pertained to language and teaching and learning styles.
STUDENTS
More than half of the participants [sixteen] were international students and EU students.
Less than half of the participants spoke English as a first language.
More than one-third of the participants came from cultural backgrounds where teachers and lecturers provided students with all the lecture notes, learning materials and instructions in the classroom.
Only three of the students had substantial online/VLE learning experience. Eleven students had limited online learning experience while nine had no online learning experience at all.
More than one-third of the students viewed the VLE as a resource where lecturers upload information, materials and grades, and where students can access these information and documents.
All students interacted with the VLE, but this engagement ranged from extensive usage to bare minimum usage.
All students also used other technologies and methods of communication besides the VLE.
Main cultural issues arising pertained to language, teaching and learning styles and religion.

5.5 Chapter Summary

This chapter has presented the results from the empirical case study, which examined the use of VLEs by a group of culturally-diverse postgraduate students and their lecturers. The next chapter analyses the data guided by the SCT framework.

CHAPTER SIX

Structurational Analysis

6.1 Introduction

This chapter provides a Structurational analysis of the use of VLE technologies in multicultural settings. The Structuration Conceptual and Theoretical [SCT] Framework developed in *Chapter Three*, is applied to the case study presented in *Chapter Five*. The main themes and concepts comprising the SCT Framework are summarized in *Figure 6.1* overleaf.

The chapter commences with an analysis of the overall existing multicultural and E-Learning structure at the University of Salford. It then presents various analyses and illustrations of participants' assumptions – cultural, technological and pedagogical – and how these assumptions impinged on their individual actions. The chapter analyses the co-presence of culturally-diverse participants as they interacted in the classroom and online, using the VLE technologies. It examines the conflicts which arose due to the differences in participants' enacted cultural, technological and pedagogical structures, and the ability of knowledgeable students and lecturers to exercise agency in resolving such conflicts.

The attempt to apply the SCT framework exposed a few shortcomings, in that, while the framework was successfully applied to some of the data, it did not cover all. In light of this, the SCT framework was modified, which led to a richer model of Structuration – SCTF2. The chapter concludes with a discussion of this new version of the SCT.

Figure 6.1:   The Structuration Conceptual and Theoretical [SCT] Framework

A.
STRUCTURE: VLE-supported Pedagogical [E-Learning] Activities in Multicultural Settings

B.
CULTURE

- Cultural Structures: Cultural rules of behaviour concerning signification, domination and legitimation, which enable and constrain individual's actions during interaction.

C.
TECHNOLOGY

- Technological Structures: The meanings that users assign to the technology which enable and constrain their appropriation of the technology.

D.
PEDAGOGY CONCERNING THE VLE

- Pedagogical/E-Learning Structures: Assumptions about pedagogy, which enable or constrain the ways in which individuals accomplish E-Learning tasks/activities.

E.
AGENCY AND MULTICULTURALISM: Interaction and Ongoing Actions of Culturally-Diverse Actors Using the VLE

F.
AGENCY AMONG CULTURALLY-DIVERSE ACTORS [LEADING TO CONFLICT]

- **F[2] Cultural Agency:** The ability of knowledgeable actors to draw on their own cultural structures and those of the wider environment to:

- **F[3] Pedagogical/Techno-logical Agency**: The Ability of knowledgeable actors to draw on learning techs during pedagogical activities to:

Create and Recreate

G.
ELEMENTS OF SOCIAL/CULTURAL INTERACTION

Meaning

Power

Sanctions

Mediated and Enabled by

H.
STRUCTURAL RESOURCES

Interpretive Schemes

Facility

Norm

Governed and Defined by

I.
STRUCTURAL RULES

Structures of Signification

Structures of Domination

Structures of Legitimation

256

6.2   The SCT Framework in Action

The ensuing subsections – *6.2.1 to 6.2.8.* – analyse the results of the staff and student interviews. The analysis is in accordance with the main themes outlined in the SCT Framework in *Figure 6.1* above.

6.2.1 <u>Component   A</u>.   *Structure: VLE-supported   Pedagogical Activities in Multicultural Settings*

In developing the SCT framework in *Chapter Three*, it was noted that every university has its own organizational culture, which embodies the values of the wider society. Such organizational culture may include the vision or long term strategy concerning normative pedagogical methods [lectures, tutorials, assignments, assessment/exams], internationalized programmes and VLE usage. The institutional culture also may involve expectations concerning the obligations of academic staff and students. The SCT also highlighted that students and academic staff have their own cultural, technological and pedagogical assumptions or structures which will shape their actions in the classroom. This section analyzes the multicultural pedagogical and E-Learning environment within which students and academic staff at Salford operated.

Based on data gathered from the University of Salford's Strategic Framework [2005-2015] and its Annual Report and Financial Statements [2003; 2015; 2016]. It was evident that the University continuously endeavoured to promote a multicultural institution and, by default, multicultural classrooms. For instance, the University's strategic framework reported that the Institution participated in international programmes and attained to "*further the internationalisation of the University through all our activities*" [p. 7], and declared:

> "*We have set ourselves an overall optimum target for international students to comprise 12% of the student population*" [ARFS, 2003; p. 7].

During the period 2014-2015, the University opened a representative office in Abu Dhabi, and during 2015-2016 it opened similar "Launch Pad" offices in China and India. According to the University,

> *"The initial focus of the Launch Pads over the next two to three years will be to enhance and support our inbound recruitment of students through the traditional market channels"* [ARFS, 2016; p. 6].

Simultaneously, the University developed an organizational culture in which the VLE became an integral part of the normative pedagogical methods and activities. The strategic framework, for example, highlighted that the university chose and implemented the Blackboard VLE, which was deployed through its Learning Technology Centre [LTC] to allow staff and students within the Institution to "*participate in teaching and learning activities delivered online*", and to "*provide students with a more engaging experience*". The University's goal was to ensure that "*Every student is provided with online access to module and programme materials and library resources from any location at any time*". The strategic document and annual report suggested that the university tried to mobilize staff and students' interests in its vision by, among other things, "sending students and staff on international programmes"; inaugurating an international scholarships programme; and providing VLE training and support to staff and students. While there was no explicit account of students' obligation, the documents highlighted that the Institution sought to "*define role expectations for Programme Leaders, Module Leaders, Personal Tutors and Link Tutors with a full set of descriptors*" and, among other things, to "*create a better environment for nurturing excellence and innovation in pedagogy*".

Component A provides examples of the University's vision for multiculturalism and VLE usage, which represented the context or structure that helped to shape interaction between staff and students in the multicultural classroom and virtual settings. It was drawn from the case research, however, that within this broad multicultural E-Learning structure created through the University's vision, students and academic staff within the Information Systems Institute had their own

structures which helped to shape and transform the existing structure. Such cultural, technological and pedagogical/E-Learning structures identified in the classroom, will be analyzed further in various sections of the chapter.

6.2.2 <u>Component B.</u> *Culture and Cultural Structures*

The data presented in *Chapter Five* may be thought to reflect how interviewees' assumptions guided their actions in their respective countries of origin, and continued to inform their actions during intercultural interactions at Salford – a different cultural and educational setting. Participants were able to describe or explain the different cultural assumptions they held, reflecting their ***competence*** in terms of the knowledge they possessed and applied. It was seen in the study that this knowledge allowed student interviewees to make comparisons between their country of origin and their new cultural environment. This section analyzes the ways in which different cultural structures or cultural rules of behaviour initially bore on students' individual actions in the classroom and virtual contexts. It illustrates how cultural structures and associated resources both enabled and constrained students' individual actions.

6.2.2.1 *Cultural Structures of Signification*

Students continued to deploy certain resources and structures, which, in most cases, were associated with their countries of origin. This can be illustrated in the cultural rules pertaining to language. The results showed that less than half of the participants spoke English as a first language. Some students whose first language was not English, tended to use the grammar and composition of their own language to speak the English language. Likewise, students whose first language was English tended to use its grammar to interpret non-English speakers' comments. In these instances, students deployed the interpretive schemes of their respective culture – that is, the knowledge they possessed about their cultural rules of signification and the organization of meaning. In turn, these rules and resources informed their interaction about how to communicate with others during intercultural and cross-cultural collaboration. However, these same cultural structures presented constraints in the form of a language barrier, which impinged on some students'

ability to communicate effectively with others of different cultures. For example, STUD-INT-9, who relies on the use of an external translating software divulged:

> *"The language barrier affects me on Blackboard and in the classroom. Some words are difficult to understand and write because I speak Arabic. I also write in Arabic"* [STUD-INT-9; *Table 5.14*].

Although STUD-INT-9 employed the translating tool with the intention of understanding and participating in the online forums, he acknowledged that *"this can take time and sometimes some of the sentences mean nothing – they make no sense when I translate from Arabic into English"*. He also pointed out that by the time he posted a comment to the online forum, the discussions had already moved far ahead. STUD-INT-20 shared a similar experience, although he did not use a translating tool:

> *"…I speak and think in Urdu language, but I use the basis of my Urdu language to speak English. Culturally, I use the words that we use in Pakistan, in our culture, and try to convert those words into English. Maybe they do not have any meanings here, but this is important for me to do, then my brain will convert it to English. Other students sometimes don't understand me. But teachers understand me, maybe because they have experience in teaching other international students…."* [STUD-INT-20; Table 5.14].

Although structuring the English language based on words used in his Urdu language enabled STUD-INT-20 to communicate to some extent, he recognized that this had limitations in terms of the meaningfulness of his communication. Both STUD-INT-9 and STUD-INT-20 acknowledged that meaning was lost when they tried to use the basis of their language [even via a translating tool] to speak the English language.

At the other end of the spectrum, STUD-INT-7 used his knowledge of the English language to understand other students' posts on the discussion board. While his cultural signification enabled him to read online posts to some extent, this also presented constraints as he was unable to understand the meaning of some international students' comments:

> *"There are international students who can barely speak English…From my culture, being a fluent English native speaker, it is hard to clarify or discern what is being said online sometimes. I face this problem on the [Module Name] on Blackboard. If the student was face-to-face, probably it would have been easier*

260

> *to grasp. But sometimes I read comments posted to the discussion board and I just cannot understand the point that they are trying to make…"* [STUD-INT-7; Table 5.14]

In a similar vein, STUD-INT-13 remarked:

> *"When my classmates don't know English properly, it is quite difficult. When I read posts, I like to critique or criticize the posts. But if I don't understand the posts it is quite difficult to criticize. I just leave it alone…"* [STUD-INT-13; Table 5.14].

Students' cultural structures enabled them to operate to a certain extent within the VLE settings. However, the language barrier resulted in constraints on actions, in that some students were not able to convey meaning effectively and some students were not able to understand what was being communicated. The language barrier resulted in further constraints on actions, in that some students were not willing to participate in discussion boards either because they could not understand messages posted to the VLE or because they were not able to deploy the appropriate interpretive schemes and related semantic rules [e.g. STUD-INT-9].

6.2.2.2 *Cultural Structures of Domination*

The area of teaching and learning styles can be used to demonstrate how cultural structures in the form of power relations can be both enabling and constraining for students. It was asserted in earlier chapters that all social actions involve power relationships [Giddens, 1984], and that the power-distance index [PDI] focuses on the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally [Hofstede, 2001]. The case study results showed different views in power relations between students and lecturing staff, in terms of their expected roles. Many students in the study came from cultural backgrounds where it was assumed that lecturers should "*cover everything that they need to know in lectures*" [STAFF-INT-6, *Table 5.4*]. The case results suggested that these students' prior educational practices were steeped in **behaviourism**. That is, their cultural structures were that teachers and lecturers were solely responsible for "transmitting knowledge" to students through lectures, notes/materials, instructions and assignments. In this sense, the case indicated that students viewed lecturers as the primary communicators of knowledge and instructions, while students viewed themselves as mere recipients of such

knowledge and instructions. This assumption was captured in some students' comparison between the pedagogical style at Salford and that of the universities in their home country:

> "…*I am used to doing a lot of classes and labs and less assignments. But here in the UK, it is the other way around – few classes and more assignments. You do most of the research on your own…*" [STUD-INT-2; Table 5.14].

STUD-INT-21 also made this comparison:

> "… *for me the most significant difference was that lectures here* [Salford] *are just an introduction to the topic. In* [Home Country]*, they teach you the bulk of the topic in the lecture; they are supposed to teach you the core things, and you can read further on the topic if you want to. But here, it is the other way around. They just give you the basics and you are supposed to go and research the core things…*" [STUD-INT-21; Table 5.14].

In a similar vein, STUD-INT-23 made a few distinctions between his home country and the UK regarding the teaching and learning styles:

> "*One of the things about the* [Home Country] *style of teaching is that they* [teachers] *tell you everything you need to know. Teachers provide you with the information, you memorize it and then you sit the exams…I was not used to the style of teaching in the UK. For example, the teachers here give us assignments that are all essay-based, and they usually allow us to choose our own topic whenever they give us two or more different topics of choice. The teaching style back in* [Home Country] *was more a homework-based style where you are given a set of questions to answer. You just answer them and move on to the next question. I was used to being given instructions about what to do and the topic would have already been chosen by the teacher. But here in the UK we choose the topic for our essays. We have to structure the introduction, structure our argument, and so on. This was a challenge as I didn't know how to structure assignment essays…*" [STUD-INT-23; Table 5.14].

The students' pedagogical viewpoint is wrapped up in the notion of "the passive learner", wherein students did not see themselves as active contributors to their own learning. In this regard, students mobilized the facility that teachers were figures of authority and that students should rely on their expertise. This facility was in turn defined by the rule of domination concerning unequal distribution of power between lecturers and students. Thus the structure of domination and its associated facility enabled students' actions, in their attending lectures and "receiving" lecture notes and instructions. At the same time, such rules and resources constrained students' actions in terms of their reluctance to go beyond

262

lecture notes and the VLE repository for information, as reported by academic staff [e.g. STAFF-INT-1, STAFF-INT-6, STAFF-INT-7 – *Table 5.4*; p. 180]. Such structure also constrained students' actions as some students were "*not prepared to stick their head up and say 'I disagree' or 'I don't understand' or 'can you clarify?'…*" [STAFF-INT-1; *Table 5.4*, p. 180]. Students' cultural structures of domination and their "passivity" constrained their ability to exercise power online and in the classroom.

Another example of differences in facility, seen in the case, relates to how some international students addressed lecturing staff. As reported by STAFF-INT-4 and STAFF-INT-9, some foreign students addressed them in very formal ways [*Table 5.3*; p. 178]. Some international and EU students too, observed that there was a difference in how they interacted with academic staff in their respective home countries and those at Salford. STUD-INT-1, for example, pointed out that lecturers at Salford were addressed on a first name basis, but that in her home country "*Lecturers are generally addressed by the title 'professor' to show respect…*" [Table 5.14]. STUD-INT-3 provided a similar account:

> "*In my country professors do not know the students on a name basis, as they do here. Also, students do not call lecturers by first name in* [Home Country]. *However, here in the UK they do. In my country, titles such as Professor or Sir or Mrs. or Dr. are used to address lecturers. It is more out of respect that titles are used*" [STUD-INT-3; *Table 5.14*].

The differences in how students addressed lecturers reflected differences in participants' cultural facility and thus in their cultural structures of domination. It can be argued that the overly formal ways in which some students addressed lecturers is linked to the expectations which students held regarding lecturers' positions and roles. Students saw themselves as subordinates and saw lecturers as unchallenged figures of authority. Thus during interaction, such facility was mobilized in addressing lecturers by their titles or in an overly formal manner. On the other hand, lecturers at Salford saw themselves as students' relative equals. Therefore, lecturers mobilized this facility in the interaction, expecting students to interact with them on a mutual, informal basis – referring to them by their first names and not by their titles or in an overly formal manner

263

6.2.2.3 *Cultural Structures of Legitimation*

Another illustration of how cultural assumptions enabled and constrained participants' actions during intercultural interaction can be seen in the rules of legitimation governing norms. This can be analyzed from the viewpoint of the cultural differences in teaching and learning styles. From the data in *Chapter Five*, it is seen that more than 1/3 of students over-relied on lecturers' notes, with "*a lack of enthusiasm*" to do further research outside of lectures [STAFF-INT-6; Table 5.4]. It was also reported that some students came from cultures where they tended to learn by rote, a method in which students memorize and re-use information in a verbatim manner. For example, STUD-INT-23 reported: "*…Teachers provide you with the information, you memorize it and then you sit the exams…I was not used to the style of teaching in the UK...*" [Table 5.14].

Students' over-reliance on lecturers' notes and their rote learning sometimes resulted in plagiarism, given that sometimes they re-use information word-for-word, without acknowledging its source. According to STAFF-INT-5, "*The language difficulty is usually evident in assignments and I find instances where students plagiarize when I am marking essays*" [Table 5.3]. STAFF-INT-9 also explained:

> "*Students of Eastern cultures tend to learn by rote and this is a bit dangerous because it can be deemed as plagiarism in the Western world. In the Eastern Culture they tend not to interpret other people's word, as this might be "rude". So they tend to take people's say word-for-word. However, there is danger of plagiarism…Particularly in online settings, students feel stressed or pressured to make postings to the discussion board. If students feel vulnerable, they might cut and paste other people's work into an online forum without providing reference, thereby plagiarising*" [STAFF-INT-9; Table 5.3].

Students' pedagogical norms and associated structures both enabled and constrained their learning styles and practices. Their rote learning and over-reliance on lecturers' notes, which defined and governed their educational norms, enabled them to study lecture notes word-for-word and to use other people's work as their own. However, these cultural structures simultaneously constrained their ability to go beyond lecture notes, to do independent research activities, and to provide references for their work. While learning by rote was acceptable or "legitimate" in some students' culture, it was not legitimate at Salford University and in the wider British society. Thus, these students' actions were further

constrained as they would not be able to justify their pedagogical norm, which was deemed as plagiarism in the Western World. Furthermore, students could be expelled from the University on such grounds. Taken together, students' learning norms and associated structures both enabled and constrained their learning styles and practices.

The examples in *Component B* above demonstrate the role of cultural structures as both an enabler of, and a constraint on, students' actions. On the one hand, cultural structures allowed students to "carry on" in their new cultural environment. At the same time, they also presented limitations on students' ability to effectively communicate meaning to others; to exercise power online and in the classroom; and to justify their normative actions in their new cultural environment.

6.2.3 <u>**Component C.**</u> *Technology and Technological Structures*

As highlighted in the SCT framework, technological structures are the meanings that users assign to a particular technology, which influence how they appropriate that technology. In other words, the meanings which users assign to the technology will "*influence their appropriation of the interpretive schemes, facilities, and norms designed into the technology, thus allowing those elements to influence their task execution*" [Orlikowski, 1992; p. 410]. It was evident in the case study that all students and all lecturing staff had various VLE expectations and therefore assigned different meanings to the VLE. This section analyzes different instances in which participants' assigned meanings – technological structures – influenced how they interacted with the VLE and with other technologies.

6.2.3.1 <u>*Technological Structures: Governing and Defining the Appropriation of the Technology*</u>

The data unearthed that more than half of the lecturing staff viewed the VLE mainly as a repository for lecture handouts and additional resources for students [see *Table 5.1*]. Correspondingly, the results indicated that the majority of the lecturers did not use the VLE in an interactive way, in terms of configuring group discussion areas and facilitating online forums. Instead these lecturers mainly drew upon the "uploading tools" to publish lecture slides/notes and assignments;

the "communications" feature to make announcements and to send emails to their respective groups of students; and the "schedule" feature to organize and present the timetable for class sessions. In these instances, lecturers' technological structures – their assumptions that the VLE was largely a repository – influenced and defined the VLE tools and features that they routinely appropriated. Therefore, the lecturers did not configure the VLE's group forums and lead interactive E-Learning activities with their students [See *Table 5.1*]. According to STAFF-INT-7:

> "*I am a bit of a luddite. I use the VLE to store information. I don't use it in an interactive way...I use the VLE only because I share that module with another lecturer and we share notes for lectures and tutorials. I haven't seen much value in it except for getting things out to students who did not get to come to lectures.*" [STAFF-INT-7; Table 5.1].

Similarly, STAFF-INT-5 and STAFF-INT-8 respectively stated:

"*I use it all the time to store lecture notes and to teach my class. It would be quite serious if there is a down time with the VLE as I depend on this for PowerPoint slides for my class*" [STAFF-INT-5], and "*I use it as a repository store for all PowerPoint slides and all materials I create…*" [STAFF-INT-8].

On the other hand, lecturers, such as STAFF-INT-4 and STAFF-INT-9 viewed the VLE as a tool to be "*fully exploited*". In this regard, they appropriated almost all of the VLE tools and resources, which included configuring group discussion boards for *Module C* and *Module A*, respectively. For example, STAFF-INT-4 stated:

> "*The VLE should be there to support the things that I am trying to teach in the modules. It should be used as a tool more than just a document repository. It gives new possibilities of how to enhance teaching strategies. It should be a tool for communicating with students and for supporting group assignments through discussion boards, chat rooms, any tools available*" [STAFF-INT-4; Table 5.1].

Similarly, STAFF-INT-9 divulged:

> "*I see the VLE as a tool to be used in a proper institutional manner and to be fully exploited in terms of all its features: communication, announcements, discussion boards, Internet and Website access, timetabling and so forth. I first used Blackboard VLE in a pilot project at the University then used it in a proper institutional manner*" [STAFF-INT-9; Table 5.1].

Altogether, lecturers' technological structures not only defined and governed their appropriation of some of the VLE artefacts and features to accomplish certain

266

activities, but also influenced their decision in not appropriating other VLE resources [*Table 5.1* and *Table 5.2*].

Another example of how technological structures influenced the ways in which participants interacted with the VLE technology, can be found in instances where some students had no conceptualization or expectation of the technology. For the most part, this lack of conception and expectation was due to students' not having any previous E-Learning experience. It was drawn from the case that in these instances, some students' inability to assign certain meanings to the VLE technology caused them not to see the purpose of the technology. In turn, the lack of value or purpose concerning the technology formed part of the students' technological structures which governed how they interacted with the technology. Since students were familiar with other technologies which they used in their everyday life – outside the classroom – such technological structure enabled students in these circumstances to enrol on the VLEs which were compulsory. At the same time students' lack of assumptions concerning learning technologies governed their VLE interactions: they used the VLE technology at the bare minimum, appropriating only the tools, features and resources that will help them to accomplish their learning tasks [STUD-INT-5, STUD-INT-7, STUD-INT-19]. At the same time these students used other familiar, "everyday" technologies more frequently to communicate with their respective group members. For example, STUD-INT-5 divulged:

> "*...I was apprehensive about CABWEB as I have never done any IT or online learning before. I enrolled on it, but I didn't really participate much...I lacked confidence as I was not sure how to use it and I did not see the benefits and point of using it. People were only using it to send emails. I did not see the point in this as emails could be sent directly otherwise...I communicated with my group members by mobile phone and personal email, and I also saw them in class anyway. So my group used CABWEB to arrange meetings, but we met face-to-face as well to put together the Blogs presentation*"" [STUD-INT-5; Table 5.12].

STUD-INT-12 provided a similar account:

> "*During the online activity on CABWEB, we had a silent group of MSN users, and we still use MSN. We participated in the CABWEB activities but we prefer MSN because it is more interactive and more user-friendly compare to CABWEB. I think it is how MSN function – they will automatically log you on once you are connected to the Internet. But with CABWEB you have to go to this website and log on, then*

> *lots of other access things to do before you start the communication in CABWEB. MSN is more straightforward….*" [STUD-INT-12; Table 5.12].

The use of other media besides the VLE, was also reported among academic staff in *Section 5.2.1.3* in *Chapter 5*. The case study results showed that some of the lecturers who did not use the VLE in an interactive manner, employed other media and technologies to actively engage their students in the learning process. These technologies included: Internet; links to Course Website and multiple Websites; DVDs and Video Clips; Books; Music; Mobile Phones; Video Games; MS Office Suite; MS Project; Oracle/Database. In these instances, lecturers' inherent technological assumptions are that other media – besides the VLE – can be employed to actively teach their students. These assumptions guided lecturers' actions accordingly, as STAFF-INT-7 divulged:

> "*Because I don't use the VLE in an interactive way, I look at how I can engage students to interact with other technologies. For example, I encourage them to watch "X-Men" and then take the theoretical framework on "Gender and Technology" from the film. Using this strategy is more an interesting way for students to learn*" [STAFF-INT-7; *Section 5.2.1.3*].

Similarly, STAFF-INT-5 reported: "*I show videos occasionally and provide students with a set of questions to answer about the video*" [*Section 5.2.1.3*].

Other examples of how technological structures influenced the ways in which participants interacted with the VLE technology, in students' VLE expectations. The results in *Chapter Five* showed that more than one-third of the students saw the VLE as a resource where lecturers provided updated information, grades and materials [such as lecture notes] in a timely manner, which students could access at any time [see *Table 5.9*]. As such, some of these students mainly appropriated the tools for accessing/downloading lecture notes and materials [*Table 5.10*]. Although they used the VLE's discussion board and other VLE features, those tools were used at the bare minimum to support their mandatory and/or assessed learning tasks.

The examples in *Component C* above briefly illustrated how technological structures influenced participants' appropriation of the VLE technology. These structures enabled participants to use the VLE in a selective manner and guided

their choice in using certain VLE tools over and above other tools. The structures also guided their actions in the extent to which they used the VLE technology – bare minimum versus "full exploitation".

6.2.4 <u>Component D.</u> *Pedagogical Activities Concerning the VLE Technology [Pedagogical/E-Learning Structures]*

The previous section analyzed some of the technological assumptions that existed among participants and provided examples of how technological structures influenced participants' appropriation of the VLE and other technologies. This section analyzes academic staff and students' pedagogical structures, particularly in relation to the VLE technology. Pedagogical structures are the assumptions held about teaching and learning styles, modes and practices and how these influence the ways in which lecturers teach and students learn. Particularly in this case, pedagogical structures involve assumptions and expectations about the use of the VLE technology to accomplish pedagogical tasks. This section draws from the case, the ways in which participants' pedagogical and E-Learning assumptions guided their VLE activities. It looks at how lecturers employ the VLE to exercise power and to apply certain sanctions to get students to engage with the technology. It also looks at how students' E-Learning assumptions enable and constrain their actions in attempting to accomplish assessed and non-assessed VLE activities.

6.2.4.1 *Pedagogical/E-Learning Structures*

The case study results showed that all lecturing staff drew upon the Institution's VLE in some form [*Table 5.1* and *Table 5.2*]. For example, all academic staff uploaded lecture notes and additional materials to the VLE [STAFF-INT-1 – STAFF-INT-9], with STAFF-INT-6 stating:

> "*It gives me that flexibility of putting notes on Blackboard for students who missed the lecture, particularly for postgraduate students. Extra materials are also available on the VLE. It gives that extra support to students via VLE*" [STAFF-INT-6; Table 5.1]

Some academic staff got students to participate actively in VLE activities by assessing and/or making the activities mandatory [e.g. STAFF-INT-1; STAFF-INT-4 and STAFF-INT-9]. Other lecturers made important announcements and provided important information, such as those pertaining to coursework

269

assignments and exams [STAFF-INT-1 – STAFF-INT-9]. In all these cases, lecturers wanted students to engage with the VLE accordingly, and it was drawn from the case study that the VLE was employed to exercise power and to apply certain sanctions. This meant that students were *compelled* in one way or another to engage with the facility. For example, STAFF-INT-1 shared:

> *"I had a group of students whom I required to do online discussions….They had to read this paper and discuss it online. There was a marking scheme which highlighted the number of discussions they needed to contribute to the forum; the depth of discussion; the number of responses they made to other people's comments, and so forth,..This accounted for 20% of the module…That dragged them – kicking, screaming – on to the discussion board"* [STAFF-INT-1; Table 5.6].

Given that this online activity accounted for 20% of the module, failure to participate would result in a heavy loss of marks for the overall module. In addition to exercising power, the VLE was also drawn on to exercise sanctions. If students participated in assessed online activities they would gain marks; if they did not participate, then they would lose marks. If students checked the VLEs' communication tools, they would be informed about important announcements such as assignments and exams; if they did not, then they would miss out on these important updates. If students accessed the VLE repository, then they could download lecture notes and additional materials; if they did not, then they would have no additional learning materials and resources.

It was evident from the study that students came to the classroom with different pedagogical assumptions or rules regarding pedagogical practices, which informed the ways in which they accomplished educational tasks. For example, the data showed that more than one-third of the students were not used to online teaching and learning activities [see *Table 5.8*]. Inherently, these students' pedagogical assumptions were centred mainly around conventional pedagogical practices, with some students stating their preference for this particular method of learning. As a result, some students were averse to using the VLE technology to accomplish compulsory and assessed learning activities [e.g. STUD-INT-6; STUD-INT-7, STUD-INT-12, STUD-INT-14 and STUD-INT-19]. For instance, STUD-INT-14's pedagogical assumption concerning the use of technologies was that ICTs, such as the Internet, should not be used "seriously for studying", but for "fun" [Table 5.14].

This assumption enabled her to participate in and enjoy the non-assessed CABWEB activities. Simultaneously, this assumption constrained her VLE involvement for assessed Blackboard activities, which she found "stressful" and "time-consuming".

STUD-INT-7 and STUD-INT-19, provided another example of how students' pedagogical assumptions and preferences for face-to-face learning activities guided their actions. These students, for instance, argued that they used the VLE only if they had to, and within this vein they talked about what they did – or did not do – during their online activities. According to STUD-INT-7:

> "*I did not participate in the chat room or on the discussion board on CABWEB during the Salford Blogging Exercise. But I made inputs to the glossary and participated in my group activities in preparing the Blogs PowerPoint Presentation. The group met mainly face-to-face and we used cell phones and texts to communicate and arrange group meetings. I only use Blackboard for announcements and printing of documents. Unless required to do so, for example for* [Module B], *I do not use the discussion boards or chat rooms as I prefer face-to-face communication...*" [STUD-INT-7; Table 5.12].

STUD-INT-19 provided a similar account:

> "*In terms of collaboration, not many people are used to collaborating facilities. I am not used to it and I am a bit reserved in expressing my thoughts online. In my collaborations sometimes I don't give 100%. I don't know why I am reluctant to use it. But I do use it if I have to use it...I prefer the essays than the online collaboration because people will criticise you if you get it wrong or not, and that can affect your personal ego, your personal understanding. And it can stop certain people from contributing. I did contribute to the discussions though*" [STUD-INT-19; Table].

Although all the groups within the classroom turned to other media to accomplish VLE activities, the pedagogical assumptions held by these students, in particular, allowed them to use the VLE technology at the bare minimum, merely to satisfy the lecturers' instructions.

At the other end of the spectrum, some students expected that the VLE should be used consistently for teaching and learning activities [e.g. STUD-INT-2, STUD-INT-11, STUD-INT-15, STUD-INT-16, STUD-INT-20, STUD-INT-21]. As such, these students used the VLE actively and expected others to do the same. Altogether, students' assumptions that the VLE should be used for academic purposes and not for social purposes enabled them to participate in the "prescribed"

E-Learning activities, but not in extra "social forums" [e.g. trip to the Science park or football tournament] on the VLEs.

Some students expressed disappointment with the limited use of the VLE by academic staff members. According to students, this made them demotivated and reluctant to use the VLE. For instance, STUD-INT-2, who was disappointed with how lecturers treated the VLE as "*a file store*", argued: *"The VLE should not be about putting or uploading a PDF file…You need to have forums and communications. I only log on once every five days because I'm not really motivated*" [STUD-INT-2]. STUD-INT-21 also commented:

> "*I tend to use the Internet for everything. I'm very technological. The first thing, when I'm assigned a project or when I have a problem in life, is to go the Internet first to find out what's going on in that situation…That's why I'm maybe a bit disappointed that lecturers here are not using the VLE so much. The social value of the resource has got so much potential and they are not making the best of it…I understand that some people are afraid of the novelty, afraid of the Internet. But I think that at least people in the education field have to get familiar with these tools, because it is of no use if you make all these things available and you do not use it. At least one lecturer makes use of it, but this is another extreme.*" [STUD-INT-21].

In summarizing the examples in *Component D* and the previous one, both students and lecturers' technological and pedagogical structures provided illustrations of the ways in which they enabled participants to customize and configure the VLE to meet their teaching and learning needs. These structures also provided illustrations of the ways in which they constrained their actions, in terms of how and the extent to which participants in the study engaged with the VLE technology.

6.2.5 <u>Component E.</u> *Agency and Multiculturalism: Interaction, Ongoing Actions and Conflict among Culturally-diverse Actors using the VLE Technology*

The analysis has shown so far that students came from various parts of the world and thus had varying cultural assumptions and experiences about technology and pedagogy. It also has shown that although all nine of the lecturing staff members were British, they too had their own technological and pedagogical assumptions, as well as their own perceptions about the students they taught. The integration and interaction of culturally-diverse actors, surrounding the use of the VLE technology

for pedagogical activities, produce a multicultural E-learning setting. The previous sections analyzed the different ways in which cultural, technological and pedagogical structures enabled and constrained the individual actions of students and academic staff. This section analyses the conflicts which developed among participants in the multicultural environment as students and lecturing staff interact with one another in the classroom and online. It also looks at how these conflicts were resolved.

6.2.6 <u>Component F</u>. *Conflict and Agency among Culturally-diverse Actors*

As revealed by the case research data, cultural, pedagogical and technological structures enabled and constrained individual actions. However, the constraints that these enacted structures presented on individual actions were also presented to the wider classroom and VLE setting, resulting in conflicts in many instances, as analysed in the forthcoming subsections. This section draws from the study, some of the conflicts which developed both in the classroom and virtual environment, and examines how these conflicts laid the foundation for the exercising of agency.

6.2.6.1 *Conflict: Cultural Interpretive Schemes*

Given the various languages spoken among students, it was evident in the case study that their semantic rules, or rules of signification, did not always coincide. As such, in these instances there were no shared stocks of knowledge, signs and symbols – interpretive schemes – for individuals to draw on to interpret behaviour and events, and achieve meaningful interaction [Orlikowski and Robey, 1991]. English was the main language of instruction at Salford University. However, some of the students who possessed a different mother tongue, did not speak or understand the English language very well. As already mentioned, this barrier presented constraints on students' actions when they attempted to communicate with their classmates and academic staff [e.g. STUD-INT-9; STUD-INT-20]. The language barrier also constrained students in that they were not willing to participate in online forums. On a broader scale, these constraints not only impinged on students' individual actions, but also impacted on others in the wider classroom and VLE settings. For example, it was seen that other students were

unable to understand the comments which some of their classmates posted to the online forums, due to their classmates' poor English. This resulted in frustration, intolerance and conflicts in some instances [e.g. STAFF-INT-1; STUD-INT-7; STUD-INT-8; STUD-INT-13]. For example, STAFF-INT-1 divulged:

> "*I will get students in my lecture room coming back to say 'what does this mean?' This happens even when I use less complex language...I shouldn't have to be using simple language to students. If we have foreign students who don't understand a word, there's a dictionary. I used to teach HND a long time ago. Most of these stuff I was delivering at an HND level. I now deliver at degree level, and now I'm reluctant to do any further from a language point of view*" [STAFF-INT-1; Table 5.3].

As it further pertains to the language barrier and resultant conflicts, it was evident that some students did not understand the jargons or abbreviations posted on discussion boards. Generally, while jargons and abbreviations particularly within an educational setting are related to the subject matter, they also are generally are linked to the semantic aspects of a particular culture. For example, MIS is an abbreviation for the English words "Management Information Systems". However, this meaning in another language may be represented by different words and thus may have different letters or abbreviations representing those words. Similarly with jargons, given that each discipline has its own language and discourse structure [Littlejohn, 2003], their use across cultures may present challenges and constraints, and thus result in conflict of interpretive schemes. According to STUD-INT-12, "*…I don't like when students use shortcuts and jargons on discussion boards. Some students like to use shortcuts, like 'em' for 'them'. This is difficult to understand…*" [STUD-INT-12; Table 5.14].

STUD-INT-14 also shared similar difficulty:

> "*Sometimes I don't understand the postings. It happens especially when they use signs and abbreviations related to the field. I am not familiar with them because my background is not related to this field. I get frustrated sometimes…*" [STUD-INT-14; Table 5.14].

STUD-INT-19 gave a similar account:

> "*Sometimes there are technical words and technical jargons that staff and other students use which they don't explain, and this is a bit difficult to understand even for me, although I speak English. So I have to try to get a flavour of what this person means…*" [STUD-INT-19; Table].

Based on some lecturers' concerns and report, it is also seen that the differences in participants' enacted interpretive schemes presented a language barrier and sometimes resulted in no communication at all. For example, STAFF-INT-6 pointed out, "*With email, there is a language barrier. Particularly overseas students, they tend to be anxious. Some don't bother to email because they don't know what to say…*" [*Table 5.3*]. In a similar vein, STAFF-INT-8 reported:

> "*Some international students...tend to be quiet and withdrawn…Some Chinese students have not been attending lectures and to make matters worse they have not been using the VLE…They tend not to use blackboard perhaps because of the language barrier and then having to do something else extra*" [STAFF-INT-8; Table 5.3].

Taken together, the differences in participants' enacted interpretive schemes sometimes resulted in conflict – misunderstanding, miscommunication, and in some cases, no communication at all.

6.2.6.2 *Conflict: Cultural Facilities*

Conflict of cultural structures were also evident in students and lecturers' expectations about their respective roles – that is, the expected power relations. This difference between lecturers' cultural facility and students' cultural facility resulted in conflict. Some students came to the classroom expecting to be "spoon-fed" by lecturers. They expected a behaviourist approach to learning. On the other hand, the case study results suggested that all lecturers, regardless of their VLE expectations and technological assumptions, expected students to play an active role in their learning. As an appropriate pedagogical style, lecturers expected a more **constructivist** approach to teaching and learning activities. They expected to see students who were not shy; who were prepared to disagree with an argument, who gave in-depth responses and not one-line responses; who were willing to communicate with them via email or face-to-face if they had a problem; and who were willing to engage with the VLE technology to accomplish research activities as part of their learning [STAFF-INT-1 to STAFF-INT-9]. Such expectations were evident in the concerns which lecturers raised about some of their international students, such as the passivity, the limited communication and the limited

participation of some students, both in the classroom and online [e.g. STAFF-INT-1; STAFF-INT-2; STAFF-INT-6; STAFF-INT-8 – see *Table 5.3* and *Table 5.4*]. STAFF-INT-8 commented: "*Some Chinese students have not been attending lectures and to make matters worse they have not been using the VLE…*". Other lecturers also expressed concerns about the over-reliance of some students on lecturers and materials posted on the VLE, arguing that students were not enthusiastic about doing further research activities or going beyond the VLE technology [e.g. STAFF-INT-2; STAFF-INT-6; STAFF-INT-7]. For example, STAFF-INT-7 reported:

> "*Some students find it easier to ask the lecturer or other students for information rather than check online. A few students did not know about the things I had placed on the VLE*" [STAFF-INT-7; Table 5.4].

Fundamentally, there was a conflict in the facilities which students and staff members brought to, and mobilized within, the classroom to accomplish certain outcomes. Lecturers considered themselves as facilitators of students' education and as students' relative equals. However, students saw lecturers as "experts" or "*transmitters of knowledge*" and saw themselves as mere recipients of this knowledge.

Another example of differences in facility, seen in the case, relates to how some international students addressed lecturing staff. Some lecturers reported that some foreign students addressed them in very formal ways, while some foreign students also reported that in their respective cultures, lecturers are addressed by their titles and that lecturers do not know their students on a name basis [e.g. STAFF-INT-4, STAFF-INT-9, STUD-INT-1; STUD-INT-3; STUD-INT-21; STUD-INT-22; STUD-INT-23]. While these differences did not present any major conflict, they reflected differences in participants' cultural facility and thus in their cultural structures of domination: students saw themselves as subordinates and saw lecturers as figures of authority. On the other hand, lecturers saw themselves as students' relative equals. Therefore, they expected students to interact with them on a mutual, consensual basis, referring to them by their first names and not by their titles or in an overly formal manner.

276

6.2.6.3 *Conflict: Cultural Norms*

The data showed that there were conflicts in the moral aspects of rules – cultural structures of legitimation – as to what was appropriate behaviour. Such conflicts arose from the incongruence of norms and values between academic staff and some international students. For example, the issue of plagiarism was mentioned by STAFF-INT-5 and STAFF-INT-9. It was construed that this issue resulted from the norms of some students' pedagogical style of relying on lecturers' notes and learning by rote, as seen from excerpts that were earlier presented [STUD-INT21 and STUD-INT-23][8]:

> "*In* [Home Country], *they teach you the bulk of the topic in the lecture; they are supposed to teach you the core things, and you can read further on the topic if you want to But here…They just give you the basics and you are supposed to go and research the core thing*" [STUD-INT-21] .

<div align="center">and</div>

> "*One of the things about the* [Home Country] *style of teaching is that they* [teachers] *tell you everything you need to know…you memorize it and then you sit the exams…*" [STUD-INT-23].

While such normative study method was acceptable and legitimate in these students' culture, they were not legitimate or acceptable in the cultural and educational setting at Salford. This therefore resulted in conflict of cultural norms of behaviour. In the case of students who provided information in essays and online discussions without acknowledging its source – deemed as plagiarism in the Western world – the fact that they would not be able to justify their pedagogical norm, such students could be expelled from the University on the grounds of plagiarism.

Another issue arising from "behaviourist-type" pedagogical norms, seen in the case study, was some students' over-reliance on lecturers' notes and lecturers' time. STAFF-INT-6, for example described students' over-reliance on academic staff:

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[8] It should be noted that these students did not commit plagiarism. However, their cultural structures and norms provide a basis for illustrating how other peoples' work can be plagiarised as a result of rote learning – "memorizing" – and over-reliance on lecturers' notes.

"Students expect the lecturer to cover everything that they need to know in lectures, so they can't be bothered with Blackboard. Although they find the VLE useful, they generally have a lack of enthusiasm to go beyond the repository for stuff" [STAFF-INT-6; Table 5.4].

This over-reliance on lecturers' time was perceived as a form of aggression and resulted in conflict, as experienced by STAFF-INT-7:

"Sometimes it would appear as if some students are demanding things or asking for things in a demanding fashion. Sometimes they demand time of me and this appears to be "aggressive" in my culture....misunderstandings sometimes occur in these situations" [STAFF-INT-7; Table 5.3].

The differences in enacted norms and values caused conflict in the multicultural setting. What was the norm or considered to be appropriate in one cultural setting was inappropriate in another cultural setting. While students would have been able to justify their study and learning behaviour in their respective countries, in accordance with cultural norms and rules of legitimation, they were unable to do the same in their new cultural environment at Salford.

6.2.6.4 *Conflict: Pedagogical and E-Learning Structures*

In developing the SCT framework, it was noted that students arrive at university already schooled in a variety of practices related to learning and technology [Jones and Healing, 2010], and thus have their own pedagogical and technological structures. It was also noted that lecturers, too, come to the classroom with their respective assumptions regarding pedagogical and E-Learning activities. It was seen in the study that pedagogical and technological structures enabled and constrained students' and lecturers' actions in terms of how they executed VLE activities and in how they used other technologies in teaching and learning. Illustrations of the conflicts which arose from the different pedagogical and technological [E-Learning] assumptions were seen in some of the technological issues reported by staff and students. For example, STAFF-INT-6 reported, *"I find Blackboard a bit "clumpy". It is a bit of a nuisance. If students are interacting with Blackboard, they will find it just the same – a nuisance"* [STAFF-INT-6]. Also, although STAFF-INT-9 used the VLE actively, it was construed that Blackboard did not altogether coincide with her cultural, technological and pedagogical structures:

> *"Blackboard allows me to do the basic things that I want to do. However…It has a North American mentality, whereby it treats the teacher in a way as if she knows everything about the student. This is my impression of Blackboard. It is designed with a lot of North American things in mind, for example quizzes and tests which is not our style…"* [STAFF-INT-9; *Table 5.5*].

STAFF-INT-2 provided a similar, but more general account: *"In general, the system works…but culturally, the idea of the Blackboard software is different from what I would like it to be"* [STAFF-INT-2].

Lecturers' perceptions about their students' attitude towards E-Learning provide further illustration that there was some amount of conflict between lecturers' pedagogical and E-Learning structures and those of students [See *Table 5.3*]. likewise, conflict was also seen in some students' disappointment with lecturers' limited use of the VLE. These students assumed that the VLE should be used in a consistent, engaging and interactive manner – rather than just a file store – for teaching and learning [e.g. STUD-INT 2, STUD-INT-4, STUD-INT-20, STUD-INT-21]. As such they were disappointed with lecturers who did not use the VLE consistently and interactively as expected. STUD-INT-4, for example, stated: *"… my expectations were that the E-learning environment would be a full room where you could get all the information from the VLE – lectures, tutorials, materials – without physically attending the lecture or tutorials"*, while STUD-INT-21, charged:

> *"…I'm a bit disappointed that lecturers here are not using the VLE so much…I was expecting that all lecturers would use the VLE to publish materials; to give us information about the subjects, to give us advice, and maybe share comments…But I do some assessments since I've been here, and not even 40% of the lecturers use the VLE effectively…They could have really, really used the VLE much more than they do…"* [STUD-INT-21].

Some students were also disappointed when other students used the VLE for social purposes, over and above academic purposes. For example, STUD-INT-20 commented: *"I have a problem with people using the VLE for social purposes. If you try to make a community, VLE can make an academic community but cannot make a social community"*. Another illustration of conflict of pedagogical/E-Learning structures can be seen in the case of STUD-INT-14, who argued that in

her home country the Internet was not usually employed seriously for studying, but that it was "*used for fun*". However, the assessment of some VLE activities conflicted with this assumption. According to STUD-INT-14:

> "*When we have to do something in Blackboard and it is assessed, I think this is not good. We have this course, [Module Name], and we need to post answers and then comment on answers.... I really wasn't comfortable with this part of the course...I think it might be more fun if it wasn't assessed, because when you start taking things seriously then you don't enjoy it. That's why I enjoyed using CABWEB. We had lots of discussions with classmates and it wasn't assessed. When I don't feel I have to write because I am not being assessed, then I can relax and be myself. It's more comfortable*" [STUD-INT-14].

Altogether, *Component F* illustrated how the differences in enacted cultural, technological and pedagogical/E-Learning structures resulted in conflict. Other illustrations of conflict of technological and pedagogical/E-Learning structures are: the use of technology for academic purposes versus social purposes; conventional-style learning activities versus E-Learning activities; constructivist-type practices [all lecturers] versus behaviourist-type practices [more than one-third students].

6.2.7 **Component F(2).** *Cultural Agency*

This section analyzes how the ability of participants to reflexively monitor their action and their ability to exercise agency resulted in the development of shared systems of meaning; the modification of the power-imbalance and the sanctioning of new actions both in the classroom and the virtual learning environment, by generating new structures. This subsection analyses the ability of knowledgeable students and lecturing staff to overcome the cultural issues they experienced, by drawing on their own cultural structures and those of the wider environment to create and re-create meaning, power relations and sanctions.

Social interactions among human agents, according to the Theory of Structuration, involve three fundamental elements: the communication of meaning; the exercising of power; and the sanctioning of actions. These interactions are enabled by resources or modalities, which in turn are governed by rules. Thus the communication of meaning as an interactional element is enabled by interpretive schemes which are governed by structures of significance. Power is enabled by facility and is governed by structures of domination. Normative sanctions are

enabled by norms which are governed by structures of legitimation. These elements are highly interdependent and not separable in practice, but for analytical purposes in this research thesis, they can be treated as distinct units [Orlikowski, 1992]. The elements are represented as **Components G**, **H** and **I**.

6.2.7.1 *Agency: The Communication of Meaning*

While there were differences in interpretive schemes and rules of signification, the ability of students and lecturing staff to exercise agency, however, led to the development of a new cultural structure for communicating and for teaching and learning. It was evident that academic staff created and recreated meanings in order to achieve effective communication of lecture materials, instructions and assignments between themselves and their culturally-diverse students [see *Table 5.5*]. For example, when teaching students, most lecturers reported that they used simple terms, words or phrases. They refrained from using slang and colloquial terms, and avoided acronyms and abbreviations that will not be understood. They tried to make instructions as clear as possible. They also introduced module topics at a level that was understandable to everyone. STAFF-INT-4 divulged:

> "*Because of the* [Course Name] *that I teach, I am aware that there are different legal systems in different countries or cultures. I use cases that overseas students might have heard about. I try to recognize that students will not always have that same knowledge of those of UK students. I make materials appealing to students of different cultures… I put papers online that give a wide range of perspectives on students' culture*" [STAFF-INT-4].

STAFF-INT-9 remarked: "*I try very hard when writing an assignment to make it very clear. I make a glossary and refer students to it*" [STAFF-INT-9]. Lecturers also encouraged students to communicate with them if there was a problem or difficulty.

Students also played their part in developing shared meaning and resolving conflicts and misunderstandings: For example, STUD-INT-5 a British student, asserted: "*I try to mix with everyone but sometimes it is difficult to communicate with people of different countries, especially online. But I make the effort…*" [STUD-INT-5].

STUD-INT-12 commented: "*If I have any problem, like if there's a complicated type of coursework I will send the lecturer an email*", while STUD-INT-16 remarked that "*the VLE is an easier way to communicate with lecturers. I don't have to be knocking on their doors to ask questions all the time*". She further explained:

> "*If a lecturer posts a question or gives us an assignment and it is not really clear, another student would try to re-explain. Also I would consult with the lecturer who will try to explain it clearer. So the VLE is also an easier way to communicate with lecturers. I don't have to be knocking on their doors to ask questions all the time*" [STUD-INT-16]

According to STUD-INT-18, he tries to alleviate misunderstandings and offense amongst his classmates by using emoticons. He further suggested an idea for the inclusion of students from cultures on the VLE:

> "*The British tend to have sexual innuendos and jokes but students of other cultures find this offensive. For the sake of foreign students, I use emoticons so that they will know it is a joke….It would be good to have a society on the VLE – just as how you have Muslim or Christian or Asian Societies in universities – for international students to join…*" [STUD-INT-18].

In these cases, new rules of signification and new interpretive schemes – mutual stocks of knowledge – were being developed and shared. This resulted in the development of shared meaning between staff and students, as well as among all the students. These new structures and resources therefore opened up new means of communication for the group.

6.2.7.2 *Agency: The Exercising of Power*

Orlikowski [1992] reminds us that since technology needs to be appropriated by human agents, this retains the element of control that users always have in interacting with technology.   Orlikowski maintains that "*users can always choose [at the risk of censure] not to utilize a technology, or choose to modify their engagement with it*" [Orlikowski, 1992; p. 210].   It was observed that some students chose not to utilize the VLE for non-assessed activities, while for assessed activities, some students modified their engagements with the VLE, interacting with it at the bare minimum [e.g. STUD-INT-5, STUD-INT-6, STUD-INT-7, STUD-INT-9, STUD-INT-12 and STUD-INT-19].   In this vein, students drew upon certain facilities, such as discussion boards and tools for uploading documents, to accomplish their work or merely to "get by". Also, all students used

face-to-face communication and other personal tools and devices alongside the VLE technology to accomplish learning tasks [STUD-INT-1 – STUD-INT-23]. The selective engagement with the VLE technology as well as the non-compliance in using the technology may be seen as examples of power-exercising on the part of students. In all these instances, the *dialect of control* was unearthed, in that, while some lecturers used the power-imbalance to get students to actively engage with the VLE, students were able to act otherwise and thus influenced the domination structure.

The ability of students and lecturers to be reflexive and to "act" also enabled them to overcome the power-distance relations. For example, lecturers encouraged students to communicate with them using the VLE and tools such as emails. In this sense lecturers empowered students not only to maintain the lines of communication, but also to promote a more mutual relationship, thereby lessening the teacher-student power imbalance. According to STAFF-INT-5: *"I use email a lot and do encourage students to email me if there is a problem or difficulty"* [STAFF-INT-5]. STAFF-INT-9 also divulged:

> *"…I have an online forum to invite students to ask questions about the assignment. This way others [students] will see their questions and may have their answer"* [STAFF-INT-9].

The fact that students participated in these "question-and-answer" forums or contacted lecturers whenever they needed clarification [e.g. STUD-INT-12, STUD-INT-16] meant that they too, were helping to reduce the power-distance relations.

In these instances, lecturers and students alike mobilized their respective facilities which modified the power imbalance.

6.2.7.3 *Agency: The Sanctioning of Actions*

Drawing from the case, it is seen where some lecturers altered the legitimation structure and the pedagogical norms in order to accommodate students' cultural differences. For example, it was mentioned in *Chapter Five* that most lecturers drew upon a marking template when grading students' presentations and essay

assignments [Appendix D]. One of the criteria listed in relation to the grading of presentations was that students' presentations should include proper grammar and punctuation, appropriate use of words and correct spelling. STAFF-INT-3, however, stated that he made allowance for students' language barrier during the grading of presentations:

> "*I had a Lebanese student doing his presentation a few weeks ago who had strong language barrier. However, despite this barrier we could tell that he knows what he is talking about, so we made allowance for this when grading his presentation*" [STAFF-INT-3; *Table 5.6*].

In this case, the process of applying penalty or sanctioning actions was altered during the grading of the student's presentation, which did not meet certain criteria. STAFF-INT-3's action illustrates how a new process by which the norms for assessing and grading were altered and enforced.

Other instances in which lecturers changed the norms, and thus the legitimation structure, to accommodate students' cultural differences were: lecturers removing case studies, such as the "Wine Shop", from the VLE [e.g. STAFF-INT-1; *Table 5.6*]; using their experience to look beyond the language barrier that existed among some students' [e.g. STAFF-INT-3; STAFF-INT-4] and altering teaching styles and class schedules to accommodate students' religious practices. According to STAFF-INT-5:

> "*I have a class between 5:00 and 7:00pm. During Ramadan when Muslim students are extremely hungry, I change the style of teaching somehow to make it more bearable for them and sometimes end the sessions a little earlier than usual*" [STAFF-INT-5; *Table 5.6*].

It was also observed by the author of this research that, in her capacity of Graduate Teaching Assistant at the time, STAFF-INT-5 and STAFF-INT-9 prepared and circulated handbooks to the students to educate them about the dangers of plagiarism and the penalties associated with such acts. The handbooks also provided examples of how to reference various types of sources such as books, journals, conferences, etc.

In sum, *Component F2* illustrated how the ability of students and staff to reflexively monitor the situation in the wider multicultural classroom and virtual

setting and to exercise agency resulted in the development of shared systems of meaning; the modification of the power-imbalance and power-distance relations; and the altering of norms in order to apply less rigid sanctions [or penalties]. In all the above instances, it is seen that staff and students' cultural structures and practices largely contributed to the changes – however slight – in pedagogical and E-Learning norms and sanctions at Salford.

6.2.8 **Component F(3).** *Technological and Pedagogical/E-Learning Agency*

Generally speaking, teaching "comprises a social structure which is enacted through participation by both learners and trainers" [Walker, 2002], and "is frequently an important factor in influencing the interpretive schemes brought to bear when using the technology" [ibid]. Pedagogical and Technological Agency involves the ability of knowledgeable actors to draw on the learning technology, such as the VLE, to provide meaning, to exercise power and to legitimize actions in their pedagogical activities. This section analyses participants' ability to draw upon the VLE to communicate meaning; to exercise power and to sanction actions. It also looks at how students and lecturers contributed further to the physical and social construction of the VLE, while drawing upon the technology.

6.2.8.1 *Agency: Constructing   Meaning   through   VLE-supported Pedagogical Activities*

Although students and lecturing staff had different VLE expectations and therefore assigned different meanings to the VLE, it was seen that their ability to be reflexive and to exercise agency enabled them to draw upon the VLE to develop shared meanings in order to complete pedagogical activities. In engaging with the CABWEB VLE for instance, STAFF-INT-9 "*developed a glossary and referred students to it*". Also, for the Blogs activity on CABWEB, STAFF-INT-9 encouraged all students to add different words relating to Blogs in the CABWEB glossary. Students participation in these VLE activities led to a plethora of new words being discovered [e.g. blogosphere, military blog, weblog, etc.] and contributed to the learning process as a whole. According to STUD-INT-6, "*The*

glossary of different terms helped me with my presentation and to understand the topic". STUD-INT-5 also reported:

> "*It [the VLE] helped me to stay on top of things – I am not losing out on information if it is online. It keeps a log of what people have written, so it's like a written conversation. The glossary was useful to other students as [Module Leader] had sent an email saying that it was viewed and used many times*" [STUD-INT-5].

While STUD-INT-7, did not participate much on CABWEB, he disclosed "*…I made inputs to the glossary and participated in my group activities in preparing the Blogs PowerPoint Presentation*".

STAFF-INT-1 and STAFF-INT-4 also incorporated the use of the VLE in the assessment process in order for students to engage in "meaningful" discussions on its discussion board. According to STAFF-INT-4, "*this seemed to have worked as all students participated in online discussions. Students had an enriching experience and they learnt a lot from each other*".

Other students were able to construct meaning in other ways using the VLE. For example, some students recognized that they could not rely on the VLE alone for lecture notes, as reported by STUD-INT-10:

> "*I am familiar with seeing PowerPoint presentations being used mainly for job and professional training sessions, but now I am getting used to it in an academic environment. I was accustomed to getting handouts and lecture notes on paper, but now I am getting lecture notes in electronic forms such as PowerPoint slides both in class and online. This method is different from what I was used to in my school days, but I have now gotten used to it in terms of a school setting. It has encouraged me to read more in order to build up and support the slides uploaded to the VLE, as I cannot understand the slides alone. This is a good thing*" [STUD-INT-10].

It is seen in the instances above that lecturers' own technological and pedagogical agency, influenced students' technology use and effected their learning outcomes. Students also contributed to this process of Structuration in their learning, as they drew upon the VLE technology to construct and re-construct meaning. It is also seen how a semiotic concept of culture enabled a deeper understanding of how "systems of construable signs" and shared meanings emerged as students and lecturing staff tried to make sense of the VLE in their online teaching and learning activities.

6.2.8.2 *Agency: Exercising of Power through VLE-supported Pedagogical Activities*

All lecturers drew upon the VLE to different degrees, as a source of power, to *compel* students in some way to engage with the VLE facility. However, it was seen that students, too, extended power over the VLE [allocative resource], which in turn *empowered* them to accomplish their learning activities. For instance, it was observed that some students drew upon the VLE to access materials which enabled them to study and learn:

> *"The VLE affords me the opportunity to learn at my own leisure, where I can actually plan my work and follow my plan. I can access the "classroom" and the lecture notes 24-hours-a-day, so it's like learning all the time"* [STUD-INT-15; Table 5.10].

Similarly, another student pointed out: "*Blackboard is a very useful tool in terms of getting lecture notes and grades. It is easier for me not having to come to university to get grades and lecture notes.*" [STUD-INT-6].

"*I think that it is good that when you need to access lecture notes they are there. I am always on the VLE trying to find out all the updates*". [STUD-INT-8]

It was also observed that students drew upon the VLE to coordinate their group assignments and presentations. Although students turned to other media and technologies to support their learning tasks, they extended power over the VLE, using it as their main point of reference for arranging group meetings and uploading their presentations. Thus, the students were *empowered* by the VLE, which helped them accomplish their learning tasks [*Table 5.10*]:

According to STUD-INT-9,

> *"….I love the discussion board on Blackboard. It gives more time for me to translate and understand discussions and answer to messages… I am able to cut messages or questions or instructions that students or lecturer put on the discussion board and "paste" them into the translating tool. This help me to understand what is going on and what to do*" [STUD-INT-9].

Another illustration concerning power-exercising, was that students had some amount of control or *autonomy* over how, when and where they accessed the VLE technology. For example, STUD-INT-3 pointed out that the VLE enables: "*Real-time information – if you are always logged on*", while STUD-INT-7 stateded:

"*For someone like me who has a disability, I can work from home and access information anytime*".

Such autonomy also enabled them to customize the VLE technology; modify their engagement with the VLE; and use other tools and media alongside the VLE, during their learning activities. Students' autonomy to customize the VLE technologies led toward a new constitution of structure within the online setting, involving the concepts of PLE and Multiplexity. For example, the use of personal and familiar devices, such as mobile text messages and social software [e.g. Instant Messaging and personal Hotmail/Yahoo! emails] to support online group discussions along with the VLE discussion boards, somewhat depicts the concepts of PLE [Liber, Wilson, et al]. Also, there was a reliance on multilingual word processing software by STUD-INT-9 for understanding and participating in assessed online activities. Altogether, these actions are wrapped up in Haythornthwaite's [2001] concept of "*multipexity*", where computer-mediated group members exchange information via multiple means of communication in their attempt to achieve goals specific to their environment.

6.2.8.3   Agency: Sanctioning of Pedagogical/E-Learning Actions

It was seen in the study that the VLE was drawn on by lecturers to legitimize actions. STAFF-INT-1 and STAFF-INT-4 made some of their VLE activities compulsory by incorporating assessment into the activities. This meant that students who participated in a meaningful manner – in accordance with the lecturers' instructions – would be rewarded with a favourable grade, while those who did not participate would be punished for non-conformity. This punishment was in the form of losing twenty percent [20%] of their coursework grades.

It was also seen that the VLE was also drawn on by some students to sanction the actions of staff and fellow students. For example, some students who felt that the VLE should be used in an academic manner, became "judge and jury" over the actions, activities and interactions of lecturers and fellow students' VLE usage: "*I don't like the way in which the discussion boards are monitored...The discussion*

boards are often not used in the appropriate manner" [STUD-INT-7]. STUD-INT-1 provided a similar account:

> "*In my group, the "Forum" tool was not used in the best way. One member of the group was not able to meet as he was part time, and so he used emails and mobile texts to communicate rather than the Forum. We did not make the best use of the CABWEB facility, as group members preferred email and text facilities…*" [STUD-INT-1].

STUD-INT-20 argued: "*I have a problem with people using the VLE for social purposes. If you try to make a community, VLE can make an academic community but cannot make a social community*" [STUD-INT-20]. Other students also chastised lecturers for using the VLE only as a file store [e.g. STUD-INT-2], or in an inconsistent manner, as mentioned in *Chapter Five*. According to STUD-INT-21:

> "*In the first semester most lecturers used the VLE to publish the grades; to give us documents and give advice on topics – on what to research, and on what to do…But now in the second semester I've been checking the VLE and almost none of the lecturers have used it… If you have the technology available, why not use it?*" [STUD-INT-21].

In the above instances, students monitored their activities and those of others against the perceived norms of the Institution and the expected obligations of lecturers, in terms of their VLE usage. It was upon these normative grounds that students were able to criticize lecturers and fellow students for non-conformity. This showed that not only lecturers applied sanctions, but that students' too were able to exercise agency in terms of applying sanctions and alter the domination structure. This also shows the link between power and sanction.

In summary, *Component F3* illustrated the ability of lecturers and students to draw upon the VLE to communicate, exercise power, sanction actions. It is seen in *Component F – Component F3* that staff and students were able to reflect upon the situation concerning pedagogical activities and VLE usage following a series of conflicts. Taken together, their attempt to resolve these conflicts provided a basis for the transformation of their cultural, technological and pedagogical structures, as depicted in *Table 6.1* below. The enactment and application of the transformed structures in the virtual settings provided a basis for the VLE technology itself to be re-constituted and transformed. *Section 6.3* discusses the SCT Framework in light of the empirical results.

Table 6.1: Conflict and New Structures: The Extent to which Lecturers and Students Modify Structures to Resolve Conflicts

CURRENT STRUCTURES	CONFLICT	NEW STRUCTURES
Signification	**Conflict of Interpretive Schemes**	**New structures for communicating meaning:**
Cultural Structure: Language Grammar. Some international students used the grammar and composition of their own language to speak the English language. [STAFF-INT-3; STAFF-INT-4; STAFF-INT-5; STAFF-INT-6; STAFF-INT-8].	The language barrier resulted in: • Misunderstanding – some lecturers and local students became confused as it was difficult to understand the comments posted to online forums by some foreign students [STUD-INT-7; STUD-INT-8]. • Miscommunication between lecturers and students; • Miscommunication among students. • Resentment and frustration on the part of some local students. • Withdrawal from the VLE. Some students whose first language was not English refrained from participating in online activities.	**New Structures for Communicating**: **Lecturers encouraged students to maintain the lines of communication, and tried to reduce the language barrier**. • Some lecturers who recognized the language barrier encouraged students to email them if there was a problem/difficulty [STAFF-INT-5], and/or set up online forum and invited students to ask questions about assignments [STAFF-INT-9]. • Some foreign students became withdrawn, communicating with lecturers and other students on very little basis or none at all – e.g. Chinese students [Table 5.3]. • Having dealt with foreign students on a regular basis, some lecturers relied on experience to understand foreign students and looked past language barrier [STAFF-INT-3; STAFF-INT-4]; • Many students participated in the glossary activity, whereby a new word is added to the glossary surrounding a particular topic. • One Arabic student whose English was poor sought support from a translating tool to understand and participate in online activities [although this was not very helpful]. • Some British students used emoticons during online discussions for the sake of foreign students to prevent misunderstanding [e.g. STUD-INT-18].
Cultural Structure: Language Terminology. Some lectures and local students used complex words [STAFF-INT-1], abbreviations and jargons of the subject matter.	• Some international as well as local students did not understand some of the words, abbreviations and jargons used [e.g. STUD-INT-12, STUD-NT-14]. This led to frustration in some cases.	**New Structures for Communicating**: • Some lecturers refrained from slang and abbreviations; used simple words; introduced module topics at levels that are understandable to everyone; and made instructions as clear as possible [STAFF-INT-4; STAFF-INT-6; STAFF-INT-8; STAFF-INT-9]. • Lecturers who used abbreviations on PowerPoint slides, provided the full word in lectures [STAFF-INT-2; STAFF-INT-3]. • Some lecturers who recognized the language barrier referred students to the dictionary [STAFF-INT-1]; or encouraged students to email them if there was a problem/difficulty [STAFF-INT-5]; or set up online forum and invited students to ask questions about

		assignments [STAFF-INT-9]. • Lecturers who used complex language referred students to the dictionary or to glossary [STAFF-INT-1 and STAFF-INT-9].
Technological Structure: Meanings Academics Assigned to the VLE Technology and General Learning Technologies: All academics used the VLE in one form or another. However, more than half of the lecturing staff viewed the VLE as a repository for lecture notes/materials. This influenced how they appropriated the VLE: they drew upon the "uploading" tools to publish lecture notes and assignments; the "communications" feature to make announcements/ send emails; and the "schedule" feature to organize timetable for classes. On the other hand, these lecturers did not use the discussion boards or other interactive tools within the VLE.	Some of the main conflicts which arose: • While most academics viewed the VLE as a file store, some lecturers [e.g. STAFF-INT-4 and STAFF-INT-9; p 218] viewed the VLE as a tool which should be "fully exploited" and they felt that the discussion boards alongside all other tools and features, should be used. • While most academics viewed the VLE as a repository, some students viewed the VLE as a tool that should be used more interactively, beyond the uploading of files. They "chastised" lecturers for using the VLE merely as a repository or in an inconsistent manner [STUD-INT-2; STUD-INT-17; STUD-INT-20; STUD-INT-18; STUD-INT-19; STUD-INT-21]. • Most lecturers who viewed the VLE as a repository felt that other media such as Internet/Websites; Video Games; DVDs and Video clips; Mobile phones, Oracle and Video Games, were just as effective as the VLE. One lecturer [STAFF-INT-7] felt that a "particular technology should not be forced upon students and staff. Instead, they should be given freedom of choice to engage with the	**New Technological Structures in teaching were developed to actively engage students in the learning process. Lecturers were able to go beyond the Institution's VLE.** • Most lecturers used other media and technologies to enhance their pedagogical activities and make these activities more interactive: Internet/Websites; Video Games; DVDs and Video clips; Mobile phones. • Although STAFF-INT-9 actively engaged with the Institution's Blackboard VLE, configuring group discussion areas and facilitating online forums, she also employed the CABWEB VLE interactively, to support her non-assessed online forums and activities. • One lecturer would teach something in the way he has "never taught before and then use Blackboard to support, where appropriate" [STAFF-INT-6; Table 5.6].

	technology…" [p. 172]. Another lecturer [STAFF-INT-] used personal website	
Technological Structure: Meanings Students Assigned to the VLE Technology. Students' perceptions of the VLE varied widely: More than one-third of the students viewed the VLE as a resource for accessing materials [lecture notes, assignments, etc] and grades. A few perceived it to be a facility with audio- and video-recorded lectures, tutorials, etc]. Others perceived it to be a collaborative tool with discussion boards, forums quizzes, videoconferencing etc]. Some students could not conceptualize the VLE as they had never used it before.	One of the main conflicts arising from the different technological structures was that some students saw the VLE as a social tool for fun [STUD-INT-1; STUD-INT-5; STUD-INT-8; STUD-INT-9; STUD-INT-11; STUD-INT-12; STUD-INT-14; STUD-INT-15], while others saw it as a tool to be used only for academic purposes [STUD-INT-2; STUD-INT-6; STUD-INT-7; STUD-INT-20]. • Some students felt that technology should be used for "fun" and that lecturers should not assess online T&L activities [STUD-INT-14]. • Some students felt that the VLE was not used in an appropriate manner and they had "a problem with people using the VLE for social purposes" [STUD-INT-7; STUD-INT-20]. • Some students who claimed that the VLE should be used for academic purposes were frustrated with some lecturers' use of the VLE as a filestore. They called for more interactive VLE usage to motivate students [STUD-INT-2; STUD-INT-17; STUD-INT-20; STUD-INT-18; STUD-INT-19; STUD-INT-21]. • Some students did not participate fully in online activities and others used	**New technological Structures for accomplishing online learning tasks were developed to aid students in the learning process – Students perceived that other technological and non-technological methods could be used**. • For the non-assessed activity on CABWEB VLE, most students used CABWEB to arrange meetings but met face-to-face to accomplish group assignments. • All students met face-to-face and used a combination of technological devices – translating software, MSN, mobile phones, personal email accounts – alongside the Institutional Blackboard VLE to accomplish assessed learning tasks.

		personal technologies and devices.	
Pedagogical Structure: Assumptions about Teaching and Learning Styles, Modes and Practices and about the use of VLEs in T&L. More than one-third of the students were not used to online teaching and learning activities [see _Table 5.8_]. Inherently, these students' pedagogical assumptions were centred mainly round conventional pedagogical practices. On the other hand, some students who were familiar with E-Learning were more open to that mode and expected the VLE to be used consistently for teaching and learning activities [e.g. STUD-INT-2, STUD-INT-15, STUD-INT-16, STUD-INT-20, STUD-INT-21].	The main conflict which arose was that of "Conventional" mode of T&L versus Technologically-supported ["E-Learning"] mode of T&L. • Some of the students who were not used to online teaching and learning activities stated their preference for conventional methods of learning, as they assumed that these methods were more effective. As a result, these students were averse to using the VLE technology to accomplish compulsory and assessed learning activities [e.g. STUD-INT-6; STUD-INT-7, STUD-INT-12, STUD-INT-14 and STUD-INT-19].	**New technological Structures for accomplishing online learning tasks were enacted: "Selective Engagement"**. • Students who preferred conventional teaching and learning engaged with the VLE in a selective manner, using the technology at the bare minimum to satisfy the lecturers' instructions. • Students met face-to-face as well as used other personal devices – MSN, mobile phones, personal email accounts while using the Blackboard VLE at the bare minimum.	
Domination	**Conflict of Facilities**	**New structures for exercising power/overcoming the power-imbalance**:	
Cultural Structure: Lecturers as Figures of Authority.	While these differences did not present any major conflict, they reflected differences in students and lecturers' cultural facilities.	**Lecturers tried to promote a more consensual or mutual relationship, thereby lessening the teacher-student power imbalance**. • Students adjusted to their new environment and called lecturers on a first-name basis.	

Seeing lecturers as figures of authority, some foreign students addressed lecturers in very formal ways such as titles and/or surnames. On the other hand, lecturers treated students on a more consensual, adult-to-adult basis.	[STAFF-INT-4, p. 163] [STAFF-INT-9, p. 163] [STUD-INT-	• Some lecturers encouraged students to email them if there was a problem/difficulty, thus encouraging a more consensual atmosphere and lessening the teacher-student power imbalance.
Technological Structure: The VLE as a Source of Power, Control and Empowerment. Academic staff mobilized the VLE technology [allocative facility] to get students to engage with it and get students through their courses. Some lecturers assessed VLE activities or made them compulsory to get students to participate in online learning activities [STAFF-INT-1; STAFF-INT-4; STAFF-INT-9].	The main conflict was that students were *compelled* in some way or another to engage with the VLE facility. Some students: • Preferred conventional teaching and learning activities. • Felt that assessed activities were time-consuming and stressful. • Students whose first language was not English and who tended to stay away from online activities were now forced to use the VLE actively.	**Students were able to exercise power and overcome the power-imbalance by selectively engaging with the VLE or by not using the VLE at all**. • Some students modified their engagements with the VLE – interacting with it at the bare minimum [for assessed activities], merely to "get by" [STUD-INT-5; STUD-INT-6; STUD-INT-7; STUD-INT-12; STUD-INT-19]. • Some students chose not to utilize the VLE for non-assessed activities. • All students used other personal tools and devices alongside the VLE to accomplish learning tasks. • In the end, many students were able to customize or engage with the VLE, thus exercising some amount of autonomy. At the end of the online activities some students felt *empowered* by the VLE [p. 233].
Pedagogical Structure: "Active" versus "Passive" Styles of Teaching and Learning. Lecturers saw themselves	One of the main conflicts which arose was that of "Passive" style of learning [Behaviourist mode] versus "Active" style of learning [Constructivist mode]. • Academic staff expected all students to	**Lecturers empowered students to maintain the lines of communication, and promoted a more consensual or mutual relationship, thereby lessening the teacher-student power imbalance**. • Some lecturers only gave the bare minimum in lectures and lecture notes, and encourage students to research around the topic, whether as group work or individual

as facilitators of students' education. They assumed that students were equally responsible for their learning. On the other hand, some foreign students saw lecturers as figures of authority, "experts" and transmitters of knowledge and instructions; they saw themselves as passive recipients of knowledge and instructions.	play an active role in their learning [constructivist approach]. However, more than 1/3 of the students expected lecturers to provide them with everything they needed to know in lectures [behaviourist approach]. As such, there was an over-reliance on academic staff and the blackboard VLE, as students have "a lack of enthusiasm" to do further research outside of lectures [STAFF-INT-6; P. 165]. Lecturers wanted to see students going beyond lecture notes and VLE repository, to research subject matter. • Some lecturers raised concerns about the passivity, limited communication and limited participation of some international students, both in the classroom and online [STAFF-INT-1; 2; 6; 8; p. 224]. • Some students raised concerns about the minimal lecture notes they received. • Some international students found it challenging to carry out instructions and do module assignments [STUD-INT-21 and STUD-INT-23].	assignments. • Some lecturers encouraged students to email them if there was a problem/difficulty [STAFF-INT-5], and/or set up online forum and invited students to ask questions about assignments [STAFF-INT-9]. • The fact that students participated in these "question-and-answer" forums meant that they too helped to reduce the power-distance relations, by becoming more "active" and not remaining "passive".
Legitimation	**Conflict of Norms**	**New structures for applying sanctions [positive and negative]:**
Cultural Structure: Rote Learning. Some students, especially of Eastern culture tended to learn by rote. Also,	The over-reliance on lecturers' notes and other materials posted on the VLE meant that some students were rote learning in a verbatim [word-for-word] manner, which in turn resulted in plagiarism. One of the main	**New Structures for culling plagiarism and for the justification actions**. • Some lecturers [e.g. STAFF-INT-9 and STAFF-INT-5] prepared handbooks to educate students about the dangers of plagiarism and the penalties associated. The handbooks also provided examples of right and wrong ways of referencing sources.

more than 1/3 of students over-relied on lecturers' notes, with "a lack of enthusiasm" to do further research outside of lectures [STAFF-INT-6; P. 165].	conflicts was that: • While learning by rote was acceptable or "legitimate" in some students' culture, it was not legitimate at Salford University. While learning by rote and/or cutting-and-pasting other people's work into their own was the cultural norm for some students, this was deemed as plagiarism in the Western World [STAFF-INT-9; STAFF-INT-5].	• Research methods classes were strategically taught within the first semester in order to raise awareness of plagiarism and provide guidance on how to reference sources properly. • Lecturers reminded students about university policies regarding plagiarism. • Students adjusted and conformed to the norms, rules and principles of their new cultural settings, based on warnings, advice and handbooks received.
Cultural Structure: Religious Norms and Practices. Some lecturers were aware that their teaching and learning norms did not coincide with the religious norms of some Muslim students. Also, some students became aware of sensitive religious issues surrounding some of their fellow students who were Muslims.	Examples of the conflicts which arose were: • Over the years, STAFF-INT-1 usually gave her students activities to carry out based on a case study of a "Wine Shop". However, STAFF-INT-1 realized that the case study was not ideal for Muslim students, as Muslims do not consume alcohol. • One of STAFF-INT-5's lectures was scheduled between 5:00pm and 7:00pm., but STAFF-INT-5 found that the lecture schedule was problematic during Ramadan when Muslim students were fasting and extremely hungry. • Some students were "afraid" of offending their Muslim classmates both in the classroom and online [STUD-INT-3; STUD-INT-19; STUD-INT-21].	**New structures for socializing/integrating and accommodating religious and other cultural practices of students; some lecturers and students tried to be sensitive to others' religious practices**. • Some lecturers changed the norms – and thus the legitimation structure – by removing the "Wine Shop" case study from the VLE [e.g. STAFF-INT-1], and by altering teaching style and class schedule [e.g. STAFF-INT-5]. • Some students became more sensitive to other students in the classroom and online in order to avoid conflicts" [e.g. STUD-INT-3; STUD-INT-18; STUD-INT-21]. • Some lecturers tried to *"recognize that students will not always have that same knowledge of those of UK students"* and so they made materials appealing to students of different cultures… *"I put papers online that give a wide range of perspectives on students' culture"* [e.g. STAFF-INT-4].
Technological Structure: Lecturers Using the VLE	Conflict arose as: • Some lecturers felt that their time and	**New Structures were developed for legitimating and applying sanctions to VLE activities in Teaching and Learning:**

in T&L Activities. As a norm, all lecturers engaged with the VLE, albeit to various degrees. They expected students to engage with the VLE accordingly. However, lecturers were aware that some students did not engage with the VLE in a meaningful way or that some did not use the VLE at all. [STAFF-INT-1 – STAFF-INT-9 See *Table 5.6*: "Students' General Attitude Toward VLE Activities: Lecturers' Perspectives"].	efforts would have been wasted if they provided VLE activities and students did not participate [STAFF-INT-1; STAFF-INT-2; STAFF-INT-5; STAFF-INT-8]. • Lecturers wanted students to actively use the VLE in learning activities and to go beyond the VLE for materials and resources, but some students were happy to merely use the VLE merely to download lecture notes.	• Some lecturers assessed VLE activities and/or made them compulsory, with associated sanctions. For example, for STAFF-INT-1's and STAFF-INT-4's modules, students who participated in a meaningful manner – in accordance with the lecturers' instructions – were rewarded a favourable grade. On the other hand, students who did not participate in a meaningful way were graded accordingly. The online activity accounted for 20% of students' overall coursework grades. Therefore, if students failed to participate at all, then they would have been "punished" for non-conformity – they automatically would have lost an entire 20% of their coursework. • Some lecturers made important announcements and provided important information, such as those pertaining to coursework assignments and exams. They also uploaded lecture notes and additional materials to the VLE. This triggered an automatic sanction: if students checked the VLE's communication tools, then they would be informed about important announcements; if they did not, then they would miss out on these important updates. If students accessed the VLE repository, then they could download lecture materials; if they did not, then they would have no additional materials and resources. • All students, especially those who were averse to using the VLEs, found various ways of interacting with the technologies and participating in the online learning activities.
Pedagogical Structure: Language Barrier and Academic Assessment. It was the norm for lecturers to use a marking template when grading students' presentations and essay assignments. Some of the criteria listed were that there should be correct spelling and proper use of words, grammar and punctuation. However,	• Students' difficulty in presenting in the English language went against the marking criteria. • Students were afraid of losing marks for grammar, etc, regardless of whether the content of the presentation itself was sound/legitimate. • Resentment and frustration on the part of some British and English-speaking students [STUD-INT-7; STUD-INT-13].	**New Structures for assessing the work/presentation of students whose first language was not English. Altering the pedagogical norms of assessment.** • Having dealt with foreign students on a regular basis, some lecturers relied on experience to understand foreign students and looked past language barrier [STAFF-INT-3, p. 170; STAFF-INT-4]; • Some lecturers made allowance for students' language barrier during the grading of presentations, although students' presentations did not meet a particular criterion, such as language/grammar [STAFF-INT-3]. As such this is an example of how a new norm for assessing and grading has come into being by a particular lecturer.

there were students who experienced difficulty in speaking English [language barrier].		
Pedagogical Structure: Students Using Technology in T&L Activities. More than one-third of the students were not used to online teaching and learning. As such, some of these students preferred conventional T&L. They were averse to using the VLE technology to accomplish assessed learning activities, and some saw the technology as inappropriate for T&L activities. On the other hand, some students who were familiar with E-Learning were more open to that mode and expected the VLE to be used consistently for teaching and learning activities [e.g. STUD-INT-2, STUD-INT-15, STUD-INT-16, STUD-INT-20, STUD-INT-21].	The main conflict which arose was one of "Conventional-style T&L versus Technologically-supported T&L [E-Learning]". Students' aversion to using the VLE in T&L activities conflicted with some of the lecturers E-Learning activities. It also conflicted with other students' zealous usage of the VLE. These conflicts resulted in: • Students being stressed, disgruntled and frustrated with lecturers and fellow students. • Some students felt that E-Learning activities should not be assessed • Demotivation among zealous VLE users.	**New structures and norms for using the VLE**. As a means of dealing with the conflict some students who preferred conventional T&L: • Had selective engagement with the VLEs, using the technologies at the bare minimum merely to satisfy the lecturers' instructions. • Used the CABWEB VLE mainly to arrange meetings, but used their own personal technologies and devices [e.g. mobile phones, MSN, personal email accounts] to communicate with group members and prepare group assignments. • Used the Blackboard VLE "only if they had to use it" or "only to get by" in terms of accomplishing learning tasks that were compulsory and/or assessed.

6.3 Ways in which the SCT Framework Needs to Change

In *Section 6.2* above, an attempt was made to apply the SCT framework to the empirical study to demonstrate how the concepts of Culture, Technology and Pedagogy were re-conceptualized through the models of structure and agency. This section discusses the SCT Framework, in light of the empirical results. Having applied the SCT Framework to the study, it was evident that the model did not accommodate certain data for the reasons that came out of *Section 6.2*. The results showed that while the SCT framework was important overall and that it worked in many areas, there were also areas that were missing or needed to be changed. These are discussed in the following subsections.

6.3.1   Differentiating "New" from "Existing" Structures

When the SCTF was applied during the analysis in *Section 6.2*, the empirical data showed that "New" Structures can be conceptually distinguished from "Existing" Structures. This was confirmed by *Table 6.1* [*Subsection 6.2.9*.], which provides a summary of the assumptions that were previously held by students and academic staff, and shows how these assumptions or structures led to conflict and subsequently to new structures. Data presented in *Chapter Five*, which provided a background to the original conditions, contexts and structures prior to the process of structuration, further support the analytical summary in *Subsection 6.2.9*.   For example, *Table 5.3* [*Subsection 5.2.2*], captured academic staff perceptions and assumptions about their culturally-diverse students. The chapter also reports on students' various cultural backgrounds [*Subsection 5.3.1*], which is further detailed in *APPENDIX E*.   These two pieces of data represent some of the original or "Existing Structures" of students of various cultural backgrounds within the classroom, such as the differences in nationalities, race, language, assumptions/perceptions and pedagogical practices. Altogether, staff and students' existing assumptions are captured in Component A of the SCTF model. *Table 5.6* [*Subsection 5.2.4*] reported the various ways in which lecturers accommodated students' social and cultural differences, while *Table 5.7* [*Subsection 5.2.4.1*] captured academic staff viewpoints on possible solutions to an enriching multicultural E-Learning setting. These two pieces of data help us to identify some

of the structural transformations that have taken place over time and how lecturers and students continue to teach and learn under new structures.

Other empirical data which reflect the conceptual distinction between "Existing Structures" and "New Structures", are captured in: *Table 5.8* [*Subsection 5.3.2.1*], which shows students' prior online learning and VLE experience; *Table 5.9* [*Subsection 5.3.2.2*], which captures students' expectations of the VLE technology; and *Tables 5.10* and *5.11* [*Subsection 5.3.3.1*], which show students' current VLE interaction at the University of Salford. *Tables 5.8* and *Table 5.9* both represent "Existing Structures" showing students' original technological and pedagogical structures – such as their pedagogical assumptions and VLE expectations – before they came to study at Salford. *Table 5.10* and *Table 5.11* represent "New Structures" as they capture students' actual pedagogical and technological [E-Learning] activities at Salford, and show how some of students' structures about learning with technology have been transformed.

In light of the empirical evidence, it was noted that a change was needed to the wording in **Component A** of the SCTF diagram. The word "Structure" on its own was too broad and ambiguous, and did not sufficiently reflect a contrast to the "New Structures" which were produced and reproduced in the Multicultural classroom. The word "Existing" needs to be added, as it clearly depicts the original structures and conditions within which the agency of teachers and students was taking place. It reflects the difference between the "Current/Original" structures and the concept of "New Structures", which were later produced. This in turn helps to illustrate the transformations which occurred in the multicultural setting.

6.3.2   *Placing Structural Rules under the Area of Structures*

From a theoretical perspective, the structural rules of Signification, Domination and Legitimation, should not have been placed in the "Agency" arena. The empirical data also confirmed that placing the rules under the area of "Agency" made it difficult to analyse culture, technology and pedagogy in terms of both structure and agency. Therefore, structural rules need to be in **Component A** – the area of "Structure" – in line with general Structuration Theory. The actual analysis

started with the structures and their influence on actions, but this also needed to be depicted in the SCTF diagram.

6.3.3 Recognizing Overlaps among Structural Rules of Signification, Domination and Legitimation

The empirical data showed that the structural rules of Signification, Domination and Legitimation all overlapped. For example, from the viewpoint of Signification, most lecturers viewed the VLE largely as a repository [See *Table 5.1*, *Subsection 5.2.1.1* and *Table 6.1*, *Subsection 6.2.9*]. Thus, in line with the meanings they assigned to the technology, they mainly drew upon: the "uploading tools" to publish lecture slides/notes and assignments; the "communications" feature to make announcements and to send emails to their respective groups of students; and the "schedule" feature to organize and present the timetable for class sessions. Other lecturers, such as STAFF-INT-4 and STAFF-INT-9 viewed the VLE as a tool to be "*fully exploited*". In this regard, they appropriated almost all of the VLE tools and resources, configuring group forums and leading interactive E-Learning activities for their students.

The meanings and assumptions – Signification – which academics applied to the VLE also intersected with the ways in which they used the VLE as a source of power to get students to engage with the technology. Thus, from the viewpoint of Domination, lecturers "compelled" students to engage with the VLE in one form or another [*Subsection 6.2.4.1*]. They did so by: uploading lecture notes and extra materials; uploading schedules and timetables; making important announcements; and assessing online activities and grading these activities as part of students' coursework. In all these instances, students were mandated to use the VLE technology.

The fact that students' participation or non-participation in VLE activities carried "sanctions", the structural rules of Signification and Domination also intersected with the rule of Legitimation [*Subsection 6.2.4.1*]. Lecturers not only used the VLE to exercise power, but also used it to apply certain sanctions: if students accessed the VLE repository, then they could download lecture notes and additional

materials; if they did not, then they would have no additional materials and resources. If students checked the VLEs' communication tools, they would be informed about important announcements such as schedules, assignments and exams; if they did not, then they would miss out on these important updates. If students participated in assessed online activities they would gain marks; if they did not participate, then they would lose marks. For example, STAFF-INT-1's online activity accounted for 20% of the module, and failure to participate would result in the "*heavy loss of marks*" for the overall module.

Based on the meanings they applied to the VLE [Signification], lecturers used the technology as a way to compel students to accomplish particular E-Learning tasks [Domination], by applying certain sanctions [Legitimation]. Most of the data used as examples under one structural rule could also be used under another. Given that the same set of empirical data can fit under all three structures, the SCTF diagram needs to be changed to recognize and accommodate these overlaps.

6.3.4 *Recognizing that Structural Rules of Signification, Domination and Legitimation all incorporate Culture, Technology and Pedagogy*

The empirical data showed that the phenomena of culture, technology and pedagogy all overlapped and are incorporated into the broader rules of Signification, Domination and Legitimation. For instance, from the viewpoint of Signification, communication is a cultural process through which meanings are established [Scott, 1995]. In order to communicate, the assigned symbols and intended meanings must coincide. There must be some amount of congruence in knowledge, given that different cultures have their own knowledge, assumptions and symbolic meanings. These symbolic meanings also include the meaning cultures assign to technologies and pedagogical practices. For example, STUD-INT-14 stated that in her home country, they do not usually use the Internet seriously for studying, but that they use it for fun [*Subsection 5.4.3.3*]. STUD-INT-10 also pointed out:

> "*I am familiar with seeing PowerPoint presentations being used mainly for job and professional training sessions, but not in an academic environment. I was accustomed to getting handouts and lecture notes on paper, but now I am getting lecture notes in electronic forms such as PowerPoint slides both in class and online. This method is different from what I was used to in my school days in* [Home Country], *but I have now gotten used to it in terms of a school setting*" [STUD-INT-10].

302

The lack of online learning experience can be seen as cultural in nature, relating to students' home country. The shared knowledge in these students' culture was that technologies were meant to be used for "fun" and for "job/professional" purposes respectively, but were not meant for pedagogical activities.

The cultural signification of technology and pedagogy also intersected with the cultural domination of technological resources. Again, in these students' cultures, people exploited technological resources for "leisure/fun" and for "job-related" activities respectively, but not for studying. In other words, the technologies are used in accordance with the symbolic meanings that collective members of a particular culture assigned to them.

The cultural signification and domination of technology also intersected with students' cultural legitimation and norms surrounding the use of technology for pedagogy. Since different cultures consciously or unconsciously, have chosen different definitions of good or bad, right or wrong [Trompenaars and Hampden-Turner, 2001; p. 22], sanction is a cultural process through which norms are enforced [Scott, 1995]. As such, what one particular culture may consider right and appropriate, another culture may consider wrong and inappropriate. The conflicts in *Subsection 6.2.6.4*, provide examples of how technological and pedagogical signification held by some students influenced their assumptions about the appropriateness or inappropriateness of using technologies for academic purposes versus social purposes. For example, the use of technologies at Salford for academic purposes conflicted with some students' cultural norms and values, STUD-INT-5 [*Subsection 6.2.3.1*]; STUD-INT-7 and STUD-INT-19 [*Subsection 6.2.4.1*]; STUD-INT-14 [*Subsection 6.2.6.4*], while others think technologies such as the VLEs were meant to be used for academic purposes, [e.g. STUD-INT-20 and STUD-INT-21] [*Subsection 6.2.6.4*].

The empirical data confirmed that the actions of individuals depend on their knowledge and familiarity with the way of life and the organization of meanings of their respective society. In line with this, the data showed that the phenomena of culture, technology and pedagogy are all intertwined and incorporated into the

broader rules of Signification, Domination and Legitimation. The SCTF, therefore, needs to depict each rule – Signification, Domination and Legitimation – from a cultural, technological and pedagogical viewpoint.

6.3.5 *Analyzing Technological and Pedagogical Structures Separately in terms of Agency*

In *Section 6.2*, technology [*Subsection 6.2.3*] and pedagogy [*Subsection 6.2.4*] were analysed separately from the viewpoint of structure. However, in *Subsection 6.2.8*, they were analysed jointly from the viewpoint of agency. While it was noted that Technological and Pedagogical/E-Learning structures are similar, the empirical data showed that conceptually they can be distinguished from each other from an agency viewpoint. For example, *Table 6.1* [*Subsection 6.2.9*] showed that there were a few differences in how participants exercised agency and modified structures to resolve technological conflicts and pedagogical conflicts. In order to reflect these differences and retain consistency during the analysis, technology and pedagogy should be analysed separately from the viewpoint of agency, not just from the viewpoint of structure.

6.3.6 *Depicting the Development of New Structures*

The data confirmed the importance of depicting the development of "New" structures in the SCTF diagram, as this helps us to conceptualize how structuration occurs. For example, *Table 5.6* [*Subsection 5.2.4*] reported the various ways in which lecturers accommodated students' social and cultural differences, while *Table 5.7* [*Subsection 5.2.4.1*] captured academic staff viewpoints on possible solutions to an enriching multicultural E-Learning setting. These two pieces of data help us to identify some of the structural transformations that had taken place over time and how lecturers and students continued to teach and learn under new structures. *Table 5.10* [*Subsection 5.3.3.1*] also helps us to recognize the development of "New" structures as it captured students' actual pedagogical and technological [E-Learning] activities at Salford, and showed how some of students' prior structures about learning with technology had been transformed. Altogether, new structures become part of the existing structures and serve as part of the structural contexts and conditions within which agency continues. In the absence

of "New Structures" in diagrammatic form, it would be difficult to: demonstrate the types of transformations which occurred in the multicultural setting; demonstrate how these new structures become part of the current/existing structures; and examine how agency continues under the new structures. The SCTF diagram therefore needs to include a section or component depicting the development of "New Structures", following the process of structuration.

6.3.7   Depicting a Cycle of the Structuration Process

The empirical data suggested that a cycle of the structuration process is necessary in the SCTF diagram to show the step-by-step process of how new structures are produced and reproduced overtime. For instance, the data in *Section 6.2* at first showed that agents' prior structures and assumptions influenced their individual actions and showed how these assumptions continued to influence the agents' interaction with others of different cultures. It then revealed that when attempting to interact with one another, the differences in agents' interpretive schemes, facilities and norms lead to conflicts in various instances. The data further revealed that these conflicts – miscommunication, passivity and inappropriate sanctions – offset the process of reflexivity and consequent social change. The data then showed that the new structures that were produced by lecturers and students subsequently became part of the existing structures.

An example of the structuration cycle, as revealed by the data, can be demonstrated by the cultural rule of Signification in relation to language [*Subsection 6.2.2.1*]. Some students, whose first language was not English, tended to use the grammar and composition of their own language to speak the English language [e.g. STUD-INT-9; STUD-INT-20]. In these instances, students deployed the interpretive schemes of their respective culture – that is, the knowledge they possessed about their cultural rules of signification and the organization of meaning. In turn, these rules and resources informed their interaction about how to communicate with others during intercultural and cross-cultural collaboration. Given the various languages spoken among students, it was evident in the case study that their semantic rules, or rules of signification, did not always coincide. In many

instances, this resulted in conflict [*Subsection 6.2.6.1*]. For instance, English was the main language of instruction at Salford University. However, many students who possessed a different mother tongue, did not speak or understand the English language very well [e.g. in the case of STUD-INT-9]. This barrier not only impinged on students' individual actions, but also impacted on other VLE participants. It was seen, for instance, that other students were unable to understand the comments which some of their classmates posted to the online forums, due to their classmates' poor English. This resulted in frustration, intolerance and conflicts [e.g. STAFF-INT-1; STUD-INT-7; STUD-INT-8; STUD-INT-13] *Table 5.13* in *Chapter Five*.

While there were differences in interpretive schemes and rules of signification, the ability of students and lecturing staff to be reflexive and to exercise agency, led to the development of a new cultural structure for communicating [*Subsection 6.2.7.1*]. It was evident that some students tried to develop shared meanings and resolve conflicts and misunderstandings. For example, STUD-INT-15 stated: "…*I could not understand some of the comments posted to the board. But the good thing is, I also spoke face-to-face with my group, so I was able to clear up any misunderstanding.*" Another student, asserted: "*For the sake of foreign language students, I use emoticons during online discussions so that they will know whether it is a joke or not…*" [STUD-INT-18]. Also all academic staff created and recreated meanings in order to achieve effective communication of lecture materials, instructions and assignments between themselves and culturally-diverse students. For example, when teaching students, lecturers used simple terms, words and phrases; refrained from using slang and colloquial terms; and avoided acronyms and abbreviations that will not be understood [see *Table 5.6*, *Subsection 5.3.4*]. They also introduced module topics at a level that was understandable to everyone, and made materials appealing: "*I make materials appealing to students of different cultures". I put papers online that give a wide range of perspectives on students' culture*" [STAFF-INT-4]. They also made instructions as clear as possible: "*I try very hard when writing an assignment to make it very clear. I make a glossary and refer students to it*" [STAFF-INT-9].

Lecturers also encouraged students to communicate with them if there was a problem or difficulty. Altogether, the new structures for communicating were reflected in the participants' new ways of interacting with one another in the existing multicultural environment.

Based on the empirical data in *Section 6.2*, a cycle of arrows is needed to show the progressive step from agents' individual assumptions and actions, to integration [co-presence] and interaction, to the conflicts which arose in the multicultural setting. Arrows are also needed to depict agents' reflexivity [in monitoring the interaction, resolving conflicts and producing new structures] and to reflect how these new structures became part of the existing structures.

6.3.8   Recognizing Conflict as an Important Component

Subsections 6.2.7 and *6.2.8* find that the main mechanism by which conflicts or structural differences were resolved was by conflict. It is seen that conflict is the main mechanism by which new structures occur. Conflict instigates the process of reflexivity, as it urges people to reflect upon intended and unintended consequences and act, react and interact in new ways. Conflict, through the process of reflexivity, brings about change of structures or brings about new structures. However, conflict particularly concerns the use of VLE and not in terms of other areas to which Structuration Theory might apply, where the change of structures might not happen through conflict. Conflict tends to generate this process of reflexivity.

In applying the SCT framework in *Section 6.2*, the data confirmed that conflict occurred at the "structural resources" level and was an important part of the structuration process [leading to reflexivity and new structures]. Conflict was not merely an unfortunate result of cultural diversity; it was the main mechanism by which lecturers' and students' structural differences were resolved by means of reflexivity. Some of the cultural issues and challenges listed by students in *Table 5.13* [*Subsection 5.4.3.3*] represented conflicts of interpretive schemes, facilities and norms. *Table 6.1* provides examples of a few conflicts which occurred among staff and students, and shows the importance of conflict in bringing about "New"

structures and subsequent transformations in the multicultural E-Learning environment. For example, from the viewpoint of interpretive schemes, some lectures and local students used complex words, abbreviations and jargons. Also, some international students' grammar was poor. These led to conflicts such as the misunderstanding of comments and terminologies; miscommunication; resentment; and frustration [e.g. STUD-INT-12, STUD-NT-14, STUD-INT-15]. Conflict also arose from the differences in the assumptions and meanings which academics and students assigned to the VLE. For example, assumptions regarding the full exploitation of the VLE by some lectures and students, as opposed to the restricted use of the technology merely as a repository by some lecturers and mainly for the downloading of lecture notes by some students. There were also differences in lecturers' and students' pedagogical assumptions: lecturers assumed that students were equally responsible for their learning and expected them to play an active role in their learning [constructivist approach]. On the other hand, more than 1/3 of the students saw lecturers as "experts" and transmitters of knowledge and instructions, and as such, expected lecturers to provide them with everything they needed to know in lectures [behaviourist approach]. This resulted in conflict whereby lecturers raised concerns about the passivity of students in the classroom and online, while some students raised concerns about the minimal lecture notes they received from lecturers. *Subsections 6.2.7* and *6.2.8* found that conflict was the main mechanism by which new structures occur. Conflict, through the process of reflexivity, brought about change of structures or brought about new structures. However, conflict particularly concerns the use of VLE and not in terms of other areas to which Structuration Theory might apply, where the change of structures might not happen through conflict.

As evident in *Table 6.1*, conflict played a significant role in the transformation of existing structures and the reproduction of new structures. Therefore, conflict must be represented as a main component in the Framework – not just in bracketed text – as part of the process that generates New Structures.

### *6.3.9   Recognizing Reflexivity as an Important Component*

The data showed that the process of reflexivity, instigated by conflict, was integral to the production, reproduction and transformation of structures. Participants were able to reflect upon intended and unintended consequences of their actions, and acted, reacted and interacted in new ways. For example, *Table 5.6* [*Subsection 5.3.4*] provides evidence of how staff members were able to reflect on the ways in which they addressed some of the cultural, technological and pedagogical issues which arose in the multicultural E-Learning environment. Also, other examples of the process of reflexivity was captured in *Table 5.13*, where students talked about some of the cultural challenges they faced in the multicultural E-Learning environment, and made comparisons between their home countries and their new environment at Salford. Questions asked of students, such as their countries of origin, language and religious faith, enabled them to reflect on their respective cultural backgrounds captured in APPENDIX E. The questions further enabled students to reflect on, describe and explain how their respective cultural assumptions, influence their individual actions at Salford and how their cultural structures were changed. Also, the development of new structures captured in *Table 6.1*, shows how students overcame certain cultural, technological and pedagogical barriers. Altogether, it was seen from the data that academic staff and students reflected upon the intended and unintended consequences, and acted, reacted and interacted in new ways. Conflict generated this process of reflexivity. Reflexivity enabled academic staff and students to change the structures of their minds and brought about new structures in the wider environment. Staff and students monitored their teaching and learning activities, reflected on the contradictions in the multicultural E-Learning environment, resolved conflicts and produced new structures to create a better environment for themselves and others.

The data showed that the process of reflexivity played a crucial part in the development of "New" structures, and for understanding how and why structures are reproduced and transformed. Therefore reflexivity needs to be given a component of its own. It needs to be represented clearly in diagrammatic form, as part of the process that generates New Structures.

6.4 The New SCT Framework: SCTF2

Some of the main and most important changes that were made to the original SCT Framework [SCTF1] include the addition of New Structures, Conflict, Reflexivity and Cyclical/Chronological Sequence of the structuration process. Another major change was moving Structures of Signification, Domination and Legitimation from the Agency section to the area of Structure. There were also changes in wordings and/or meanings. A diagram of the new SCT Framework is depicted in *Figure 6.2*. overleaf followed by an explanation of all the changes made.

Figure 6.2: **The New Structuration Conceptual and Theoretical Framework [SCTF2]**

311
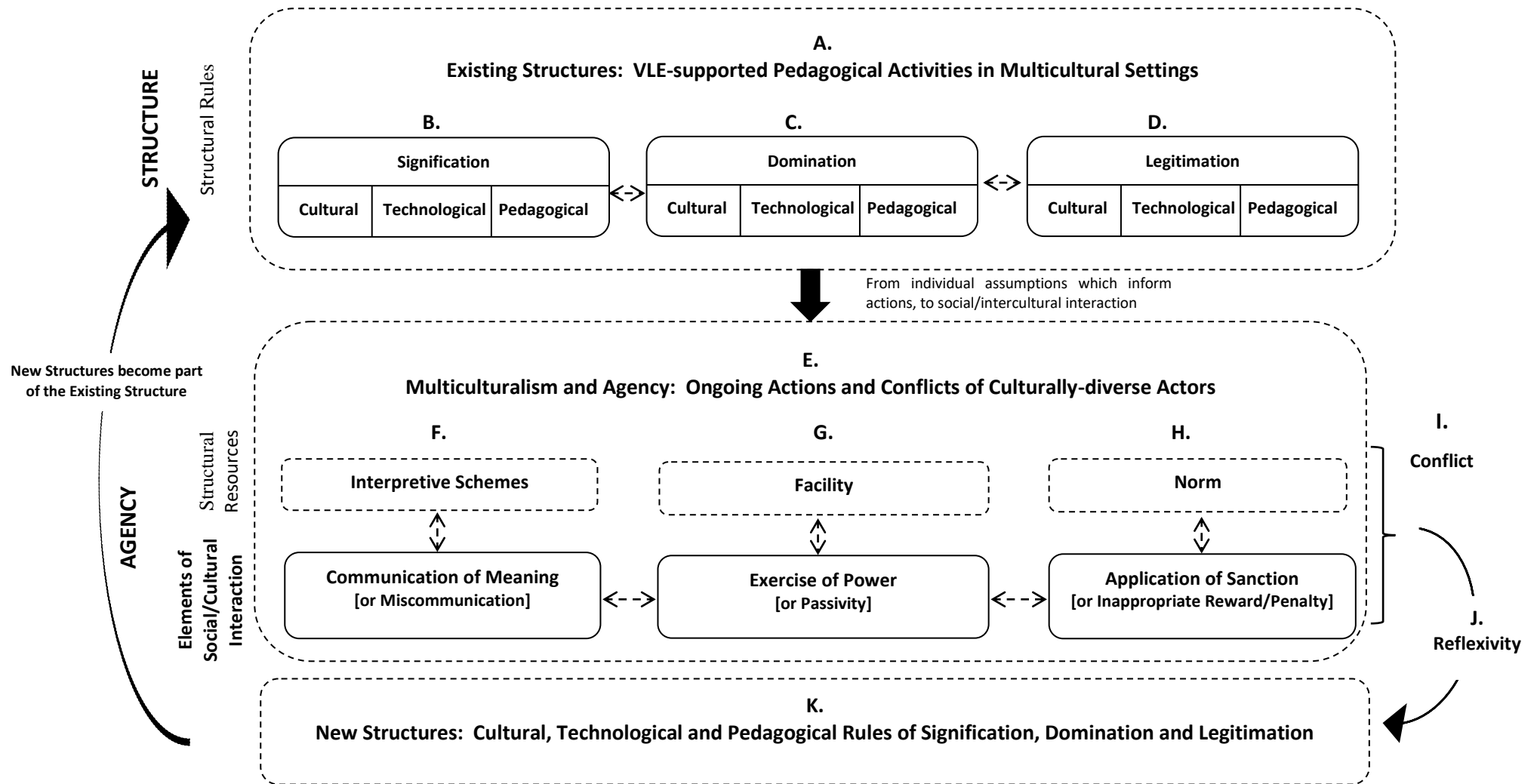
1. **The Lettering of Components is Retained**. The lettering mechanism used in the previous SCTF diagram [e.g. A, B, C, etc.] is retained for ease of identifying and explaining the various components within the SCTF framework. The lettering mechanism is also retained for ease of identifying the changes that have been made to the framework. It also facilitates easy comparisons between the previous diagram – SCTF1, and the new diagram – SCTF2.

2. **The title in *Component A* is slightly changed**. In SCTF1, it was originally entitled "*Structure: VLE-supported Pedagogical Activities [E-Learning] in Multicultural Settings*". However, in SCTF2, the word "Existing" is added to the title, while the bracketed word "E-Learning" is removed from the title. Thus the new title in *Component A* of SCTF2 is: "*Existing Structures: VLE-supported Pedagogical Activities in Multicultural Settings*".

3. **There is now a lower level of separation between Cultural, Technological and Pedagogical Structures**. **Also, there is now a slight change to their titles**. In SCTF1, there was a distinct level of separation between "Culture" [Component B], Learning Technology" [Component C] and "Pedagogy Concerning the VLE" [D]. However, in SCTF2 there is a lower level of separation between the structures. All three structures are now placed under each of the broader structural rules of Signification, Domination and Legitimation. Their titles are changed from: Culture to Cultural; Learning Technology to Technological; and Pedagogical Concerning the VLE to Pedagogical. These changes will be further explained in the next section.

4. **Structural rules of Signification, Domination and Legitimation are moved to Component A**. Structural rules of Signification, Domination and Legitimation, which were previously labelled as Component I within the broader Component E [the second dotted rectangular area] in SCTF1, are moved to Component A [the top dotted rectangular area] in SCTF2. Each of these structures is now labelled separately as B, C and D respectively, and has

replaced the titles of Culture, Learning Technology and Pedagogy Concerning VLE, accordingly. Unlike SCTF1, the Structural rules of Signification, Domination and Legitimation all incorporate the phenomena of Culture, Technology and Pedagogy in SCTF2.

5. **A single-headed arrow has replaced the double-headed arrow between the broad Components A and E**. In SCTF1, the double-headed arrow between Component A [first dotted rectangle] and Component E [second dotted rectangle] is replaced with a downward, single-headed arrow.

6. **The title in Component E is slightly changed**. In SCTF1, Component E [the second dotted rectangle] was entitled "*Multiculturalism and Agency: Staff and Culturally-diverse Students use the VLE in their Pedagogical Activities*". In SCTF2 however, Component E is now entitled: "*Multiculturalism and Agency: Ongoing VLE-supported Pedagogical Activities of Culturally-diverse Actors*". Also, The term "…Use the VLE in their Pedagogical Activities" in SCTF 1 is replaced with the term "…Ongoing VLE-supported Pedagogical Actions of Culturally-diverse Actors" in Component E of the SCTF2 diagram.

7. **The title in *Component F* is changed**. In SCTF1, Component F, which was entitled "Conflict and Ongoing Actions of Culturally-diverse Actors", is removed to reduce the redundancy. Its title is now subsumed in Component E in SCTF2. "*Multiculturalism and Agency: Ongoing VLE-supported Pedagogical Activities of Culturally-diverse Actors*". Also, the concept of "Conflict" is now listed under a component of its own in SCTF2 – Component I. Component F in SCTF2, now represents the Structural Resource of "Interpretive Schemes" and its associated interaction, "Communication of Meaning".

Generally speaking, the titles which were previously listed under Components G and H in SCTF1 – "Elements of Social/Cultural Interaction" and "Structural Resources", respectively – are now placed outside of Component E [the second dotted rectangular area representing Agency].

8. **The title in _Component G_ is changed**. In SCTF1, Component G represented the "Elements of Social/Cultural Interaction", such as "Meaning", "Power" and "Sanctions". However, Component G in SCTF2 now represents the Structural Resource of "Facility" and its related social/cultural interaction, "Exercise of Power".

9. **The title in _Component H_ is changed**. In SCTF1, Component H represented the "Structural Resources", such as "Interpretive Schemes", "Facility" and "Norm". However, Component H in SCTF2 now represents the Structural Resource of "Norm" and its associated social/cultural interaction, "Application of Sanction".

10. **The title in _Components B, C_ and _D_ are changed**. In SCTF1, Component I was originally represented "Structural Rules" such as "Structures of Signification", "Structures of Domination" and "Structures of Legitimation". As mentioned earlier [under item #4], these structures have been moved to the top rectangular area in SCTF2. Each of these structures is now labelled separately as B, C and D respectively, and has replaced the titles of Culture, Learning Technology and Pedagogy Concerning VLE, accordingly. This move is justified by theory rather than by data as the structural rules were previously located in the "Agency" arena in SCTF1, and instead should have been placed in the area of "Structure".

11. **The title in _Component I_ is changed**. Component I in SCTF2 now represents the concept of Conflict. In SCTF1, Conflict and Ongoing action [Cultural, Pedagogical and Technological Agency] of culturally-diverse actors were represented in Component F. This is now changed. As mentioned earlier, Conflict now has a component of its own – Component I. This is significant because the empirical data emphasized the role conflict played in the transformation and reproduction of new Structures. This is depicted by a black, singled-headed arrow leading from conflict to New Structures [Component J], which is now included in SCTF2.

12. **The process of reflexivity is now added**. A new curved arrow is now included in SCTF2 to represent the process of reflexivity.

13. **New Component Added**. In SCTF2, a third dotted rectangular area – "Component J", entitled: "New Structures: Cultural, Technological and Pedagogical Rules of Behaviour" – is added. It represents the new structures which result from the incongruence or differences in actors' structural resources – interpretive schemes, facility and norm.

14. **New Structures**. In SCTF2, a curved, dotted arrow leading from Component J [third dotted rectangle] to Component A [first dotted rectangle] represents the New Structures within which agency continues. It portrays the "New Structures" as transformations of the previous, "Existing Structures".

15. **Technological structures and pedagogical structures are now analysed separately**. While Technological and Pedagogical Structures were analysed jointly in SCTF 1, SCTF 2 now separates them.

6.5   Chapter Summary and Conclusions

This chapter has attempted to apply the SCT framework developed in *Chapter Three* to the case study of *Chapter Five*. It has presented the various assumptions of participants – cultural, technological and pedagogical – and has demonstrated how these assumptions impinged on their individual actions. The chapter also has analysed the co-presence of culturally-diverse participants as they interacted in the classroom and online, using the VLE technologies. It has examined the ways in which participants exercised agency, leading to conflicts, which in turn instigated the process of reflexivity and subsequent transformations in structures. The major findings from the empirical study have been captured in *Section 6.3*, with the emergence of a new SCTF model in *Section 6.4*. *Chapter Seven* will compare these findings with the Literature.

CHAPTER SEVEN

Discussion of the Structuration Conceptual and Theoretical Framework in Relation to the Literature

"Wherever new knowledge is generated through a process of interaction between the researcher and the researched, the social researcher will draw on the same skills that the social actors use to make their activities intelligible"
[Giddens, 1976; p. 157-161]

7.1 Introduction

Chapter Six attempted to apply the original SCT framework which was presented in *Chapter Three*, to show how the findings emerged from the results. This chapter discusses the findings in relation to the literature, as well as their practical relevance for VLE design, implementation and use. It shows how the findings address the problems and issues that the literature has thrown up, and serves as a platform on which to discuss the contribution to knowledge made.

7.2 Sequential Difference between the SCTF2 Diagram and Giddens' model on the 'Duality of Structure'

One of the most significant findings in this research is the difference in chronological sequence between Giddens' "Dimensions of the Duality of Structure" model and the SCTF2 diagram. This sequential difference is significant as it presents some weaknesses in Giddens' model, and simultaneously reflects some of the key strengths of the SCTF2 diagram. Details of Giddens' model, depicted in *Figure 7.2* below, were provided in *Chapter Three*. The updated SCTF diagram was presented and discussed in the previous chapter. Three of the main findings uncovered by the sequential differences in the two models relate mainly to the lack of emergent processes in Giddens' model. These are discussed below.
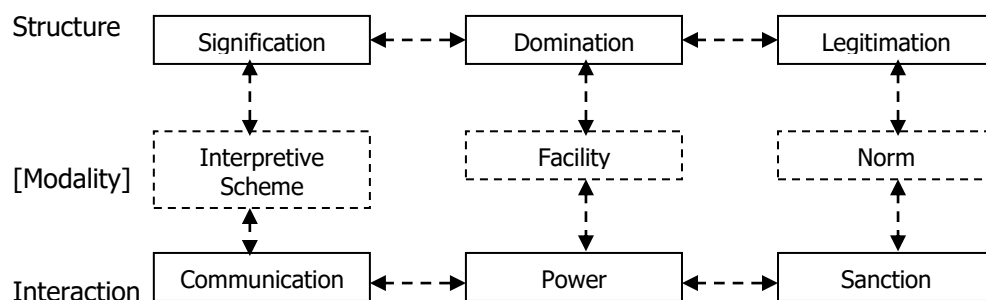
Structure
Signification ←--→ Domination ←--→ Legitimation

[Modality]
Interpretive Scheme — Facility — Norm

Interaction
Communication ←--→ Power ←--→ Sanction

Figure 7.2: **Dimensions of the Duality of Structure [Giddens, 1984; p. 29]**

- *Giddens' Model of Structuration does not Provide an Account of the Conditions/Contexts and does not Reflect the Concepts of "Existing Structures" and "New Structures". The SCTF2 Includes an Account of the Contexts and the Concepts of "Existing Structures" and "New Structures".*

The empirical study confirmed the importance of providing an account of the physical and virtual conditions, and of depicting "Existing Structures" and "New Structures" when using a Structurational lens to examine data. The depiction of "Existing Structures" is important as they represent specific, current structures – cultural, pedagogical and technological assumptions – within which the agency of teachers and students took place. "Existing Structures" also reflect a contrast with the concept of "New Structures", which were later produced and reproduced in the Multicultural classroom. In a similar vein, depicting the development of "New Structures" is important for illustrating how they became part of the existing structures and served as part of the structural contexts and conditions within which agency continues.

Giddens' model begins with the concept of "Structure" – Signification, Domination and Legitimation. His model does not facilitate, in diagrammatic form, a background to the existing or original conditions, contexts and structures [agents' assumptions] prior to the process of structuration. Giddens' model ends with the process of "Interaction" – Communication, Power and Sanction – and does not show how new structures are produced and reproduced during and after interaction. Therefore, the absence of both "Existing Structures" and "New Structures" in Giddens' model, makes it difficult to conceptualize how structuration occurs. The

exclusion of existing and new structures makes it difficult to identify what structures were changed and the ways in which they were changed, and provides no platform to examine how agency continues under the new structures.

The SCTF2 diagram, on the other hand, provides an account of the physical, virtual and social conditions – contexts, within which academics and postgraduate students were using the VLE. It begins with the concept of "Existing Structures" which captures the various cultural, technological and pedagogical rules of Signification, Domination and Legitimation in Component A [*Section 6.3, Chapter 6*]. The SCTF2 diagram does not merely end with the concept of "New Structures" in Component J. It shows a dotted arrow leading from that component back to "Existing Structures", illustrating that the new structures become part of the existing structures. The SCTF2 therefore reflects continuity and the iterative, emergent nature of the structuration process. It was noted during the data analysis in *Chapter Six*, that the word "Structure" on its own was too broad and ambiguous. The addition of the word "Existing" is important as it depicts current pedagogical, cultural and technological assumptions or structures of teachers and students. It was also important as it reflects a contrast with the concept of "New Structures", which were later produced and reproduced in the Multicultural classroom.

Examples from the empirical data depicting "Existing Structures" and "New Structures" were presented in *Chapter Five*. For example, *Table 5.3* captured academic staff perceptions and assumptions about their culturally-diverse students. The chapter also reported on students' various cultural backgrounds [*Subsection 5.3.1*], which was detailed in *APPENDIX D*. These two pieces of data represented some of the current or "Existing Structures" of students of various cultural backgrounds within the classroom, such as the differences in nationalities, race, language, assumptions/perceptions and pedagogical practices. They also help to provide an account of the physical, social and virtual conditions or contexts, such as the face-to-face classroom setting as well as the VLE-supported activities in multicultural contexts. These details were captured in Component A of the SCTF2 model. *Table 5.6* [*Subsection 5.4.2*] reported the various ways in which lecturers accommodated students' social and cultural differences, while *Table 5.7*

[*Subsection 5.2.4.1*] captured academic staff viewpoints on possible solutions to an enriching multicultural E-Learning setting. These two pieces of data help us to identify some of the structural transformations that had taken place over time and how lecturers and students continued to teach and learn under new structures. This is depicted in Component J of the SCTF2 model. Simultaneously, the data showed how these reconstituted structures became part of the existing structures and how they reinforced the existing structures. This was depicted by the dotted arrow. The concept of "Existing Structures" thus served as a yardstick against which the development, redevelopment and transformation of those structures were measured. *Table 5.3* representing "Existing Structures" and *Tables 5.6* and 5.7 representing "New Structures" facilitated comparisons between old and new structures, and help us to examine how both academics and students continued their teaching and learning activities under the new structures which were continuously becoming part of the existing structures.

Other empirical data which reflected the importance of "Existing Structures" and "New Structures" in diagrammatic form, were revealed in *Table 5.8* [*Subsection 5..3.2.1*], which showed students' prior online learning and VLE experience; *Table 5.9* [*Subsection 5.3.2.2*], which captured students' expectations of the VLE technology and *Tables 5.10* and *5.11* [p. 179], which showed students' current VLE interaction at the University of Salford. *Tables 5.8* and *Table 5.9* both represent "Existing Structures" showing students' original technological and pedagogical structures before they came to study at Salford, such as their prior pedagogical practices and VLE expectations. *Tables 5.10* and *5.11* represent "New Structures" as they not only captured students' actual pedagogical and technological [E-Learning] activities at Salford, but also showed how some of students' structures about learning with technology had been transformed. Altogether, the SCTF2 diagram extends Giddens' model by including the "Existing Structures" prior to the process of structuration, and the "New Structures" following the structuration process. This in turn helps to illustrate how transformations occur and the types of transformations which occur in the

multicultural setting. It also shows how these new structures become part of the current, existing structures.

- ***Giddens' Structuration Model uses Double-headed Arrows to Show a Seemingly Straightforward Account of how Structures are Produced and Reproduced Overtime. The SCTF2 Model uses a Cycle of Arrows to Provide a Clearer Picture of other processes which arise when Structures are Constituted and Reconstituted Overtime.***

The updated SCT framework, as confirmed by the empirical data, showed that a cycle of arrows provides a step-by-step approach to capturing the various events which occur before, during and after the process of structuration. For example, the cycle of arrows helps to explain how other concurrent processes such as conflict and reflexivity contribute to the production, reproduction and transformation of structures overtime.

Giddens uses double-headed arrows to show the iterative link between structural rules, their respective modalities and their associated interaction. The double-headed arrows also depict the reflexivity of agents. Giddens' intentions here are to illustrate how the individual agent's structural rules draw on certain modalities to accomplish certain interactions with other agents, and, in so doing, produce and reproduce structure. For example, during the interaction of communication, the actions of the agent draw on the modality of interpretive schemes which are governed and defined by the rules of signification. This in turn produces and reproduces structure of signification in the agent's mind. During interaction the agent is continuously monitoring their actions and those of others, as well as the wider context within which the actions occur – through the process of reflexivity. However, while it shows how the agent's individual structures inform his/her actions, Giddens' Structure-Modality-Interaction model appears to show the interaction as a straightforward process between and among agents. It does not depict the conflicts which instigate the process of reflexivity in the wider social context within which the interactions take place. Also, it does not show the redevelopment and transformation of structures.

The SCTF2, on the other hand, uses three key single-headed arrows to illustrate how new structures are produced and reproduced overtime. The first single-headed arrow leading from *Component A*, shows the progressive step from agents'

individual assumptions and actions to integration [co-presence] and interaction. It shows the influence that the agent's structures and assumptions will continue to have during interaction with others of different cultures. The single-headed arrow further serves as a signpost as to what happens when individual agents, with their respective structural rules and assumptions, attempt to interact with others in multicultural settings. For example, it reveals that in an attempt to interact with one another, the differences in agents' interpretive schemes, facilities and norms lead to conflicts – miscommunication, passivity and inappropriate application of sanctions. The second single-headed, curved arrow leading from *Component I* to *Component J*, depicts how these conflicts offset the process of reflexivity and consequent social change. Here, the model also uses small double-headed arrows between the structural resources and associated interactions not merely to show the iterative relation between them. Rather, the arrows are used to depict agents' reflexivity in monitoring the interaction, resolving conflicts and producing new structures. It shows the modification of signification and interpretive schemes; domination and facilities; and legitimation and norms. The third single-headed, dotted arrow leading from *Component J* back to *Component A*, reflects the new structures becoming part of the existing structures.

While Giddens' double-headed arrows are useful, the data shows that the cycle of arrows used in the SCTF2 model provides a step-by-step approach to the overall process of structuration. For example, *Table 5.1*, *Table 5.3*, *Table 5.8* and *Table 5.9* in *Chapter Five* all represent the "Existing Structures" or the initial assumptions that influence lecturers' and students' individual actions. Component A of the SCTF captures this existing structure, showing the cultural, technological and pedagogical rules of signification, domination and legitimation held by lecturers and students. The responses that lecturers and students provide in *Table 5.1* and *Table 5.9* respectively, show how their structures/assumptions inform how they configure and use the VLE in teaching and learning activities. This is represented by the arrow which shows the influence that individual agent's structures and assumptions will continue to have during interaction with others of different cultures. The data shows that structuration is not a smooth, straightforward process.

- ***Giddens' Model does not Reflect the Emergent Nature of the Structuration Process. The SCTF2 Model is Dynamic, Reflecting the Emergent Nature of Structuration.***
While Giddens' conflated model and the SCTF2 diagram both attempt to illustrate how structures are constituted and reconstituted over a period of time, Giddens' model appears to be static, and does not reflect the emergent nature of the structuration process. The absence of "Existing Structures" in Giddens' model makes it difficult to see how those structures have been transformed, facilitating the emergence of "New Structures". The absence of "conflict" in diagrammatic form makes it difficult to see its role in activating the process of reflexivity which brings about social change. In the absence of "New Structures", Giddens' model fails to illustrate what structures are changed and how they are transformed. Furthermore, the model fails to illustrate how those structures become part of the "Existing Structures", reflecting the dynamic, emergent nature of the structuration process.

On the other hand, the SCTF2 model is more comprehensive and dynamic, and provides a clearer picture of how structures are constituted and reconstituted over time.

Altogether, the findings from the "Sequential Differences" between Giddens' model and the SCTF2 model show: [1] the importance of providing an account of the physical and virtual conditions of actors, and of depicting "Existing Structures" and "New Structures" when using a Structurational lens to examine data; [2] the importance of capturing other complex processes and events – such as conflict and reflexivity – which occur during the structuration process and [3] the importance of providing an explicitly dynamic picture of how structures are constituted and reconstituted over time.

7.2.1 *Relevance to the Literature*

In Giddens' [1979] own words, Structuration "requires a theory of the human agent, an account of the conditions and consequences of social action, and an interpretation of 'structure' as dealing with both conditions and consequences" [Giddens 1979; p. 49]. Giddens also argues that "analysing the structuration of social systems means studying the modes in which such systems, grounded in the knowledgeable activities of situated actors who draw upon rules and resources in the diversity of action contexts, are produced and reproduced in interaction" [1984; p. 25]. However, the SCTF2 model in this study highlighted a contradiction in Giddens' model of the duality of structure. Furthermore, the SCFT2's cyclical approach to showing how structures are produced and reproduced during interaction highlighted the static nature of Giddens' duality of structure model – another contradiction of structuration theory – which has been criticized for its inability to capture dynamic processes, and having a bias towards stability [see e.g. Ciborra & Lanzara 1994, Sewell 1992].

Many studies involving the application of structuration within an IS-specific context, have made successful attempts to adjust Giddens' [1984] model to depict the emergent nature of the duality of social structure [e.g. Orlikowski and Robey [1991; Orlikowski [1992]; Orlikowski, [2000]; Walker [2002]; Thompson [2012]].

In particular, the work of Orlikowski [2000] confirms the empirical data in this research. Although her work focuses primarily on technology, Orlikowski provides a diagrammatic adaptation of Giddens' [1984] model which demonstrates that technology use – technology-in-practice – is always situated and emergent [*Figure 7.3*]. According to Orlikowski, technology-in-practice is a kind of structure that people draw on when they use technology. Similar to the data herein, Orlikowski's model presented the original structures, the duality of structures, the transformation of existing structures, the development of new structures [using dotted rectangles], and new structures becoming part of the existing structures. The application of her model was represented in her data by four technologies-in-practice – collaboration, individual productivity, collective problem-solving, and process-support. These were enacted by members of three organizations – Iris, Alpha and Zeta – which she

examined with the same customizable groupware tool called "Notes", which was installed on networked personal computers. Orlikowski discussed three kinds of conditions that were salient to her research: *1. Interpretive Conditions* [the conventional understandings and shared meanings that members of a community construct to make sense of their world [including the technology they use]; *2. Technological Conditions* [the technological properties (both tool and data) available to the users in their work practices]; and *3. Institutional Conditions* [the social structures (normative, authoritative) that constitute part of the larger social system within which users work]. She also discussed three kinds of consequences that were relevant: *1. Processual Consequences* [changes (if any) in the execution and outcome of users' work practices]; *2. Technological Consequences* [changes [if any] in the technological properties available to the users]; and *3. Structural Consequences* [changes [if any] in structures that users enact as part of the larger social system in which they are participating]. According to Orlikowski, her practice lens allows us to see what, when, where, how, and why different groups enact different structures [technologies-in-practice] through their recurrent interaction with a particular set of technological properties, in similar and different contexts, at the same time, and over time [p. 420]. Such a practice lens also allows us to examine the institutional, interpretive, and technological conditions, which shape the ongoing constitution of different structures, and how such constitution in turn reinforces or modifies those institutional, interpretive, and technological elements.
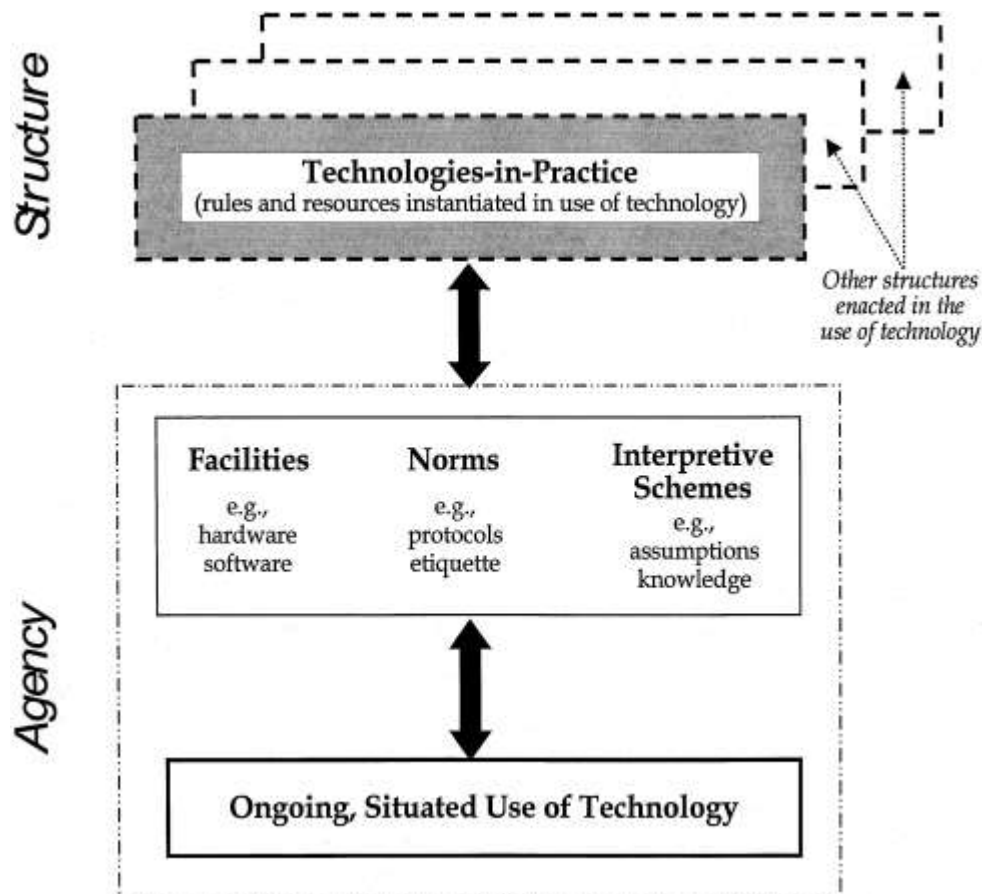
Figure 7.3: Enactment of Technologies-in-Practice [Orlikowski, 2000]

While Orlikowski's model provides deep insights which are applicable to other topics, her work focuses only on technology and does not integrate the technological insights with culture and pedagogy. Thus her work does not appeal to the themes of culture and pedagogy in this research. Furthermore, like Giddens' duality of structure model, Orlikowski's view of technological structure [technology-in-practice] "*starts with human action and examines how it enacts emergent structures through recurrent interaction with the technology at hand*" [p. 407]. The SCTF2, however, starts with the broader conditions or contexts in which actors are situated, along with the actors' existing cultural, pedagogical and technological structures which inform their individual action. It then examines how culturally-diverse actors enact emergent structures through the processes of conflict and reflexivity as they interact with one another and the VLE. Orlikowski's study describes very well, the Interpretive, Technological and Institutional Conditions as well as the Processual, Technological and Structural Consequences. However, unlike this research, Orlikowski's model does not incorporate or depict how

325

individual actions affect the wider social/cultural context during intercultural interaction. Instead, her model shows other structures enacted in the use of technology [using dotted rectangles]. It can be argued therefore that her technologies-in-Practice model does not provide "*an interpretation of 'structure' as dealing with both conditions and consequences*" [Giddens 1979; p. 49]. Thus it becomes difficult to see – in diagrammatic form – how issues such as conflict and reflexivity arise during interaction, how they shape the wider social contexts, how they are resolved and how they contribute to the development, redevelopment and transformation of structures.

In two separate publications, Walker's [2002] work, which was briefly discussed in *Chapter Three*, employed a structurational approach to Internet training. Both papers focused primarily on the role of the trainer in enacting training. Walker developed a 'technology-training-in-practice' model, which illustrated the recurrent social structure of the practice of training as developed by the agency both of learners and trainers [diagram to be inserted]. In an analogous way to Orlikowski's [2000] view of technology-in-practice, Walker explained that the recurrent training activities – training-in-practice – form a social structure enacted by trainers and learners. Trainers draw on the material and organizational resources, on their own interpretive schemes – both in relation to the organization and delivery of training, and in relation to the subject matter – and on shared norms and values embedded in wider social, cultural and organizational arrangements. Walker further explained that learners likewise contribute to the process of structuration as they draw on available resources such as the technology and on their existing interpretive schemes in relation to both the nature of the training and to their technological frames based on earlier encounters with or knowledge of technologies. Learners also draw on norms shared either with other learners or trainers about the role of training and perhaps technology. Walker applied his 'training-in-practice' model to a project involving the implementation of Internet training programmes in four nationally-based trade unions across Europe. He concluded that "taking a structurational approach has assisted in clarifying some of the factors and relations without implying a straightforwardly deterministic relationship".

Walker's work provided an understanding of the roles of both the trainer and the learner in contributing to the process of structuration using technologies and other resources. His work particularly appeals to this research as it covers both themes of technology and education, and to some extent culture as it looks at technology use across four trade unions in Europe. Similar to this research and Orlikowski's 2000 work, Walker described the overall context and conditions of the four cases: the courses, confederation size and composition, industrial relations environment and both local and national technological environments. His subsequent technology-training-in-practice models – based on Orlikowski's technology-in-practice lens –showed the technical and technological structures which emerged as trainers and learners enacted social structures during recurrent training activities.

While Walker's 'training-in-practice' model provides valuable insight for this research, into how teachers and learners contribute to the process of structuration using technologies, both of his papers focus primarily on the role of the trainer in enacting training and very little on the role of the learner in shaping the learning. Walker argued that his training-in-practice lens was a valuable approach for "*...allowing wider levels of social structure to be analysed both as influences on and outcomes of technology use*" [p. 19]. However, his model does not depict the wider social contexts and structures. Although Orlikowski's [2000] and Walker's [2002] models provide a more dynamic and emergent illustration of the structuration process than Gidden's model of the duality of structure, their frameworks do not accommodate – in diagrammatic form – how other processes and issues shape the wider social contexts and how they contribute to the development, redevelopment and transformation of structures. Also, although their work presents emergent "new structures", those new structures are mainly technologically-related. On the other hand, the work herein presents "new structures" of different kinds: technological, cultural and educational structures Legitimation, Signification and Domination.

7.3 Conflict Leads to New Structures via Reflexivity

In applying the SCT framework during the data analysis, it became evident that conflict was the main mechanism by which lecturers' and students' structural differences were resolved by means of reflexivity. The process of reflexivity in turn

resulted in development of new structures. It was evident that conflicts occurred at the "structural resources" level and played a significant role in the transformation of existing structures and the reproduction of new structures by activating the process of reflexivity. For example, some of the cultural issues and challenges listed by students in the study – see *Table 5.15* – can be seen as conflict of interpretive schemes, facilities and norms. For instance, from the viewpoint of interpretive schemes, the data showed that there were differences in language, grammar and terminology, resulting in conflict such as the misunderstanding of comments, abbreviations and jargons; miscommunication; resentment; and frustration. There were also differences in the assumptions and meanings which academics and students assigned to the VLE, such as the full exploitation of the VLE by some lectures and students, as opposed to the restricted use of the technology merely as a repository by some lecturers and mainly for the downloading of lecture notes by some students. There were also differences in lecturers' and students' assumptions: lecturers assumed that students were equally responsible for their learning and expected them to play an active role in their learning [constructivist approach]. On the other hand, more than 1/3 of the students saw lecturers as "experts" and transmitters of knowledge and instructions, and as such, expected lecturers to provide them with everything they needed to know in lectures [behaviourist approach]. This resulted in conflict whereby lecturers raised concerns about the passivity of students in the classroom and online, while some students raised concerns about the minimal lecture notes they received from lecturers.

Altogether, the data serve as examples of various conflicts or disagreements among staff and students' interpretive schemes. Although conflict of interpretive schemes occurred, this activated the process of reflexivity, resulting in the production and reproduction of new structures of Signification. Knowledgeable actors can reflexively monitor the wider learning environment within which the VLE activities occur. They can monitor their own actions and those of others, and the consequences – both intended and unintended. The ability of knowledgeable participants to be reflexive provides an example of the basis for structural change and transformation through their attempt to solve the differences within the Multicultural E-Learning classroom and virtual environment. For example, it is

seen that the above conflicts laid the foundation for the development of new structures of Signification via reflexivity: new structures were developed for communicating meaning: some lecturers who recognized the language barrier encouraged students to email them if there was a problem/difficulty, and/or set up online forum and invited students to ask questions about assignments [STAFF-INT-5, STAFF-INT-9]. Many students participated in the glossary activity, whereby a new word is added to the glossary surrounding a particular topic, while some foreign students became withdrawn, communicating with lecturers and other students on very little basis or none at all – e.g. Chinese students [*Table 5.3*]. New structures were also developed in the form of blended learning to overcome the issues of pure E-Learning: Lecturers employed a blend of approaches [behaviourist, cognitivist and constructivist], alongside the VLE and other media and technologies to actively engage students in the learning process. Students resorted to a blend of media, tools and technologies, alongside the VLE to actively participate in the learning process and fulfil their E-Learning activities. Thus, whereby disagreements of structural resources resulted in conflicts, by the very same token, conflicts enabled these disagreements to be resolved through the process of reflexivity – leading to new structures. *Table 6.1* in *Chapter Six* provides a summary of the conflicts which arose in the multicultural setting and how they changed original structures.

7.3.1 Relevance to the Literature

The findings are consistent with Giddens' [1984] discussion on conflict and structural contradiction. Giddens [1984] defines conflict as the "*actual struggle between actors or groups*" which may be "*carried on or through whatever sources it may be mobilized*" [p. 198]. Contradiction, according to Giddens, is a structural concept which "*expresses the main 'fault lines' in the structural contradiction of societal systems*" and "*tends to involve divisions of interest between different groupings or categories of people [including classes but not limited to them]*" [1984; p. 198]. Conflict is thus real activity, while contradiction can be thought of as the potential basis for conflict, arising from structural contradictions within and between social groupings [Walsham, 2002; p. 363].

The empirical data on conflict is further supported by Walsham [2002], whose work examined a project on cross-cultural software production and use between a Jamaican team and an Indian team. According to Walsham, contradiction includes "divergent modes of life", which can be taken to include cultural differences. They may result in conflict if the actors feel that the differences affect them negatively, and they are able and motivated to take positive action of some sort. Walsham further draws on Giddens' concepts of human knowledgeability and human beings' ability to reflexively monitor their own actions, that of others and both intended and unintended consequences. He argues that reflexivity provides the basis for social change as well as social stability, in that

> "*if a human being takes action and he or she subsequently views the unintended consequences of this as negative, then it is likely that different action will be taken in similar circumstances in the future, with related changed structure in the mind*" [Walsham, 2002; p. 363].

While the data is supported by Giddens' and Walsham's work, the empirical data also diverge from their work to some extent, in that their work does not look at the combined view of cultural, technological and pedagogical structures of signification, domination and legitimation. Giddens' work makes very little reference to technology, while Walsham's work looks at culture and technology in the broader Information Systems context but not specifically within an E-Learning context which involves pedagogy. Furthermore, Walsham's work does not explicitly view conflict as the main mechanism which instigated reflexivity. On the other hand, this research does.

7.3.2 *Practical Relevance for VLE Design/Implementation/Use*

As illustrated by the data, in multicultural settings, the differences in students and lecturers cultural, technological and pedagogical structures of Signification, Domination and Legitimation gave rise to some conflict. From a practical viewpoint, designers should expect conflict in a multicultural virtual learning environment. Systems can be designed to encourage reflexivity as a way to deal with conflict by installing tools such as "Comment boxes" or "Reflection boxes" so that meetings can be had between conflicting parties. Thus designers should make sure reflexivity is channelled into new structures which can then be merged with

existing structures. Other things are not discussed here in this section but are for future study. Altogether, conflict can be seen as a positive mechanism, which via reflexivity, can lead to New Structures and toward a Multicultural VLE.

If these conflicts are reflected upon and the reflections are acted upon, new structures can emerge or be created that will make the multicultural situation work better. The SCTF2 provides nine different ways – an enormous flexibility – to resolve the issues in how to arrive at a multicultural VLE. However, there might be a tendency to resolve the multicultural problems using only one of the structures – whether through Signification, or by Domination or by Legitimation. For example, a lecturer might try to resolve the conflicts by domination – "do it my way only or else you will lose marks in terms of VLE usage". This may lead to further conflict. There might also be the tendency to resolve conflict by attending to only one of Culture, Technology or Pedagogy. Lecturers therefore should use the 3x3 approach, acting upon a combination of different ways to resolve the issues in the use of VLEs in multicultural settings. Lecturers cannot just deal with Signification, or think the problem is solved with just Domination or just Justification; they have to deal with all three structures.

Given that different users of technology have divergent opinions about a specific technology – interpretive flexibility – this may bring about conflict. Also, the "divergent modes of life" in the classroom among participants from different cultures, may result in conflict if the actors feel that the differences affect them negatively. However, whether there is big or little conflict, by means of reflexivity, conflict serves as the main mechanism by which lecturers' and students' structural differences are resolved. Users should not expect to short-circuit issues such as conflict and reflexivity. They should expect this cycle of existing structures, conflict, reflexivity and new structures that are absorbed into existing ones, particularly as it concerns the use of VLEs in multicultural settings. Users should not allow conflict to fester, but to ensure that it converts into new structures, which are then incorporated into the existing ones.

7.4 Reflexivity is Important to the Production, Reproduction and Transformation of Structures and for Understanding How and Why they are produced

The data showed that the reflexivity of staff and student interviewees played a crucial part in understanding how and why new structures were produced in this empirical study. Reflexivity is integral to the production, reproduction and transformation of structures. Both staff and students were asked interview questions which enabled them to reflect on various circumstances within the multicultural E-Learning environment, to explain what they did in the environment and to provide reasons for their actions accordingly. It was seen from the data that academic staff and students reflected upon intended and unintended consequences, and acted, reacted and interacted in new ways. For instance, questions asked of students, such as their countries of origin, language, race and ethnicity and religious faith, enabled them to reflect on their respective cultural backgrounds [see APPENDIX D]. The questions further enabled students to reflect on, describe and explain how the various cultural assumptions they held, influenced their individual actions at Salford – a different cultural and educational setting. Also, questions asked of students as to how they overcame certain cultural barriers, enabled them to reflect on how their cultural structures had changed. Likewise, questions were asked of academics about their perceptions of the students they taught [*Table 5.6*]. Academics also reflected on some of the cultural issues that arose in the learning environment [*Table 5.3*]. The process of reflexivity helped to change the structures of their minds and brought about new structures in the wider environment. Academic staff and students monitored their teaching and learning activities, reflected on the contradictions in the multicultural E-Learning environment, resolved conflicts and produced new structures to create a better environment for themselves and others. The data showed the importance of reflexivity in understanding "*how*" new structures are reproduced and transformed. The data also showed the importance of reflexivity for understanding "*why*" structures were constituted, reconstituted and transformed: for example, [1]. lecturers wanting to accommodate the cultural differences of students; [2] lecturers wanting their students to play an active role in their learning, and to engage with the VLE technology; [3] Out of fear – some students' not wanting to offend others; [4] Some students' not wanting to be excluded from the rest of the class; [5] Students'

not wanting to fail a particular module; [5] Some students just want to "get by" or get things done, among other reasons.

It was mentioned earlier that conflict of staff and students' interpretive scheme, facilities and norms, instigated this process of reflexivity. *Table 6.1* in *Section 2.8* provides useful examples from the research of how and why structures were produced, reproduced and transformed through reflexivity, following various conflicts.

7.4.1 *Relevance to the Literature*.

The notion of reflexivity is important for understanding how social actors make their actions and their social world meaningful to themselves and others [Blaikie, 2010; p. 52]. Giddens' Structuration theory incorporated this idea as the 'reflexive monitoring of action' which was briefly mentioned in *Chapter Three*. The reflexive monitoring of actions concerns agents' inherent knowledge of what they do and the capacity to understand what they do, while they do it. They routinely observe and monitor the flow of their activities and expect others to do the same for their own. They routinely monitor social and physical aspects of the contexts in which they move. Agents also reflect on the planned and unplanned effects of their intentional actions and on changes in their environment. This reflexive monitoring of actions and their consequences form the basis for the agents' subsequent actions, which are not necessarily repetitions of what they have done before [Walsham, 2002].

The findings in this research are confirmed by Fay and Larson's [2016] work. The researchers drew on key aspects of Structuration Theory in their case study which examined student sense-making efforts based on an International Service Learning [ISL] program. The ISL program was conducted annually over a period of three years, wherein four teams of faculty-led student researchers from the United States [US] worked in a remote village in Moldova, teaching local students and community representatives to operate an online news outlet and interviewing young adults and professionals. Team members interviewed Moldovan citizens, journalists, and politicians as part of a media research project. The US teams consisted of a faculty adviser and three to four communication and journalism

students. Moldova, a former Soviet Republic, is a young democracy whose political independence was realized in 1991 with the fall of the Soviet Union. The US students lived with village families in modest housing. The Moldovan students ranged in age from ten to seventeen. All spoke English and wished to learn journalism skills to provide news to their community.

After the final trip, faculty members developed questions related to students' experience, asking them to reflect and respond in writing. The questions were geared toward understanding the processes through which US students made sense of their everyday experiences, and the ways in which they both shaped and were shaped by them. Faculty researchers adopted Giddens' [1984] structuration theory to organize student reflections and shed light on how students processed cultural experiences and made sense of differences and seeming contradictions. They examined the processes through which US students worked to understand cultural differences in a situation characterized by low community capabilities to either problem solve or to be self-sustaining, which further challenged their pre-existing assumptions.

One of the major findings of their study, consistent with the empirical data in this research, is that "students most often focused on making sense of routine activities, and, in later reflections, they worked to understand how these routine behaviours fit with, and contributed to, the larger society. At the same time, they considered both their role in the project and how their behaviours and interactions were impacted by other people and events, demonstrating multiple levels of learning". Fay and Larson used one of the US student's reflection of the project to support this finding:

> "*Though I felt a swelling pride in our work as we prepared in the months leading up to it, when I returned back home, I felt smaller…(sic) My sense of responsibility grew exponentially as I internalized the interconnectedness of our world: that the actions of one person on this continent affect those on another*" [US Student; p. 42].

Altogether, the results showed how, through guided reflection, faculty can encourage students to engage in retrospective sense-making, providing educators with a lens into the processes through which people understand the relationship

between agents and social structures in different contexts [Fay and Larson, 2016; Weick, 1979].

As a departure from the findings in this empirical data, however, Fay and Larson did not discuss conflict as a process for instigating reflexivity and change in their findings. The concept of conflict was briefly mentioned during their analysis. According to the authors,

> "*students experiencing cultures different than their own are confronted with disruptions in their own routines and with routines that are different and sometimes seem contradictory. Changing one's knowledgeability on all these levels represents a dynamic example of Giddens' "double hermeneutic," or the dialectical relationship between knowledge and practice; this facet of structuration makes it especially useful for understanding change*" [p. 40].

The issue of conflict in relation to reflexivity and change would have been relevant to Fay and Larson's [2016] research. However, they did not explicitly discuss or provide in-depth examples of why and how students' conflicting routines, upon reflection, brought about changes or transformations to the wider environment. One of the main drawbacks in their research was that it did not include the reflections of all the other participants in the research project – the Moldovan students, community representatives citizens, journalists, and politicians – besides those of the US students. In order to understand how conflict can lead to change, it is important to recognize the cultural differences from all sides, based on actors' reflection of the situation. The empirical data in this research drew on the reflections of both students and staff who used the VLE in a multicultural context. This provided a clear picture of student-staff, student-student and staff-staff conflicts which instigated the process of reflexivity and change.

Walsham's [2002] study on cross-cultural software production and use, which involved a Jamaica-India software development project, also supports the empirical evidence in this study. Under the theme of Reflexivity and Change, Walsham argued that human beings reflexively monitor actions and their consequences, creating a basis for social change. Walsham noted that there was an increasing recognition on all sides that the cross-cultural issues which arose during the software development project were important and needed to be managed effectively. This resulted, in the later years of the project, in various actions being

taken to mitigate the problems which had occurred. This empirical study extends Giddens' [1984] and Walsham [2002] and Fay and Larson's [2016] work by discussing and providing explicit examples of how and why new structures are developed and transformed.

7.4.2 *Practical Relevance for VLE Design/Implementation/Use*.

From the study, it was unearthed that certain factors caused staff and students to take new actions [develop new structures] following their reflections of circumstances in the multicultural E-Learning setting. From the students' viewpoint, the compulsory usage of the VLE and the assessment of VLE activities are two of these factors that caused students to develop new structures. From the staff viewpoint, lecturers' desire and commitment to effective teaching led to the development of new structures. The few cases of structures brought out in the study suggest that the higher common value to both lecturers and students is that 'it had to be done'. Lecturers had to get students to use the VLE and as such mandated students to use the technology through compulsory and/or assessed activities. Students, not wanting to lose marks for their module had to engage with the VLE as directed. This translated reflexivity into new structures. Since practitioners can never design VLE systems that are infinitely malleable, students of different cultural background will successfully navigate the technology in very critical situations, despite its inflexible, hierarchical design, and despite unfavourable online experience and learning outcomes. This is because they are reflexive and are able to monitor the situation, act, react and interact in new ways a means of "survival" or to thrive. This survival mechanism is interlinked to the original, socio-historical conceptions of culture – soil-tilling. Thus the E-Learning structures – and the wider cultural structures – of staff and students were changed in light of the higher, common value and commitment. Designers, students and academics would need to make sure that reflexivity is channelled into new structures which can then be merged with existing structures.

7.5 Structures of Signification, Domination and Legitimation All Overlap/Intersect and Incorporate the Phenomena of Culture, Technology and Pedagogy

The empirical data showed that there was a constant overlap between the Structural Rules of Signification, Domination and Legitimation, in that most of the data used as examples in one structural arena could also be used in another. For example, academic staff used the VLE as a source of power to get students to engage with the technology. In this sense they "saw" the VLE as a way to get students to accomplish E-Learning tasks. The meanings and assumptions which academics applied to the VLE are represented by the structural rule of Signification. The fact that academic staff applied these meanings and assumptions also intersected with how they used the VLE as a source of power to get students to engage with the technology. As such they made activities compulsory; they uploaded lecture notes and extra materials; and they made important announcements to "compel" students to engage with the VLE in one form or another. This example fell within the broad structural rule of Domination. Further, some lecturers [e.g. STAFF-INT-1 and STAFF-INT-4] assessed VLE activities and/or made them compulsory, by grading the online activities as part of students' coursework grades. The fact that students' participation or non-participation in these VLE activities carried "sanctions", this also intersected with the broad structural rule of Legitimation. Altogether, the same set of empirical data can fit under all three structures.

Another important finding is that the SCTF model showed that the structural rules of Signification, Domination and Legitimation all incorporate the phenomena of culture, technology and pedagogy. The first column in *Table 6.1*, *Chapter Six* provides evidence of how structures of Signification, Domination and Legitimation all intersect in many ways and how they all accommodate cultural, technological and pedagogical empirical data. The data showed that it is important to capture students' socio-cultural life – including their structures and assumptions – as this informed their individual actions. Understanding the socio-cultural life of students is important as it helps us to understand how and why they did things differently from others in multicultural settings. Students were able to deploy the rules of behaviour which influenced – enabled and constrained their actions. Students' and

lecturers' individual structures and assumptions collectively constitute the overall existing structure within a particular setting. Together, their structures and assumptions help to reinforce the existing structure and at the same time, their assumptions.

7.5.1 Relevance to the Literature

Giddens [1984] argued that Signification, Domination and Legitimation are only separable analytically. According to Giddens, the mutual constitution and reconstitution of structural properties across time and space – structuration – always involves: the communication of meaning, the exercise of power and the sanctioning of action. These elements of agency are linked to the elements of structure via structural resources or modalities. Thus the interactional element of *communication* is linked to structures of *signification* through the modality of *interpretive scheme*; *power* is linked to structures of *domination* via *facility*; and sanction is linked to structures of *legitimation* through *norms*. Human action and structure in the minds are composed of elements of each of these dimensions. The dimensions are inextricably interlinked and work hand-in-hand in the process of Structuration.

My work expands on Giddens' [1984] work by providing practical examples of how participants' cultural, technological and pedagogical Structures of Signification, Domination and Legitimation are "inextricably interlinked".

7.5.2 Practical Relevance for VLE Design/Implementation/Use

The fact that structures of Signification, Domination and Legitimation are tightly interlinked sometimes can be detrimental to students. For example, some students get stressed when VLE activities are graded and when they are compelled to use the VLE. In order to overcome this, it means that all three structures will have to be dealt with simultaneously, when addressing problems concerning VLE usage. That is, the problem will not be solved merely by addressing signification in isolation of the other structures, or just domination, or only legitimation. Lecturers in particular, will have to deal with all three structures simultaneously. For example, from a signification viewpoint, lecturers could encourage students to "buy-in" to their view of VLEs as being tools of empowerment for accomplishing

learning tasks. From the viewpoint of domination, lecturers could allow students to exercise autonomy in how they use the VLE, and thus encourage VLE usage as a source of empowerment rather than using it as a source of power. Also, from a legitimation viewpoint, lecturers could lessen the penalty for assessed VLE assignments – instead of VLE assignments accounting for 20% of overall module grades, they could account only for 5%.

7.6 Cultural, Technological and Pedagogical Structures Mutually Emerge within a Relatively Short Time Scale

The structuration process of culture in this research evolves on a different time scale to that of Giddens' theory. As opposed to Giddens' work on structuration which occur over thousands of years, the data in this study show that cultural, technological and pedagogical structures all developed, redeveloped and transformed within a timescale of less than one academic year. For example, lecturers and students were interviewed during the 2005/2006 academic year. They provided background information of what their initial assumptions and perceptions at the start of course/programme were. They talked about the various issues and conflicts which arose, and about how they went about resolving the various conflicts. The resolutions of conflict here, reflected the new structures that were developed to communicate, exercise power and apply sanctions. Such resolutions took place within less than an academic year, especially from the viewpoints of students. *Table 6.1* in *Chapter Six* provides evidence of the empirical finding.

7.6.1 Relevance to the Literature

Giddens' theory looks at the structuration of cultures over thousands of years – from prehistoric times to the modern era. For example, Giddens proposed a threefold classification of types of society: [1] Tribal Society [oral cultures], which is characterized by tradition, kinship and group sanctions. The dominant organization and locale, which provide the settings for interaction situations of co-presence is band groups or villages. [2] Class-divided society which is includes tradition and kinship, but evolves into the state, characterized by politics [military power] and economic interdependence [low lateral and vertical integration]. The dominant locale organization is the symbiosis of city and countryside. [3] Class

society [capitalism], which is characterized by routinization kinship [family], surveillance, politics [military power], economic interdependence [high lateral and vertical integration]. This society is run mainly by the state and the dominant locale organization is the 'created environment'. Altogether, these show the transformation of society over wide time span. Giddens' argues that there are long-term divergencies in the formation of the West, as compared with that of the other major 'civilizations', over a period of some two millennia [p. 183].

SOCIETIES	EVOLUTION
Tribal Societies	'Pre-historical' and fragmentary systems
Class-divided Societies Tribal Societies	Imperial world systems
Capitalist Societies Class-divided Societies Tribal Societies	Early capitalist world economy
Capitalist Societies ⎤ 'Super-power State Socialist Societies ⎦ blocs' 'Developing Countries' Class-divided Societies Tribal Societies	Contemporary capitalist world Economy [world nation-state system]

This thesis, however, has shown that structuration of culture took place within a relatively short time – less than one academic year. This is a contribution to Giddens' theory, particularly from the viewpoint of culture and shows the role of conflicts and contradiction in speeding up the evolution and structuration process. Orlikowski's [2000] "Technologies-in-Practice" model, Walsham's [2002] cross-cultural software development and Walker's [2002] Technology-Training-in-Practice [2002] work also reflect the process of structuration occurring within a relatively short time within the respective organizations they examined.

In terms of the empirical findings relating to the mutual evolution of culture, technology [Learning Technology] and pedagogy, these findings corroborate with the socio-historical reflections of the three phenomena in *Section 3.2.4*, *Chapter Three*. It was demonstrated in that chapter how the routine survival activities of the ancients gave rise to the phenomena of technology, culture and education.

Tool-making encouraged the development of words or symbols and associated meanings [Technology]. Soil-tilling involved cultivating the soil and shaping nature to address dilemmas face by respective societies [Culture]. Enculturation involved both learning how to make and use tools to cultivate/shape nature in order to solve problems within a given culture [Education/Pedagogy].

Tool-making and tool-usage involved knowledge and understanding of the world and of the society's value systems, so as to support those value systems. Education, then, was implicated in the reflexive relations between technology and culture. Technologies were fashioned and used based on the knowledge the ancients gained about their societies' cultural needs and dilemmas. Education in its original and socio-historical sense involved not merely the giving of instructions and the receiving of knowledge, but also the development and the "leading out" of learners' potentials through enactment, such as tool-making. Learning by tool-making, in principle, gave birth to the phenomenon of learning technologies, since the very tools that tool-users were learning to make also facilitated the learning process. It was demonstrated in *Chapter Two* that Culture, Technology and Pedagogy along with educational technology mutually evolved from generation to generation.

7.6.2 *Practical Relevance for VLE Design/Implementation/Use*

Practically, things can be done immediately, or within weeks or within a year. Do not wait 10 years to resolve conflict, or to make certain adjustments or to implement certain changes. Students and lecturers adjusted quickly to their environment, while using the VLE in multicultural settings. As such, lecturers and students can expect new structures to emerge each academic year, as they use the VLE technology, as structures are not set in stone. Since it was earlier said, based on the empirical data, that we can expect conflict in multicultural settings, then we can also expect new structures to resolve such conflict, via reflexivity, to emerge. Lecturers and students can learn from the new, emerging structures within the wider social context and incorporate them into the existing conditions and structures.

7.7 SCTF2 can Help us Understand How New Cultural Structures can be Produced through VLE Interaction

The empirical study showed that the SCTF2 is useful for understanding the use of VLEs in multicultural contexts. The data showed that students came from various parts of the world and thus had varying cultural assumptions and experiences about technology and pedagogy. It also showed that although all nine of the lecturing staff members were British, they too had their own technological and pedagogical assumptions, as well as their own perceptions about the students they taught. The integration and interaction of culturally-diverse actors, surrounding the use of the VLE technology for pedagogical activities, produced a multicultural E-learning setting. Through the SCTF2 lens, the data demonstrated the role of cultural structures as both an enabler of, and a constraint on, students' and staff actions concerning the VLE. On the one hand, cultural structures allowed students, in particular, to "carry on" initially in a new cultural environment. At the same time, they also presented limitations. These constraints gave rise to conflicts. However, the data showed that conflict is not a bad thing as it helped students and staff alike to reflect upon, and renegotiate their practices, producing new cultural behaviour and structures surrounding VLE use.

For example, as it relates to cultural structure of domination and related facilities, many students came from cultural backgrounds where it was assumed that teachers and lecturers provided them with "*everything they needed to know*". The case results suggested that these students' cultural structures of domination were that teachers and lecturers were solely responsible for "transmitting knowledge" to them through lectures, notes/materials, instructions and assignments. The students did not see themselves as active contributors to their own learning. Students therefore mobilized the facility in relation to their cultural structure of domination, that there is unequal distribution of power between lecturers and themselves. Thus students' cultural structure of domination and its associated facility enabled them to attend lectures and receive lecture notes and instructions. At the same time, such rules and resources constrained their actions in terms of their not wanting to go beyond the VLE repository for additional information. Students' cultural

assumptions as well as their "passivity" constrained their ability to exercise power online and to contribute actively to VLE discussion boards.

Conflict of cultural domination were evident in students and lecturers' expected power relations. Some students came to the classroom expecting to be "spoon-fed" by lecturers. On the other hand, all lecturers, regardless of their VLE and technological assumptions, expected their students to play an active and consensual role in their learning [STAFF-INT-1 to STAFF-INT-9]. The data, however, further showed that notwithstanding the conflicts, the ability of students and lecturers to be reflexive and to "act" enabled them to overcome the power-distance relations. For example, lecturers encouraged students to communicate with them using the VLE and tools such as emails. In this sense lecturers empowered students not only to maintain the lines of communication, but also to promote a more consensual or mutual relationship, thereby lessening the teacher-student power imbalance. According to STAFF-INT-5: *"I use email a lot and do encourage students to email me if there is a problem or difficulty"* [STAFF-INT-5]. STAFF-INT-9 also divulged: *"I have an online forum to invite students to ask questions about the assignment…"* [STAFF-INT-9]. The fact that students participated in these "question-and-answer" forums meant that they too, were helping to reduce the power-distance relations. In summary, the SCTF2 can help us understand how conflict, via the process of reflexivity, can result in the production of new cultural structures surrounding the use of VLEs.

Generally speaking, the differences in participants' enacted interpretive schemes, facilities and norms, as well as the differences in their enacted technological and pedagogical/E-Learning structures, resulted in conflict, as students and lecturers interacted in the multicultural classroom/VLE settings. However, these conflicts provided a basis for change to take place, on the grounds knowledgeable students and lecturers' ability to monitor their own actions and those of others, and to reflect on the intended and unintended consequences of their actions. Upon integrating and interacting with lecturers and other students, most students discovered that their own cultural rules and norms did not match those of their new environment. As such they have had to ***reflect*** upon the new situation and ***change*** their actions accordingly. In monitoring their actions, students and staff reflected upon the new situation that they encountered and took alternative ***actions*** accordingly. For

example, all lecturers recognized that there were several international students in the class and thus made preparation to include their needs in some way. These instances provide examples of participants' ability to monitor their flow of activities, the activities of other participants, and the physical and virtual aspects of the learning environments within which they operated. These instances also provide an example of the basis for the reproduction and transformation of new cultural structures during collaborative VLE activities, which also influenced students' technological and pedagogical structures.

7.7.1 Practical Relevance for VLE Design/Implementation/Use

Students have their own technological and pedagogical assumptions, which are associated with their respective societies. These form part of the structures which constrain, but simultaneously enable their actions. The SCTF2 provides insight into how students' actions and interactions in new cultural environments produce new norms and new ways of behaving, thus reshaping prior technological, pedagogical and cultural assumptions. SCTF2 facilitates rich understanding of how students, as they interact with the VLE technology and other participants during their learning activities, enact certain cultural structures which shape the emergent and situated use of the technology, thus redesigning the VLE. The framework served as a valuable conceptual tool for understanding this process of transformation, by the reformulation of the limited, deterministic conceptions of culture, technology and pedagogy. For example, with respect to cultural structure, it was seen how students and staff members drew upon their own cultural structures as well as those in the wider multicultural classroom/VLE settings to create and recreate new structures for: communicating meaning, overcoming the power-imbalance and enforcing sanctions. As it pertained to technological and pedagogical agency, it was seen how participants drew upon their own pedagogical/technological [E-Learning] structures as well as the "physical" VLE technology to accomplish pedagogical tasks. In so doing, students not only learnt something new in relation to their discipline or the subject matter, but also learnt how to negotiate the VLE technology in multicultural settings to effect learning.

The SCTF2 model can enable researchers, academicians and practitioners to conceptualize users as "designers", and to become more aware of users as contributing to the design process of learning technologies in institutions of higher learning. Such awareness should influence academics, in particular, to empower students to exercise agency and autonomy in going beyond the technological resources that they provide for their students. If students cultural, technological and pedagogical structures of signification, domination and legitimation are taken into consideration, they would be encouraged or motivated to interact with the technology routinely in their learning activities and thus contribute to the redesign of the VLE.

In addition, students' report on their best and worst VLE experience as well as aspects of the VLE they wished to keep and those they wished to change provide rich clues to designers, learning technologists and educators of some of the things that students would like to see incorporated in the technology development process and in the online setting. Bearing these clues in mind, practitioners and academicians can produce learning technologies that provide users with sufficient autonomy, and thus help to accommodate the needs of all students. However, given that developers can never design VLE systems that are infinitely malleable, and since academics have to exercise control in getting students to use the VLE [e.g. assessing activities], students of different cultural backgrounds will successfully navigate the technology in very critical situations, despite technological constraints, and unfavourable online experience. This is because students are reflexive and are able to monitor, reflect upon and change the situation after experiencing a few conflicts in the online environment.

7.8   Chapter Summary and Conclusions

This chapter has discussed the findings in relation to the literature, as well as their practical relevance for VLE design, implementation and use. It has shown how the findings address the problems and issues that the literature has thrown up. The main findings discussed include:

- **The sequential difference between Giddens' Duality of Structure Diagram and the SCTF2 Diagram**
- **Conflict Leads to New Structures via Reflexivity**
- **Reflexivity is Important to the Production, Reproduction and Transformation of Structures and for Understanding How and Why Structures are produced**
- **Structures of Signification, Domination and Legitimation Overlap and They all Incorporate Culture, Technology and Pedagogy**
- **Cultural, Technological and Pedagogical Structures Mutually Emerge within a Relatively Short Time Scale**
- **SCTF2 can Help us Understand How New Cultural Structures can be Produced through VLE Interaction**

These findings serve as a platform on which to discuss the contribution to knowledge made.

Chapter Eight will recapitulate all the research activities that have been covered in the thesis of this research. It will discuss how the main findings of the empirical study presented, in this chapter, contribute to the body of knowledge in the fields of Information Systems and Educational Technology.

CHAPTER EIGHT

Reflections and Conclusions

*"…I hope that we can use IT to support a world of
'difference', where diversity is respected"*
[Walsham, 2001; p. xiv]

8.1 Introduction

It was discussed in *Chapter One* that attempts to realize research into the design of learning technologies that are conducive to user modification and that support a global set of learners, is still fraught with numerous problems directly relating to the underlying limited, deterministic concepts of "culture", "technology" and "education" in the E-learning literature. It was on these assumptions that the current study aimed to explore how a Structuration Conceptual and Theoretical Framework [SCTF] can help to understand the use of VLE technologies in multicultural settings. Such exploration was done with a view to address the shortcomings in the literature and improve practice.

This chapter recapitulates the research activities that have been covered in the thesis and reflects upon the overall research process with a view to assessing the research achievements. It discusses how the main findings of the empirical study contribute to the body of knowledge in the fields of Information Systems and ICT in Education, and provides recommendations for future study.

8.2 Recapitulation of the Research Findings

This research has explored the value of employing the Structuration Conceptual and Theoretical [SCT] framework to aid our understanding of the use of VLEs in multicultural contexts. It is important to reiterate here that structures are the inherent procedural rules and resources for action, while agency is the ability of human agents to shape, reshape and transform existing social structures. The idea of structure in the context of this research, is not a physical, external entity. Rather

it exists in the human mind and has a "virtual" existence in the practices that it organizes [Scott, 1995].

8.2.1 The sequential difference between Giddens' Duality of Structure Diagram and the SCTF2 Diagram

One of the most significant findings in this research is the difference in chronological sequence between Giddens' [1984] "Dimensions of the Duality of Structure" model and the SCTF2 diagram. The sequential difference between the two diagrams uncovered three main areas relating mainly to the static nature of Giddens' model. Firstly, Giddens' Duality of Structure model does not provide an account of the conditions/contexts and does not reflect the concepts of "Existing Structures" and "New Structures". On the other hand, the SCTF2 includes an account of the contexts and the concepts of "Existing Structures" and "New Structures". Secondly, Giddens' structuration model uses double-headed arrows to show a seemingly straightforward account of how structures are produced and reproduced overtime. However, the SCTF2 model uses a cycle of arrows to provide a clearer picture of other issues, such as conflicts, which may arise when structures are constituted and reconstituted overtime. Thirdly, Giddens' overall model appears to be static and does not reflect the emergent nature of the structuration process. On the other hand, the SCTF2 model is more comprehensive and dynamic, reflecting the emergent nature of structuration.

Although these findings are generally compatible with other studies which have made attempts to adjust Giddens' [1984] model to depict the emergent nature of the duality of social structure [e.g. Orlikowski and Robey, 1991; Orlikowski, 1992]; Orlikowski, 2000; Walker, 2002; Thompson, 2012], there are several areas in which they differ from those studies [as discussed in *Chapter Seven*]. Orlikowski's [2000] and Walker's [2002] models provide a more dynamic and emergent illustration of the structuration process than Gidden's model of the duality of structure. However, their frameworks do not accommodate – in diagrammatic form – how other processes, such as conflict and reflexivity, shape the wider social contexts and how they contribute to the development, redevelopment and transformation of structures. Also, although their work presents emergent "new

structures", those new structures are mainly technologically-related. On the other hand, the work herein presents "new structures" of different kinds: technological, cultural and educational structures Legitimation, Signification and Domination.

The depiction of "Existing Structures" is important as they represent current structures – cultural, pedagogical and technological assumptions – within which the agency of teachers and students took place. "Existing Structures" also reflect a contrast with the concept of "New Structures", which were later produced and reproduced in the Multicultural classroom. Also, capturing the development of "New Structures" is important for illustrating how they became part of the existing structures and serves as part of the structural contexts and conditions within which agency continues. Other researchers' model do not explicitly capture "Existing Structure".

8.2.2 Conflict Leads to New Structures via Reflexivity

The SCFT2 has shown that conflict was the main mechanism by which lecturers' and students' structural differences were resolved through the process of reflexivity. Conflicts occurred at the "structural resources" level [Walsham, 2001]. It was evident that there were various differences among staff and students' interpretive schemes, facilities and norms, resulting in conflicts. However, it was also evident that these conflicts played a significant role in the transformation of existing structures and the production and reproduction of new structures by activating the process of reflexivity. The ability of knowledgeable participants to be reflexive provides an example of the basis for structural change and transformation through their attempt to solve the differences within the Multicultural E-Learning classroom and virtual environment. This is because knowledgeable actors can reflexively monitor the wider learning environment within which the VLE activities occur. They can monitor their own actions and those of others, and the consequences – both intended and unintended. The process of reflexivity in turn resulted in the development of new structures. Thus, while disagreements of structural resources resulted in conflicts, it is by this very token

that in an attempt to resolve issues, these conflicts activated the process of reflexivity, resulting in the production and reproduction of new structures. *Table 6.1* in *Chapter Six* provides a summary of the conflicts which arose in the multicultural setting and how they changed original structures.

8.2.3 Reflexivity is Important to the Production, Reproduction and Transformation of Structures and for Understanding How and Why Structures are produced

The SCTF2 model has shown that reflexivity is integral to the production, reproduction and transformation of structures, and it plays a crucial part in understanding how and why new structures are produced. Academic staff and students reflected upon intended and unintended consequences, and acted, reacted and interacted in new ways. The process of reflexivity helped to change the structures of their minds and brought about new structures in the wider environment. Academic staff and students monitored their teaching and learning activities, reflected on the contradictions in the multicultural E-Learning environment, resolved conflicts and produced new structures to create a better environment for themselves and others. It was mentioned earlier that conflict instigated this process of reflexivity. *Table 6.1* in *Section 2.8* provides useful examples from the research of how and why structures were produced, reproduced and transformed, following various conflicts, which in turn instigated the process of reflexivity.

8.2.4 Structures of Signification, Domination and Legitimation Overlap and They all Incorporate Culture, Technology and Pedagogy.

The SCTF2 model has shown that the structural rules of Signification, Domination and Legitimation all incorporate the social phenomena of culture, technology and pedagogy. The model has shown that it is important to capture the agents' socio-cultural life – including the agents' structures or assumptions – as these inform their individual action. Understanding the socio-cultural life of agents helps us to understand how and why they do things differently from other agents in multicultural settings. Agents are able to deploy the rules of behaviour which influence – enable and constrain their actions.

The SCTF2 has also shown that there was a constant overlap between the Structural Rules of Signification, Domination and Legitimation, in that most of the data used as examples in one structural arena could also be used in another. That is, the same set of empirical data can fit under all three structures.

8.2.5 Cultural, Technological and Pedagogical Structures Mutually Emerge within a Relatively Short Time Scale

The structuration process of culture in this research evolved on a different time scale to that of Giddens' theory. As opposed to Giddens' work on structuration, which occurred over thousands of years, this study showed that cultural, technological and pedagogical structures were all developed, redeveloped and transformed within a timescale of less than one academic year. For example, lecturers and students were interviewed during the 2005/2006 academic year. They provided background information of what their initial assumptions and perceptions at the start of course/programme were. They then talked about the various issues and conflicts which arose, and about how they went about resolving the various conflicts. The resolution of conflicts represents the new structures that were developed to communicate, exercise power and apply sanctions. Such resolutions took place within less than an academic year, especially from the viewpoints of students. *Table 6.1* in *Chapter Six* provides evidence of the empirical finding.

8.2.6 SCTF2 can Help us Understand How New Cultural Structures can be Produced through VLE Interaction

Structures form part of a person's assumptions, and these assumptions are seen in the actions and practices of individuals and groups. The study has shown that the SCTF2 is useful for understanding how new cultural structures are produced through VLE interaction. In this study, students came from various parts of the world and thus had varying cultural structures and experiences relating to technology and pedagogy. Although all nine of the lecturing staff members were British, they too had their own cultural, technological and pedagogical assumptions, as well as their own perceptions about the students they taught. Altogether, agents' structures continue to influence their individual actions in new cultural settings. When students and staff integrate within the classroom or virtual

setting, they draw on these structures or rules of behaviour to interact with one another. However, because the rules governing these interactions vary widely among students and staff, they result in conflict. For example, some international students used the grammar and composition of their own language to speak the English language. This resulted in a language barrier, giving rise to conflict. There were misunderstandings - some lecturers and local students found it difficult to understand the comments posted to online forums by some foreign students. There was also miscommunication among lecturers and fellow students; resentment and frustration on the part of some local students; and withdrawal from the VLE, as some students whose first language was not English refrained from participating in online activities. However, as students and staff reflected on the situation and on the VLE-supported pedagogical activities that must be done, this enabled them to think and act in new ways. This in turn give rise to "New Structures" and thus new ways for Communicating:

- One Arabic student whose English was poor sought support from a translating tool to understand and participate in online activities [although the tool overall was not very helpful].

- Some lecturers who recognized the language barrier encouraged students to email them if there was a problem/difficulty, and set up online forum and invited students to ask questions about assignments

- Some foreign students became withdrawn, communicating with lecturers and other students on very little basis or none at all.

- Some British students used emoticons during online discussions for the sake of foreign students to prevent misunderstanding.

- Having dealt with foreign students on a regular basis, some lecturers relied on experience to understand foreign students and looked past the language barrier;

- Many students participated in the glossary activity on CABWEB VLE and Blackboard, whereby a new word is added to the glossary surrounding a particular topic.

Altogether, lecturers encouraged students to maintain the lines of communication, and everyone made an effort to reduce the language barrier. The SCTF2 lens has demonstrated the role of cultural, technological and pedagogical structures as both an enabler of, and a constraint on, students' and staff actions concerning the VLE. The differences in structural rules among actors help to shape the multicultural classroom and virtual settings, but simultaneously led to conflict. These conflicts nonetheless were beneficial as they helped students and staff to reflect upon their assumptions and renegotiate their practices, producing new cultural structures surrounding VLE use.

8.3 Recapitulation of the Research Objectives and Achievements

This section reflects on the general research activities covered in each chapter, and provides evidence of how the research objectives were addressed and met. The findings in *Chapters Six* and *Seven* are evaluated against the objectives presented in *Chapter One*. The aim of this research was to explore how a Structurational framework can help to understand the use of Virtual Learning Environments [VLEs] in multicultural settings. Such exploration was done with a view to address the shortcomings in the literature and improve practice. The study addressed the following objectives:

Objective One was to investigate the main limitations of current pedagogical, E-learning and cultural theories, and how these limitations impact on E-Learning practice and multicultural settings. *Chapter Two* provided a comprehensive review of the key theories of Culture, Pedagogy and E-learning, and discussed their shortcomings with respect to the IS/Learning Technology literature. It was seen that the limitations largely related to the dichotomy or dualism with which each theory is accorded. Each theory had an objective, deterministic stance in opposition with a subjective, anti-deterministic stance. Implications of the limited concepts of culture, technology and pedagogy for practice were discussed, using the design flaws of current VLE systems, in particular, as illustrations. A summary of the limitations of all three theories were presented at the end of the chapter, and it was concluded that such limitations related to a lack of understanding of Structuration.

The chapter concluded that a theoretical framework was needed to overcome the dichotomies.

Objective Two was to select an appropriate theoretical framework to address the conceptual gaps in the literature. In order to understand the concepts of structure and agency, *Chapter Three* initially reflected on the mutually emergent phenomena of technology, culture and education within a socio-historical context. It discussed a few socio-technical perspectives, which combine both the technical and the social, the objective and the subjective, context/structure and action/agency, in an attempt to overcome dichotomies. Anthony Giddens' Theory of Structuration was then highlighted as a suitable theoretical framework for overcoming dichotomies and dualisms for this research. Its key elements – the duality of structure – were discussed and its practical relevance for this research was explored. The analysis and conclusions drawn from the socio-historical reflections were also discussed in relation to the Structuration Theory. The literature analysis of *Chapters Two* and *Three* together, provided a theoretical basis for exploring an alternative theoretical framework for this study.

Objective Three was to formulate a Structuration Conceptual and Theoretical Framework [SCTF] using core concepts, such as structure and agency, to re-conceptualize technology, culture and pedagogy. This was also done in *Chapter Three*, which concluded with the establishment of a Structuration Conceptual and Theoretical Framework [SCTF]. The potential value of the SCTF was explored, by presenting a table of all the theoretical limitations of culture, technology and pedagogy and discussing how the SCTF could address them. It was concluded that while the SCT framework may not be able to overcome all the theoretical limitations, it could help us to make sense of them. It was therefore used to guide an empirical exploration into the understanding of the use of VLEs in multicultural settings.

Objective Four was to apply the SCT framework to empirical situations involving VLEs used by people of diverse cultures, so that we can understand more deeply the use of VLEs in multicultural contexts. As discussed in *Chapter Four*, the case study methodology was selected as the most appropriate approach to the research

problem because of its focus on context and depth; natural, real-life settings; holistic investigation; and multiple sources and methods. By virtue of purposeful sampling, the Information Systems Institute [ISI] at the University of Salford, located in northwest England, was selected as the site for the study, because the university employed the VLE technology for some of its academic programmes and it recruited international students to its campus programmes. An interpretive qualitative case study was conducted, involving thirty-two semi-structured interviews with 23 students and nine lecturers who used Blackboard and CABWEB VLEs for assessed and non-assessed activities. Two sets of Interview Pro forma – one for students and one for academic staff – were developed and employed during interviews. The results were then presented in *Chapter Five*. For academics, the interviews drew out results relating to their VLE expectations and usage; their perceptions about their culturally-diverse student cohort; issues arising in the multicultural E-Learning setting; the ways in which they accommodated diversity; their viewpoint on possible solutions for enriching the multicultural E-Learning environment; and critical issues that they felt needed to be addressed or explored. For students, the interviews drew out results relating to their cultural background such as countries of origin, language, race, etc.; their prior E-Learning experience and VLE expectations; their current pedagogical experience and VLE activities; and perceptions of VLE; technological, cultural/social and pedagogical issues that arose; the best and worst aspects of their VLE experience; and aspects of the VLE they wished to keep and those they wished to change.

Objective Five was to develop a second version of the framework – SCTF2 – from the empirical research. In meeting this objective, the research would further demonstrate how the SCTF2 can be employed to fill the gaps in the literature, offer insights into how we can enrich the learning experience of all students and help improve practice. Having applied the SCT Framework to the empirical study, the results showed that the model was important overall and that it was a good approach to understanding VLE use in multicultural settings. However, the results also showed that the model needed some modifications, as it did not accommodate certain data generated from staff and student interviews. The reasons for this were discussed in *Chapter Six*. In light of the shortcomings, the SCTF was modified, and the new version – SCTF2 – emerged. The SCTF2 was discussed in relation to

the literature in ***Chapter Seven***, and it shows how the findings address the problems and issues that the literature has thrown up.

8.3.1 *"How Can Structuration Frameworks Provide an Understanding into the use of Virtual Learning Environments among Students of Diverse Cultures?"*

Having reflected on the above objectives and the general research activities covered in each chapter, this raises the question of how successfully did the SCTF2 model address the main research question posed above. The SCTF2 has helped us to understand that:

1. Students' and academics' respective societies influence their cultural, technological and pedagogical structures, which in turn inform their individual action. While Hofstede-type studies support this notion, which is useful for drawing our attention to cultural differences in relation to national boundaries, they do not provide a rich picture of how and the ways in which national cultures come to bear on the individual's action in a symbolic way. The SCTF2 helps us to understand how and why agents do things differently from other agents in multicultural settings.

2. The co-presence and integration of Students and staff with their respective set of structures in a given setting result in multiculturalism. The SCTF2 demonstrates how agents' individual structures collectively constitute the overall existing structure for interaction to take place within that particular setting.

3. The differences in structural rules governing interactions among actors help to shape the multicultural classroom and virtual settings, but simultaneously led to conflict.

4. Conflicts are beneficial as they helped students and staff to reflect upon their assumptions and renegotiate their practices, producing new cultural structures surrounding VLE use.

5. Reflexivity is important to the production, reproduction and transformation of structures and for understanding how and why structures are produced.

6. The SCTF2 is useful for understanding how technological and pedagogical structures influence VLE interaction, but that there is no extreme technological or social determinism. For example, more than half of the lecturing staff viewed the VLE mainly as a repository for lecture handouts and additional resources for students. Correspondingly, these lecturers did not use the VLE in an interactive way, in terms of configuring group discussion areas and facilitating online forums. Thus lecturers' technological structures – their assumptions that the VLE was largely a repository – influenced and defined the VLE tools and features that they routinely appropriated. Lecturers' technological structures also influenced their decision in not appropriating other VLE resources. In these instances, the VLE appeared to have a deterministic impact on the actions of lecturers. However, as students interacted with the technology in their ongoing learning activities, they incorporated other tools and enacted certain cultural structures which shaped the emergent and situated use of the technology. This agency, along with complex mechanisms of conflict and reflexivity laid the foundation for the reconstruction of the technology.

7. As it pertained to technological and pedagogical agency, The SCTF2 has shown how participants drew upon their own pedagogical/technological [E-Learning] structures as well as the "physical" VLE technology to accomplish pedagogical tasks. In so doing, students not only learnt something new in relation to their discipline or the subject matter, but also learnt how to negotiate the VLE technology in multicultural settings to effect learning.

8. The SCTF2 is useful for understanding how new cultural structures are produced through VLE interaction.

In summary, the SCTF2 model provides a richer model of Structuration, which differs from, but enhances Giddens' model. This new SCTF model has helped understand certain complex issues in VLE use, especially around culture, conflict

357

and reflexivity. Also, it has highlighted that cultural, technological and pedagogical structures mutually emerge and that structural transformations occurred in the multicultural setting within a relatively short timescale – less than one academic year. The model could guide the application and adoption of VLEs by staff and students in multicultural settings.

8.4 Limitations of the Research

In reflecting upon the overall work, four key areas have been identified which have limited the research study.

Firstly, the researcher could ask the question: "Is my sample size big enough?" This research is based on a single exploratory case study. The study is represented by a group of culturally-diverse students and academic staff, totalling thirty-two [32] participants, who were recruited from a single department at a Higher Education institution in the UK. The conclusions drawn from the case study, therefore, may not reflect wider populations of students and academics in other universities across the UK and the wider world. In addition, the researcher should stress that her study has been primarily concerned with the understanding of the use of VLEs particularly in multicultural contexts, through the lens of the SCTF2 framework. Although the findings are generally compatible with other empirical work which employ Structurational lens across different sectors [educational and non-educational] – as discussed in *Chapter Seven* – the case study itself is still specific. This is not a limitation in itself, given that all research activities need to have some form of boundaries. However, one of the drawbacks of limiting the research sample, is that it also ran the risk of limiting the outcomes and applications. Notwithstanding, one of the most important things was that sufficient data could be found in various areas of the research to address the relevant themes in the SCT framework during analysis.

Secondly, the age of the data. Data for this research was collected in the academic years of 2005 and 2006. Since then, a new set of learners have emerged, who may have a different attitude toward the use of VLEs, regardless of any prior cultural, technological and pedagogical assumptions and practices. Furthermore, between that time and now, updated versions of the Blackboard software have been installed and technologies, in general, have moved on. Twelve years ago, staff and students at the University did not use the VLE regularly and consistently, but now the VLE has become an integral part of the teaching and learning activities. Students not only use Blackboard to access module learning materials, but also for collaboration and to e-submit their work for marking, which is compulsory. Likewise, academic staff not only use the VLE to teach and upload learning materials, but also to access "Turnitin", an online e-submission tool, to mark students' assignments.

To the question of whether the findings from the data are still valid, the researcher's position is that notwithstanding the age, the research data is still valid today on the following grounds:

- Cultural ICT adoption is still an on-going occurrence across the globe. Particularly within the education sector, there are institutions worldwide that are still using the conventional style of teaching and learning or are new to the concept of E-Learning. Regardless of the level of education – primary, secondary or tertiary – recent research has shown that as the educational landscape continues to evolve in terms of technological innovations, countries such as Kenya [Tabira and Otieno, 2017]; Thailand [Tongkaw, 2013]; Costa Rica [Meza-Cordero, 2016]; India [Gupta and Jain, 2017]; are trying to find ways to understand how learners and academics/teachers engage with the available technologies and how they might overcome issues arising from such engagement. The data from this research is very useful for aiding our understanding of the use of ICTs not only among users of diverse cultures but also among users of the same cultural [intra-cultural] setting. It offers insight into how cultural, technological and pedagogical structures are associated with agents' respective societies and how they simultaneously constrain and enable their actions. The SCTF2 model can provide insight into how students' and academics' actions and interactions produce new norms and new ways of

behaving thus reshaping prior technological, pedagogical and cultural assumptions.

- Although the software and online tools are more updated now, the VLE functionalities are largely the same as they were in 2005. Moreover, VLEs are still being used in universities across the globe, and there continues to be an influx of international students attending universities in various parts of the world. Therefore, the human use by both staff and students are still broadly the same. In addition, as it was twelve years ago, today there are students arriving to universities from various cultures, who have never experienced E-Learning. Although the socio-technical aspects are different now, inter-cultural issues are largely the same. Thus the SCTF2 findings in this research could help to guide current or future studies into the understanding of how new behaviours and structures are produced by users of various cultures who are new comers to the world of E-Learning or virtual learning.

- Last, but by no means least, the SCTF2 model that this research is offering is still valid as it was in 2005/2006. While the SCTF2 model may not be able to overcome all the theoretical limitations of Culture, Technology and Pedagogy, it can help us to make sense of them. The data has shown that structuration is not a smooth, straightforward process and the SCTF2 model has provided step-by-step details of how the mechanisms of conflict and reflexivity contribute to the production and reproduction of new structures. The model captures the "Existing Structures" or the initial assumptions that influence lecturers' and students' individual actions. It depicts their cultural, technological and pedagogical rules of signification, domination and legitimation. The model also shows that in an attempt to interact with one another, the differences in agents' interpretive schemes, facilities and norms led to conflicts – miscommunication, passivity and inappropriate application of sanctions. The SCTF2 also depicts how these conflicts offset the process of reflexivity and consequent social change, and depicts agents' reflexivity in monitoring the interaction, resolving

conflicts and producing new structures. It shows the modification of signification and interpretive schemes; domination and facilities; and legitimation and norms. It also reflects these new or modified structures becoming part of the existing structures. The SCTF2 elements – "**Existing Structures**"; "**Agency**"; "**Conflict**"; "**Reflexivity**"; and "**New Structures**" – therefore still apply to current contexts.

Thirdly, the choice of the University and the department as well as the geographical location. The Information Systems Institute [ISI] at the University of Salford, located in northwest England, was selected as the site for this study. However, the study could have also considered other universities as well, in order to facilitate an interesting comparison, such as a university located in Southeast England or a university that is located in a developing society like Jamaica. The researcher believes that research into the use of VLEs in multicultural contexts at universities in developing economies versus developed economies would have provided a good contrast given the differences in geographical location and overall culture.

Fourthly, this research only looked at two VLEs – Blackboard and CABWEB. Blackboard is the University's designated VLE which was designed and developed in North America and was being used by staff and students to support learning. CABWEB was a portal of the Moodle Open Source Course Management System which was used by only one of the lecturers in the IS institute to support non-assessed activities. At the time there was another commercial off-the-shelf VLE similar to Blackboard called WebCT, which the study could have included. The study could have included universities which have developed their own in-house VLE systems. It could have offered a broader understanding into the use of various types of VLEs – open source, off-the-shelf and custom-built systems – by students of different cultures. On the other hand, such inquiry would have involved extensive research, involving multiple cases or scenarios of VLE usage across a variety of universities. Since the author of this research wanted to explore or test the SCT framework she had developed, it was prudent for her to adopt a single, and less elaborate, study.

8.5 Contributions of the Research

This research has contributed to knowledge with respect to theory, methodology and practice. These contributions are discussed below.

8.5.1 Contribution to Theory

1. **The SCTF2 has developed a specific version of Structuration for Culture, Pedagogy and Technology**.

   This research involved an exploration into how Virtual Learning Environments [VLEs] are used in multicultural settings, using a Structurational lens. This was with a view to overcome the dichotomous conceptualisations of "culture", "technology" and "education" represented in the E-Learning literature. The SCTF2 has developed a specific version of Structuration for the phenomena of culture, technology and pedagogy. It has demonstrated that the shortcomings in the literature can be addressed by reconceptualising culture, technology and pedagogy using the structurational tools of structure and agency, and helps to conceptualize the use of learning technologies in multicultural contexts.

   In the SCTF2, Structure is represented by **Component A** and all its other components [i.e.: cultural, technological and pedagogical rules of Signification [**Component B**], Domination [**Component C**] and Legitimation [**Component D**]]. Agency is represented by **Component E** and all its other components [i.e.: agents' Interpretive Schemes and communication of meaning [**Component F**], Facilities and exercise of power [**Component G**] and Norms and appropriate application of sanctions [**Component H**]. The SCTF2 shows how the interplay between [**Component A**] and [**Component E**] led to Conflicts [**Component I**]. Conflicts in turn offset the process of Reflexivity [**Component J**] and consequent social change, producing New Structures [**Component K**] – technological, cultural and pedagogical. It then shows how these new structures become part of the existing structures, bringing transformations.

2. **The research has shown that the process of Structuration of culture can occur within a relatively short period of time**.

The research has shown that cultures and cultural structures can be changed on a different timescale to that of Giddens' structuration theory. Giddens' theory looks at the structuration of cultures over thousands of years – from prehistoric times to the modern era. He discussed the transformation of society over wide time span, and argues that there are long-term divergences in the formation of the West, as compared with that of the other major 'civilizations', over a period of some two millennia [p. 183]. This thesis, however, has shown that structuration of students' cultures took place within a relatively short time – less than one academic year. *Table 6.1* in *Chapter Six* provides evidence of this empirical finding, which is further discussed in *Section 7.6* in *Chapter Seven*. New cultural structures – alongside new technological and pedagogical structures – are represented by **Component K** in SCTF2. This is a contribution to Giddens' theory, particularly from the viewpoint of culture and shows the role of conflict and reflexivity in speeding up the evolution and structuration process.

3. **Reflections of the mutually emergent phenomena of technology, culture and education within a socio-historical context**.

The SCTF2 has shown that the phenomena of culture, technology and pedagogy all overlapped [*Subsections 6.3.3* and *6.3.4* in *Chapter Six*] and are all incorporated into the broader structural rules of Signification [**Component B**], Domination [**Component C**] and Legitimation [**Component D**]. Given this overlapping, the SCTF2 also has shown that the three phenomena mutually and simultaneously evolved [*Section 7.5* in *Chapter Seven*]. This finding has corroborated with the brief reflections on the mutually emergent phenomena of technology, culture and education within a socio-historical context in *Chapter Three*. Giddens' [1984] asserts that "*Structuration begins from temporality and thus, in one sense, 'history'*" [p. 3]. This suggests that the process of structuration existed long before the establishment of any scientific or social theory. Thus prior to discussing the Theory of Structuration and the duality of structure, *Chapter Three* briefly articulated and illustrated – employing the concepts of structure and agency – how technology, culture and education are

closely linked with one another and how they simultaneously evolved in ancient history. This was a very novel and significant approach in the E-learning and Information systems literature, with respect to the Theory of Structuration. The significance of this ancient historical approach was that it helped the researcher to explain the importance of Existing Social Structures [**Component A**] and the concepts of agency and structure in simple, layman terms, before discussing Giddens' complex theory of Structuration. To date, most research which employ the theory of Structuration tend to provide accounts of modern day technologies [such as ICTs, including learning technologies], without reflecting on how the structural contexts and human agency of the distant past influenced the constitution and re-constitution of these technologies to the innovative point at which they are today.

4. **The SCTF2 emphasized the sequential/cyclical nature of structuration as being not straightforward**.

The SCTF2 directs people to research the cyclical process of structuration [depicted by the three single-headed arrows] separately in the light of each other, rather than to research a conflated view of structuration, in terms of double-headed arrows. There needs to be a study of how New Structures are incorporated into the existing ones. There are some research into reflexivity, conflict and new structures becoming part of the Existing Structure, but no one has studied or developed a model of all three within a single research.

The SCTF2 illustrates the overall Existing Structures [**Component A**], as well as agents' individual assumptions – cultural, technological and pedagogical rules of Signification [**Component B**], Domination [**Component C**] and Legitimation [**Component D**] – which inform their actions. Using a solid single-headed arrow, the model shows the progressive step from agents' individual assumptions and actions to inter-cultural interaction – Multiculturalism and Agency [**Component E**]. It shows the influence that agents' individual structures continue to exert during interaction with others of different cultures. The SCTF2 reveals that in an attempt to interact with one

another, the differences in agents' Interpretive Schemes [**Component F**], Facilities [**Component G**] and Norms [**Component H**] led to Conflicts [**Component I**], such as miscommunication, passivity and inappropriate application of sanctions respectively. Here, the model uses small double-headed arrows between the structural resources and associated interactions to show the iterative relationship between them. The model depicts how conflicts offset the process of Reflexivity [**Component J**] and consequent social change. This is depicted by a single-headed curved arrow leading from *Component I* to *Component J*. The small double-headed arrows showing the iterative relationship between the structural resources and associated interactions, also depict the agents' reflexivity in monitoring the interaction, resolving conflicts and producing New Structures [**Component K**]. It shows the modification of cultural, technological and pedagogical rules of Signification; Domination and Legitimation. The third single-headed, dotted arrow leading from *Component J* back to *Component A*, reflects the new structures becoming part of the existing structures.

5. **SCTF2 is a fuller model in terms of the elements that are important in Structuration**. The SCTF2 model is more comprehensive and dynamic than Giddens' model, and this fuller model was able to accommodate the research findings. It provides a clearer picture of how other issues or processes emerge which help to bring about new structures over time. For example, the SCTF2 model depicts the concept of "Existing Structures" [**Component A**], which makes it easier for the reader to see how these structures have been transformed, facilitating the emergence of "New Structures" [**Component K**]. The model depicts "Conflict" [**Component I**] and its role in activating the process of "Reflexivity" [**Component J**], which brings about social change. The depiction of "New Structures" makes it easier to show which structures are changed and the ways in which they are transformed. The model also depicts how "New Structures become part of the "Existing Structures", reflecting the dynamic, emergent nature of the structuration process.

6. **The SCTF2 model has provided valuable insight for Information Systems Research**

This research has provided an application of Structuration to Information Systems Research. The idea that structures influence agency and vice versa is not new, as this has become a well-known phenomenon. However, this research differentiates between old and new structures. One of the contributions of the SCTF2 is that it refines the theory of Structuration and makes it more accessible, precise and easily understood. The work herein shows that there is a stage from the Old or Existing Structure [**Component A**] to the New Structure [**Component K**], and from the New Structure [**Component K**] back into the Existing Structure [**Component A**], making it more explicit. The SCTF2 model can help to change the way in which we understand technology as well as the operation of technology. If technology is important and makes things different then that is something for Information Systems to research. Among other researchers, Orlikowski [2000], Walker [2002] and Walsham [2002] have made contributions to IS research by developing and applying Structuration theory to their studies on technology. The work in this thesis went beyond their work, in that their frameworks do not accommodate – in diagrammatic form – how other processes and issues, such as conflict and reflexivity, shape the wider social contexts in which the technology is used and how they contribute to the development, redevelopment and transformation of structures. Also, although their research depicts emergent "new structures", those new structures are mainly technologically-related. On the other hand, the work herein presents "new structures" of different kinds: technological, cultural and pedagogical structures of Legitimation, Signification and Domination.

8.5.2 Contribution to Methodology

Case study research is characterized by its focus on context and depth; natural settings; holistic investigation; and multiple sources and methods. It is argued that these features of case research contribute to the development of knowledge in the IS field in several ways [Oates, 2006 and Dubé and Paré, 2003]. Highlights of some the contributions are provided below:

1. In relation to *Context and Depth*, it was argued that in-depth case investigations open the way to new ideas and new lines of reasoning, and pinpoint the opportunities, challenges and issues facing IT specialists and managers [Dubé and Paré, 2003]. This work involved a qualitative interpretive case study covering a period of one academic year – 2005-2006. The study examined the use of **VLE technologies** by postgraduate students of diverse **cultures** and their lecturers to support **pedagogical** activities. The SCTF2 model has opened up new ways of conceptualizing culture, technology and pedagogy, through the notions of agency and structure.

2. In terms of *Natural, Real-life Setting*, it was argued that "*a rich and natural setting can be fertile ground for generating theories*" [Benbasat et al, 1987]. The case study methodology made critical provisions for the application and successful modification of the SCT framework and the emergence of SCTF2 model.

3. From the perspective of *Holistic Study*, it was argued that holistic investigation suits well our [information systems community's] need to understand the complex and ubiquitous interactions among organizations, technologies and people [Dubé and Paré, 2003]. The focus of this research was not merely on the technological aspects of E-learning. Rather it examined other elements such as culture [which include human agents], pedagogy, and the wider institutional contexts within which the VLE was being used, and the interrelationships among the elements. The researcher then adapted the Structuration theory to develop the SCT framework – and the subsequent SCTF2 model, which combined the elements into a holistic framework.

4. As it pertains to *Multiple Sources and Methods*, it was argued that the case research typically combines several data collection methods and data sources, bringing richness and flexibility to the overall research process and making case research particularly well designed for the study of a complex phenomenon such as IT [Dubé and Paré, 2003]. This research was enriched by the evidence from interviews, observations and institutional documentation, which all 'converged to support the research findings' [Benbasat et al, 1987].

8.5.3 *Contribution to Practice*

1. Conflict, Reflexivity and New Structures can lead toward a Multicultural VLE. The SCTF2 has shown that in multicultural settings, the differences in students and lecturers cultural, technological and pedagogical structures of Signification, Domination and Legitimation gave rise to some conflict. One of the implications for practice is that we must expect conflict. We should not be surprised by it. At the same time we should encourage reflexivity as a way to deal with conflict by installing tools or mechanisms. For example, students and staff should be able to see where conflict arise. Comment boxes or reflection boxes should be installed for meetings to be had between conflicting parties.

2. We should make sure that reflexivity is channelled into new structures which can then be merged with existing structures. The transformation in participants' inherent structures due to reflexivity, in turn, provided a basis for the reconstitution and transformation of the VLE technology itself. The SCTF2 has unearthed that certain factors caused staff and students to take new actions [develop new structures] following their reflections of circumstances in the multicultural E-Learning setting. From the students' viewpoint, the compulsory usage of the VLE and the assessment of VLE activities are two of these factors that caused students to develop new structures. From the staff viewpoint, lecturers' desire and commitment to effective teaching led to the development of new structures. The few cases of structures brought out in the study suggest that the higher common value to both lecturers and students is that 'it had to be done'. Lecturers had to get students to use the VLE and as such mandated students to use the technology through compulsory and/or assessed activities. Students, not wanting to lose marks for their module had to engage with the VLE as directed. This translated reflexivity into new structures.

3. The SCTF2 has shown that the fact that structures of Signification, Domination and Legitimation are tightly interlinked this sometimes can be detrimental to

students. For example, some students get stressed when VLE activities are graded and when they are compelled to use the VLE. In order to overcome this, it means that all three structures will have to be dealt with simultaneously, when addressing problems concerning VLE usage. That is, the problem will not be solved merely by addressing signification in isolation of the other structures, or just domination, or only legitimation. Lecturers in particular, will have to deal with all three structures simultaneously. For example, from a signification viewpoint, lecturers can encourage students to "buy-in" to their view of VLEs as being tools of empowerment for accomplishing learning tasks. From the viewpoint of domination, lecturers could allow students to exercise autonomy in how they use the VLE, and thus encourage VLE usage as a source of empowerment rather than using it as a source of power. Also, from a legitimation viewpoint, lecturers could lessen the penalty for assessed VLE assignments – instead of VLE assignments accounting for 20% of overall module grades, they could account only for 5%.

4. The SCTF2 has shown that practically, things can be done immediately, or within weeks or within a year. Do not wait 10 years. Students and lecturers adjusted quickly to their environment, while using the VLE in multicultural settings. As such, lecturers and students can expect new structures to emerge each academic year, as they use the VLE technology, as structures are not set in stone. Lecturers and students can learn from the new structures which emerge within the wider social context and these can be incorporated into the existing conditions and structures.

5. The SCTF2 model can enable researchers, academicians and practitioners' to conceptualize users as "designers", and to become more aware of users as contributing to the design process of learning technologies in institutions of higher learning. Such awareness should influence academics, in particular, to empower students to exercise agency and autonomy in going beyond the technological resources that they provide for their students. If students cultural, technological and pedagogical structures of signification, domination and legitimation are provided for, they would be encouraged or motivated to

interact with the technology routinely in their learning activities and thus contribute to the redesign of the VLE. In addition, the ability of students to tweak the technology to their preference not only electrifies students' learning experience and enhance their learning outcomes, but also provides rich clues to designers, learning technologists and educators of some of the things that students would like to see incorporated in the technology development process. Bearing these clues in mind, practitioners and academicians can produce learning technologies that provide users with sufficient autonomy, and thus help to accommodate the needs of all students.

8.6 Avenues for Future Research

This chapter will now conclude with suggestions for future research, the opportunity of which has been created by expanding the scope of this research and its findings, and addressing the limitations of the methodology.

Firstly, one of the main findings unearthed in this study is that Giddens' structuration model uses double-headed arrows to show a seemingly straightforward account of how structures are produced and reproduced overtime. On the other hand, the SCTF2 emphasized the sequential nature of structuration as being not a straightforward process. The SCTF2 model uses a cycle of arrows to provide a clearer picture of how other complex processes, such as conflicts and reflexivity, arise when structures are constituted and reconstituted overtime. The SCTF2 directs further research into the cyclical process of structuration – depicted by the three single-headed arrows – separately in the light of each other rather than to research a conflated view of structuration. A suggestion here, is for a study into how New Structures are incorporated into the existing ones. There are some research into reflexivity, conflict and new structures becoming part of the Existing Structure, but no one has studied all three within a single research.

Secondly, it was acknowledged that this research is based on a single exploratory case study which is represented by a group of thirty-two [32] participants, who were recruited from a single department at a Higher Education institution in the

UK. It was also noted that the institution was geographically limited to the Northwest of England. It was therefore argued that the conclusions drawn from the case study may not reflect wider populations of students and academics in other universities across the UK and the wider world. These issues open up a fruitful and interesting avenue for follow up case studies to consider other universities in various parts of England and in developing societies in order to facilitate substantial comparisons and broader generalizations of the findings.

Thirdly, the study has been primarily concerned with the understanding of the use of VLEs particularly in multicultural contexts, through the lens of the SCTF2 framework. Although the findings are generally compatible with other empirical work across other non-educational sectors – such as the three organizations in Orlikowski's [2000] study – the case study itself is still specific. The SCTF2 could be employed in other studies, which involve the use of other institutional technologies in non-educational organizations [e.g. medical information systems used in the medical profession]. It would be worthwhile to explore how other professional agents – besides students and academics – use information and communication technologies in multicultural settings.

It was argued in the opening chapter that designers need to be aware of learners' cultural backgrounds in order to develop or modify technological designs that will best suit their cultural learning frameworks [Campbell, 2011]. However, it was also highlighted that attempts to realize the design of learning technologies that support a global set of learners, were still fraught with numerous problems relating to the limited underlying concepts of "culture", "technology" and "education". The SCTF2 model derived from this empirical study now enables a new way for understanding the use of VLEs in multicultural contexts. It could guide the application and adoption of VLEs by staff and students in multicultural settings.

APPENDIX A

Basic Illustration of the Key Differences between High and Low VSM Indices in Educational Systems or Learning Situations

VSM Indices	High Values	Low Values
Power Distance Index [PDI]	Teachers are considered authorities, and students do not question their expertise.	Teachers are considered as facilitators of students' education, and are perceived as relative equals to students.
Individualism Index [IDV]	Students expect to be treated as fundamentally equal to peers and faculty. They often prefer working alone, and receiving individual recognition for their accomplishments. Learning how to learn [cognitive skill] is primary [individual growth]. Hard work is motivated by individual gain.	Students show a greater dependence on social relationships, and have a marked emphasis on working with others. Societies with low IDV scores are considered "collectivist," and make up the bulk of the world's cultural groups [Edmundson 2007]. Learning how to do [content knowledge] is primary [social growth]. Hard work is motivated by the greater good.
Masculinity Index [MAS]	Students are openly competitive with each other, driven by achievements, and disappointed by failure.	Students have more relaxed expectations, and the learning environment is less competitive.
Uncertainty Avoidance Index [UAI]	Students perceive teachers as experts, and thus teachers are expected to have all the answers. Students seek learning environments which are tightly defined and scheduled, with clear objectives and precise answers. They look to be rewarded for the accuracy with which they carry out their work. Structured learning activities are provided and ambiguity is avoided to deal with uncertainty.	Students perceive teachers as facilitators, and are more comfortable with vague objectives, multiple answers, and loose schedules. In this context teachers can say "I don't know" [Parrish and Linder-VanBerschot, 2010]. Students look to be rewarded for the originality with which they carry out their work. As part of uncertainty acceptance - learning activities are more open-ended [discussions, projects] and ambiguity is seen as a natural condition.
Long-Term Orientation Index [LTO]	Strong orientation to the achievement of future goals; qualities such as thrift and persistence are highly valued. Students are likely to attribute success and/or failure to independent effort.	Strong orientation to values that pertain to the past and present; qualities such as national pride, fulfilling social obligations, saving 'face' and preserving traditions are valued.

[Compiled by the Author. Sources: Hofstede, 2001; Campbell, 2011; Parrish and Linder-VanBerschot, 2010]

372

The Use of Technology in Education: A Brief History

The use of technology in teaching and learning is not a new phenomenon. This experience can be traced back to the ancient times in the Stone Age. Interestingly, the earliest forms of learning technologies were the human body parts [e.g. fingers for counting or drawing] as well as natural objects found in the environment [e.g. stones for engraving]. For example, the finger tip, which was the earliest form of "brush" employed, was dipped in paint and then used particularly to outline animals in thick lines on the walls and ceilings of caves[9] [Leakey, 1954].

With the passage of time, a shift began to take place from natural objects to man-made objects. For instance, an early form of pencil called plumbum – the Latin for "lead" – is thought to date back to the Romans who fabricated a disk-like, sharp-edged ruling implement for guideline on papyrus [Blau and Gardner, 1996]. Over the centuries, man continued to make and use technologies that have now impacted tremendously on contemporary education.

In the eighth century AD, xylography – the earliest Chinese printing technique – was invented, followed by the Chinese invention of moveable type [typography] three centuries later [Basalla, 1990]. By the fifteenth century, Europe experienced a similar typographical revolution. The invention of the Gutenberg printing press by a German goldsmith in 1450, enabled the identical reproduction of books and made possible the widespread, rapid diffusion of culture and knowledge [Rae, 1981]. Prior to this, "*books were laboriously copied by hand and were therefore scarce and expensive*" [Giddens, 2001; p. 491].   Altogether printing technologies contributed to increased literacy in later centuries.

By the eighteenth and nineteenth centuries, educational technologies such as textbooks, blackboards/chalkboards, wall charts and manipulative models [such as

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[9]   According to Harris [1993], it appears that caves were the scenes of recurrent communal events, such as religious-theatrical performances, which were carried out to intensify society members' sense of social identity, to educate and conduct young people into adulthood, and to ensure the continuity of their tradition [p. 144]

globes/spheres, building blocks] were introduced into schoolrooms to support the teaching and learning of modern disciplines, such as mathematics, geography and so forth. These technologies were just the beginning of what was to follow in the twentieth and twenty-first centuries.

The twentieth century witnessed major technological and scientific advancements, most of which influenced and were influenced by World Wars I and II. Among those inventions were the radio; motion pictures; and the development of the automatic electromechanical calculator, the first electronic computer – ENIAC, communications satellites and the telephone. With the advent of audio and visual mass communication such as radios and motion pictures, it was realized that these technologies could play an important role in education. As such, audio and visual educational technologies [e.g. film projectors, slides, television and radio] began to evolve as media to enhance teaching and learning. For example, Britain's Open University, founded in 1971, pioneered the use of television in distance learning in higher education [Giddens, 2001]. Television programmes were combined with printed course materials, prescribed books, audio cassettes, video cassettes and radio – with the BBC station playing a major role. The trend of using television to extend the boundaries of an educational institution became widespread among other countries such as Israel, Pakistan and Jamaica. In Jamaica, distance education – using television and a variety of other media to deliver educational programmes at various levels – started from as early as 1972. This mode of learning was promoted by the Ministry of Education, Youth and Culture through its "*Education Broadcasting Service*" [1972-1981]; its "*In-service Teacher Education Thrust*" [1973-1982]; and the "*Reform of Secondary Education*" [*ROSE*] programme which began in 1983[10].

The latter part of the twentieth century witnessed revolutions in Information and Communication Technologies [ICTs]. The Internet, computer and mobile technologies spurred new trends in telecommunications, enabling the communication of text, sounds, voice, video information or graphic images over long distance. Given these communication capabilities, a new culture emerged,

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[10] The Jamaica Information Service [2005]. "*Education Ministry Lauded for Contribution to Distance Education*". Monday, December 5, 2005. Available Online at: http://www.jis.gov.jm/education/html/20051202T090000-0500_7505_JIS_

involving a shift toward the manipulation of information and a trend toward globalization. Altogether, one-way communication such as TV has been overtaken by interactive, creative and collaborative aspirations [Banks and Salmon, 2010]. These trends continued unabated into the twenty-first century to the point at which it is seen today.

Higher Education Institutions in particular have capitalized on these favourable technological and globalization trends. Worldwide expansion of educational services; 'commodification' and commercialization of academic programmes; increased educational consumption by foreign nationals; and free movement of overseas students and university researchers and professors are the hallmarks of global activities within higher education today. According to Chambers [2003]:

> "…[P]*aradigms of higher education provision have been shifting from the local and national towards the international: from traditional universities, mainly serving their local or regional communities, to collaborative arrangements between groups of universities and mass distance education institutions increasingly in competition for students world-wide*" [p. 250].

It is argued that as global players, institutions of higher learning help to shape the globalization process and, at the same time, are influenced by it and are adapting their structures accordingly [Isserstedt and Schnitzer, 2005]. Clearly, information and communication technologies [ICTs] are at the heart of these structural changes and global expansion. ICTs are 'changing fast institutional structures, modes of delivery and, more particularly, teaching and learning methods and practices' [UNESCO, 2004; p. 7]. ICTs are facilitating the 'virtual' mobility of students – enabling them to collaborate and communicate across borders of space and time [Bell et al, 2008]. With the Internationalization of curricula, students can learn about other academic concepts without physically crossing international borders. Likewise, university researchers and professors do not need to travel abroad for their groundbreaking work to be recognized around the world [Isserstedt and Schnitzer, 2005]. In short, ICTs facilitate communication; permit efficient storage, selection, and dissemination of knowledge; and allow providers to offer academic programs through e-learning [Knight and Altbach, 2007].

While ICTs have opened up real prospects to build up the elements of a truly worldwide higher education and research space [UNESCO, 2004], it has been purported that the current design models of most systems employed in academic activities across cultural borders and within culturally-diverse classrooms do not fully contextualise the learning experience and do not support multi-cultural contexts [Henderson, 1996; McLoughlin and Oliver, 1999]. It can be argued that these design flaws arise largely from the limited conceptions of "technology", "culture" and "education" present in the existing literature. Given these limited underlying concepts, it is argued that research into the design of learning technologies that are conducive to user modification and that support a global set of learners, is problematic.

APPENDIX C

Student Interview Pro-Forma
[Reformatted for inclusion in the Research Thesis]

NAME:
DATE:
VENUE:
TIME:
Interview Questions

Students' Cultural Background:

1. Would you like to describe your cultural background?
   Prompt Questions*: for instance, your country of origin; your racial and ethnic heritage; language; Beliefs; or anything else which you would like to share*?

2. Your University registration status – are you registered as: Home Student; European Union [EU] Student; International Student?

Students' Previous Online Learning Background and VLE Expectations

3. Have you any previous E-Learning experience? Have you ever studied an academic course or part of an academic course online? If so, to what extent did you use the Learning Technology in your learning activities?

4. What are your expectations of the VLE?

Current Pedagogical Activities and VLE Experience

5. Which of the ISI Masters Programmes are you enrolled in? E-Governance; Information Technology; Information Technology Conversion; Managing Information Technology.

6. What have been your experiences so far in relation to your studies?

7. What have been your online learning experiences so far [e.g. with CABWEB and Blackboard]?

8. Can you describe any technological and pedagogical issues which impacted on your VLE interaction and overall studies?

9. Can you describe any cultural issues which impacted on your VLE interaction and overall studies? Prompt Question: *Any cultural issues emerged which impacted on your studies*? *If yes, how do you address these issues?*

10. About your Overall Online Experience: *Best Things? Worst Things*?

11. About the VLE: *What would you wish to keep? What would you wish to change?*

Again, thank you for participating.

APPENDIX D:

Elements of Students' Cultural Background – Student Interviews

Country	Student Status	Gender	Age Range	Mother Tongue	Race/Ethnicity	Religion
Greece	Home/EU	Female	26-30	Greek	Turks and Albania	Christian Orthodox
Poland	Home/EU	Male	21-25	Polish	White	Catholic
Philippines	International	Female	26-30	Philippino	Japanese and Spaniard	Christian
Nigeria	International	Male	26-30	Yoruba	Black	Catholic
England	Home	Female	21-25	English	Indian/Hindu	Hindu
England	Home	Female	21-25	English	Caucasian/White	Christian
England	Home	Male	31-35	English	Caucasian/White	Atheist
England	Home	Male	21-25	English	Indian and Burmese	Islam
Libya	International	Male	36-40	Arabic	Arab	Islam
Nigeria	International	Male	36-40	English	Black	Christian
Sudan	International	Male	26-30	Arabic	Arab	Islam
Brunei Darussalem	International	Female	26-30	Malay	Malay	None
England	Home	Male	21-25	English	Indian/Andhra Pradesh	Hindu
Saudi Arabia	International	Female	21-25	Arabic	Arab/Saudi	Islam
Nigeria	International	Male	36-40	English	Black	Christian

Nigeria	International	Female	21-25	Hausa	Black	Islam
Oman	International	Male	26-30	Arabic	Black/Arabic	Islam
England	Home	Male	21-25	English	Indian	Islam
Bangladesh	Home	Male	21-25	English	Bengali	Islam
Pakistan	International	Male	26-30	Urdu; Punjabi	Pakistani	Islam
Venezuela	International	Male	26-30	Spanish	Italian/Venezuelan	Catholic
Saudi Arabia	International	Female	21-25	Arabic	Arabic/Saudi	Islam
Saudi Arabia	Home	Male	26-30	Arabic	Arabic/Saudi	Islam

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