University of Derby
School of Computing and Mathematics

A project completed as part of the requirements for the BSc (Hons) Information Technology

An Evaluation of Virtual Learning Environment Design and a Comparison of Student’s Requirements
by
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The candidate confirms that the work submitted is their own and the appropriate credit has been given where reference has been made to the work of others.

I understand that failure to attribute material which is obtained from another source may be considered as plagiarism.

(Signature of student) Patrick O’Sullivan………………………………………………………………………………
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Abstract

VLE systems and different computer software versions are progressing so fast such that when end-users are just getting familiarised with one version a new one appears. This can lead to uncertainty and anxiety because of technological change. This study therefore investigates the challenges and issues that the use of Virtual Learning Environments pose. 54% of the students from this study agreed that the VLE met their requirements which suggests perceptions of using the VLE to support the learning process may have worsened. There are many important educational challenges and students face these challenges when using computing tools to support the learning process. Moreover, similarities and differences show that age, gender and IT experience may influence on how the technology is used. To this end, the implications of the findings and recommendations for future research are deliberated.
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Chapter 1 Introduction

There are two main aims for this thesis. The first is to present an exploration and evaluation of VLE design and the second is to investigate how students are engaging with the technology. This investigation explores the usability of VLEs because computing tools and computing technology which are provided to support and supplement the learning process are constantly relied upon in a H.E learning environment.

Through the development of the web many individuals and organisations now use this medium on a daily basis (Rawlinson, 2013). This continual process has now evolved into what is known as a web or the internet life-style (Rada, 2001). As the internet grows it is increasingly changing how individuals perform daily tasks. As such this web or internet life-style (Rada, 2001) has begun to enable many opportunities for learners in H.E. As new capabilities become apparent through internet application and technology use they begin to allow for the creation of new forms of messages and online experiences (Rheingold, 1993). These new developments have led to online interactions and the formation of virtual communities (Rheingold, 1993) which allow for knowledge and creation sharing between users. As the opportunities offered by online interactions and virtual communities continue to grow, so does the development of online communication and virtual learning. It is developments such as these that are now changing the learning process within H.E. (HEA, 2013). However, while availability and access to online technology continues to grow, technology economics and public policies that underlie all forms of education must now shift to include emerging technology (Hoyos et al, 2010). When computing technology is used effectively it can support learners in their learning journey (Armitage et al, 2000; JISC, 2009).

Recent changes and developments within ICT have influenced how emerging technology is now being used and implemented into H.E. to support and enhance the learning journey (JISC, 2009). As such, there is a need to further explore how learners engage with web-based learning environments and in particular how the use of this technology is impacting on learner’s engagement with the learning process (Clarke, 2013). It is due to the aforementioned technology and online interactions that this report explores not only the many educational issues but how the use of the technology impacts on student’s participation in learning. Furthermore what learning style does a particular student have and can their learning style be supported by the VLE. This means that educators now need to implement new strategies for their teaching in order to cope with the demands and challenges that new technology brings.
It also crucially important to understand what a VLE is for and why is it used. Given the technological and online developments which have an impact on the learning process, it is also important to examine how H.E. Institutions introduce and adopt the VLE into their existing framework (JISC, 2009). The emphasis is not on proving the validity of computing tools but on understanding their purpose. In H.E. the use of technology for enhancing and supporting learning teaching and student assessment is predominantly associated with VLEs (Virtual Learning Environments) (Brunel University, 2010). VLEs are computing web-based systems allowing for interactions between learners and tutors (JISC, 2009). They provide access to learning material and enable the opportunities that allow online communication and assessment, as well as providing tools for monitoring student usage and student progress (Becta ICT research, 2004). There are many examples and some of these include Blackboard, Moodle and Web-CT (JISC, 2009).

Over the last 20 years computing technology and computing software has transformed the landscape of learning and the teaching process (Neumann & Logan, 2010). The technology involves a different approach to teaching but this approach can be applied in different ways. It is now common practice for lecturers to use online CMS (Course Management Systems) and VLEs. This gradual shift toward the use of the online learning environment has now become a component of teacher education (Clarke, 2013). The advent of this technology specifically in H.E. is shown within the literature to have become an addition for lecturers to supplement their teaching (Clarke, 2013). However, this project sets out to show that there are many advantages and disadvantages to using the technology and that there is now an expectation in the H.E. learning environment for students to use these systems. Furthermore research and analysis shows that many students and lecturers do not use many of the learning features and computing tools associated with this technology. It is therefore crucial to understand why many students do not use these features and learning tools because literature shows that VLEs are supposed to be designed to facilitate learning and teaching with the use of tools and activities (JISC, 2009) but many are used predominately by lecturers for storing course materials and as such become an administration tool (Computing and System Services, 2008). If course material is transferred to this system then lecturers need to take into consideration how students interact with this material. There is evidence within current research that shows the pedagogical approach is overlooked because some ‘lecturers do not know where to start improving on their teaching due to an unwillingness to admit its complexity’ (Higher Education Academy, 2013) because every lecturer has their own unique style and methods of
teaching. It is due to the aforementioned that the emphasis is on providing a system that works effectively for students and lecturers.

1.1 Statement of the problem
This research is investigating the various challenges that using VLEs to support learning can bring. VLEs are web-based software systems that incorporate a range of learning tools which are designed to facilitate learning (JISC, 2009) but what do students require from engaging with VLEs?. Research shows there is an increasing growth of VLE use within H.E. alongside traditional teaching but some research shows there is no emphasis on how effective the use of the technology is for learning and participation (Britain & Liber, 2003). It has been suggested that this technology provides managerial functions (Georgouli, 2011) however for learning to take place they need to be integrated with learning features and these features need to be made accessible to students and lecturers alike.

1.2 The Purpose of the study
VLE systems are usually developed within a number of organisational constraints including the need for fostering innovation and collaboration through the use of user communities and virtual organisations, change management, security audits and plans to recovery when things go wrong. The overall purpose of this report is to look at students in H.E. who use a VLE to support their learning process. The aim is to explore student perceptions of the technology and design to understand if there is a relationship between the design of the VLE and investigate how computing learning tools are used.

1.3 The Aims
The aims of the project are to evaluate VLE design and compare student’s requirements by investigating student use to determine if they are using all learning features and tools that are offered and to determine if all of the features need to be activated by the lecturers and used to improve on student learning.

1.4 Objectives
The overall objectives are to determine how often students use the VLE in their learning. To analyse how the design of VLEs can contribute to the goal of enhancing student learning. To highlight current weakness in the form of pedagogical approach and identify the opportunities to pedagogical approaches and frameworks.

1.5 Hypothesis
There is no significant challenge towards having a VLE to institutions day to day operations. The overall success and use of the technology depends on how educators adapt to use of the
technology and how students use the features the learning tools and activities. Incorporating VLEs into an institutions teaching and learning framework has many benefits and enables many learning opportunities allowing for students to participate in online learning.

1.6 Limitations of the study
This study must only been seen as a snapshot because it is based purely on an opportunistic sample and uses a research survey based on case studies. This approach means there can be no generalisations made about the wider H.E. population. However, it is possible to generalise within the University of Derby as this is the research site, as the sample is representative of the student population. Furthermore the fact that no interview recordings were made and only a survey questionnaire was used places further limitations on the reliability of the results. However, the study and its findings are still of importance as data from groups has been provided that had not previously been studied. The findings therefore provide a good basis for further work on this topic.
Chapter 2 Literature Review

2.1 Introduction
The overall aim of this literature review is to provide evidence of research of the existing literature on the topic while providing evidence of understanding the relevant theories that are related to the research question. There are many theories within the research literature explaining what a Virtual Learning Environment is (Becta ICT Research, 2004): (Georgouli, 2011): (Clarke, 2013): (Dale & Lane, 2007). Although the literature covers a wide variety of theories this literature review focuses on six main themes which have emerged repeatedly throughout the reviewed literature. Themes include the incorporation of pedagogy approaches (Jara & Mellar, 2007): (HEA, 2013) and the influence of TEL (technology enhanced learning) used in H.E. (Austin & Sharma & Moore, 2013): (Browne et al, 2010). The increasing external and extrinsic forces of motivation for using technology to support and enhance the learning process (Conole et al, 2008). The importance of student engagement and self-led learning (Scheuermann et al, 2004). The overall importance of benefits and barriers to using a VLE and the theories of traditional teaching and learning and an overall comparison to real life-learning (Beetham & Sharpe, 2013): (Ryan et al, 2000). Research literature has been identified and evidence for evaluating VLE design and software has been discovered using several journal databases. Furthermore by exploring academia referenced resources relevant to the key issues of this project has enabled the discussions and evaluation within this report. Although the literature reviewed presents a range of themes in a wide variety of context it has been critically evaluated. This paper focuses on VLE application to student engagement and learning.

2.1.1 Background Research on VLEs
Over the past 20 years technological developments and recent changes within the field of ICT have had a substantial influence on educators and learners in H.E (Armitage & Browne & Jenkins, 2000). Research shown within the literature states and suggests that there is now an increased emphasis on TEL (Technology Enhanced Learning) in the form of a VLE within H.E. Institutions (Austin & Sharma & Moore, 2013): (Browne & Hewitt & Jenkins & Voce & Walker & Yip, 2010). A survey for UCISA (Universities Colleges and Information Systems Association) by Browne et al (2010) looked at pre-92 H.E. Institutions and post-92 H.E. Institutions that are involved with TEL (Technology Enhanced Learning) with an emphasis in the United Kingdom only. They found that ‘institutional strategies and framework tend to influence any technology enhanced learning’ (Browne et al, 2010). Given the wide range of literature it is important to establish whether this is action is warranted because there are a few
definitions within the literature as to what is TEL. UCISA, (2008) have suggested that TEL is ‘any online facility or system that directly supports learning and teaching. This may include a formal VLE, an institutional intranet that has learning and teaching component, a system that has been developed in house or a particular suite of specific individual tools’. TEL can be seen to include a VLE and as this report discusses VLEs, Becta ICT research (2004) have suggested that VLEs are software tools that integrate a range of resources that enable students and lecturers to interact online and includes content course delivery and tracking. JISC (2009) have suggested that VLEs are web-based online systems for delivering learning materials to students via the use of the internet and include assessment, student tracking collaboration and communication tools. The learning tools, activities and various other learning forms are enabled through the use of Web 2.0 technologies (JISC, 2009).

The introduction of a VLE should provide many benefits to both students and the educational establishment by allowing easier access anywhere and anytime learning (Austin et al, 2013). As this system can be accessed both on and off-campus, it means that they can support students learning outside the lecture hall 24 hours a day, seven days a week (Georgouli, 2011). This enables H.E. Institutions to teach not only traditional full-time students but also those who cannot regularly visit the campus due to geographical and time restrictions (Austin et al, 2013). By accessing and by using this system it allows them to learn within a range of possibilities (Hooley & Hutchinson & Watts, 2010).

2.1.2 Real Life Learning
In comparison to the Virtual Learning Environment, real life learning is the continuation of learning. Learning is seen as the continuing process throughout an individual’s life (Ryan et al, 2000). Individuals are constantly learning something through incorporating input almost every hour of everyday as they exchange patterns of thoughts with one another and develop habits over time (Ryan et al, 2000). Over a period of time an individual’s educational needs will change and the level of resources that may be available to support educational activities may also vary (Ryan et al, 2000). However, Mason (1993) suggests that that no teaching and no information becomes knowledge to any of us until the individual mind has acted upon it, translated it, transformed, absorbed it, to reappear, like our bodily food, in forms of vitality. As such, real life learning is not just what is in the pages of a workbook or the interactions of an online environment as it includes the learning of historical facts and discovering the world (Mason, 1993). By creating a rich learning environment real life learning becomes living and very simple (Mason, 1993). As adults we begin by reading and observing what goes on
around us because there is a purpose to education and the nature of learning. Gardner (1983) has suggested that there are seven human intelligences, which are verbal, linguistic, logical, mathematical, spatial, musical, kinaesthetic, interpersonal and intrapersonal.

However, most early theories of intelligence (Campbell, 1979-2014: (Gardner, 1983) have stated that there are only two forms of intelligences that dominate the traditional pedagogy of western society and they are verbal *linguistic* and logical *mathematical* and as such, there is a need to explore how students engage and interact with Virtual Learning Environments. In particular how the design of VLEs are impacting on students engaging with the learning process. Current thinking does not discount these theories but simply builds on them to include a self-concept. It is therefore due to the two forms of intelligence suggested by Campbell (1979-2014) and Gardner (1983) that necessitates the following sections.

2.1.3 Pedagogy Approaches

The purpose of this section is to provide a brief overview of the various pedagogy approaches that could be used and are used in teaching and learning. There are a number of approaches that can be used by educators. A range of pedagogy approaches are generally quoted within the research literature (JISC, 2009): (Jara & Mellar, 2007): (Beetham & Sharpe, 2013): (Ryan *et al*, 2000). However, to define Pedagogy would be to look at the theoretical concepts and approaches of (Dewey, 1933): (Vygotsky, 1896): (Bruner, 1915). Pedagogy is the practice of teaching (Dewey, 1933/1960) and as learners within H.E. are now seen as active participants in their learning process it is important to understand how technology enhancements are changing many educators approach to using this technology for learning (Beetham & Sharpe, p.2, 2013). Compared to Andragogy which is seen as the study of self-directed learning (Kapp, 1833): (Heider, 1958) and Heutagogy which is seen as ‘the process of engaging adult learners within the structure of a learning experience’ (Heider, 1958). Educators need to think if technology enhancements are pedagogically effective because pedagogy is seen as bridging theory and practice (Beetham & Sharpe, p.3, 2013). The process of learning within H.E therefore becomes a reciprocal experience for the learner and the tutor (Vygotsky, 1978). It is worth noting that pedagogy approaches are used in H.E. and for online and E-learning. Online learning and E-learning can be seen and classed as distance learning (Conole & Maarten & Dillon & Darby, 2008). As technology advanced from using other mediums for learning such as Television and Radio in the 1920’s and the 1950s respectively (Perraton & Creed, 2000) it becomes necessary to look at what distance education is and how this convergence between
technologies through advancement in computing technology became relevant to TEL. Therefore the following section provides a brief history of distance learning.

### 2.1.4 A Brief History of Distance Education

According to Bower & Hardy (2004) the history of distance education and instructed learning systems go as far back as 1728. These systems were known as correspondence study and relied on postal mail (Bower & Hardy, 2004). Correspondence programs began to spread throughout the United States and travelled to Britain in 1873 due to Anna Eliot Ticknor (Bower & Hardy, 2004). Ticknor (1873) founded a Boston-based society to encourage study at home (Schlosser & Simonsen, 2006). This was loosely based upon the English version of Society for the Encouragement of Home study but was different in a number of respects. The English society extended its benefits purely for upper class women of leisure whereas the American society served women of all classes and specifically sought to serve women who were already busy with chores at home, showing how they might profitably use their time for study and enlightenment (Schlosser & Simonsen, 2006). Furthermore, the English society provided only a standard curriculum and students were expected to complete the course work on their own. However, this was in direct opposition to the American society as they provided individually planned courses and constant interactive communications between instructors and students (Bower & Hardy, 2004). The English society required its students to travel to London to take a final competitive examination. The American society with its individualised teaching plans dispensed with this formality judging it impractical due to the geographic distances between instructors and students by recognising the limited financial means of many of its students (Ticknor, 1873). Correspondence learning groups were separated but they were of a formal nature and the original target groups of distance education efforts were adults with occupational social and family commitments and this remains the primary target group of today (Schlosser & Simonsen, 2006). Distance education provided the opportunity to widen intellectual horizons, as well as the chance to improve and update professional skills and knowledge. Furthermore, it stressed individuality of learning and flexibility in both the time and place of study (Schlosser & Simonson, 2006). As correspondence study continued to develop in Britain more and more correspondence institutions began appearing such as Skerry’s College in Edinburgh 1878 and the University Correspondence College in London in 1887 (Schlosser & Simonsen, 2006). However, since 1969 and along with the founding of the British Open University these events began the modern movement in distance education in America and the UK. Today with the advent of new technologies such as Web 2.0 and the medium of the Internet distance education continues to thrive (Bower & Hardy, 2004).
these new technologies developed interactive education began to flourish and so began to change the landscape of distance learning. The medium of the Internet allows for a variety of asynchronous and synchronous activities such as ‘chat sessions and online discussions’ (Bower & Hardy, 2004). Overtime this has led to the development of web-based VLE’s predominately within the H.E. sector.

2.1.5 A Perspective of VLE use for learning

Communication can originate from a source to a destination and from a sender to a receiver through certain medium. This medium can either be in the form of print or using electronic technology (DoE, 2013). Technology has played an important role in education since the early 1920’s and 1950’s when radio and television were used widely as educational tools for broadcasting in education (Bower & Hardy, 2004). With the advancement in technology new forms of media are complementing old. This has led to a greater choice for individuals in how they choose to learn (Dale & Lane, 2007). The medium of the internet has allowed many individuals and organisations a means to deliver courses to new and different audiences while including a global audience and such Higher Education is in a transition (Ryan et al, 2000, p. 3). The influence of TEL and student engagement (Browne et al, 2008) has led to a range of strategic questions being asked at H.E. Institutions. This is to discover the influence of external and internal strategies had on the development of VLEs for many H.E. Institutions in the UK (Browne et al, 2008). Table1 below from the survey of technology enhanced learning for Higher Education by Browne et al in (2008) shows that external and internal strategies do have a major influence on the implementation of a VLE.

Table 1: Internal and external strategies that have influenced the development of a VLE

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>Total</th>
<th>pre-92</th>
<th>post-92</th>
<th>Coll</th>
<th>Eng</th>
<th>Wal</th>
<th>Sco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies have a great influence on implementation</td>
<td>24</td>
<td>32%</td>
<td>21%</td>
<td>58%</td>
<td>12%</td>
<td>34%</td>
<td>43%</td>
<td>100%</td>
</tr>
<tr>
<td>Strategies influence implementation</td>
<td>40</td>
<td>54%</td>
<td>62%</td>
<td>39%</td>
<td>67%</td>
<td>53%</td>
<td>43%</td>
<td>76%</td>
</tr>
<tr>
<td>Strategies have limited influence on implementation</td>
<td>10</td>
<td>14%</td>
<td>18%</td>
<td>4%</td>
<td>22%</td>
<td>14%</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Strategies have no influence on implementation</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>


Browne et al, (2008) looked at how TEL within post-92 Universities is being used with 58% responding that strategies have a great influence, as opposed to 20% of pre-92 universities and 11% of H.E. institutions in the UK. The difference between then and now is the institutional uptake with the technology and the influence technology developments have on teaching and
learning. TEL includes the use of VLEs and these are seen as tools and systems that create an online environment which are designed to store course materials and allow the students and lecturers easy access to online materials (Austin et al, 2013). They are also used to engage learners in student-student and student-instructor interactions. There has been a dramatic increase in the use of VLEs within H.E. over the last few years (Britain & Liber, 2006). The different types of VLEs used in institutions in 2001-2003 are shown in Table 2 below;

Table 2: A bar-chart graph showing a comparison of VLE use in H.E. Institutions

<table>
<thead>
<tr>
<th>VLE type</th>
<th>2001</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>37</td>
<td>50</td>
</tr>
<tr>
<td>WebCT</td>
<td>23</td>
<td>39</td>
</tr>
<tr>
<td>Other VLE developed in house</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Other intranet based developed in house</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>FirstClass</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Commercial intranet based product</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sakai</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other open source</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other commercial VLE</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Other open source VLE</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>NovVLE</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Desire2Learn</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Blackboard</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Course</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Research completed by Browne et al (2008), shows a there to be a high level of VLE use within institutions and identifies Blackboard and Web-CT as seen in Table 3 being the leading platforms across the sector as it was in 2001-2003. Blackboard still remains the market leader of the commercial platforms but other platforms are now in existence.

Table 3: Main VLE currently in use in pre-92 and post-92 Universities in the UK

<table>
<thead>
<tr>
<th>VLE type</th>
<th>No.</th>
<th>Total</th>
<th>pre-92</th>
<th>post-92</th>
<th>Coll</th>
<th>Eng</th>
<th>Wal</th>
<th>Sco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moodle</td>
<td>41</td>
<td>155</td>
<td>55%</td>
<td>60%</td>
<td>67%</td>
<td>56%</td>
<td>70%</td>
<td>59%</td>
</tr>
<tr>
<td>Blackboard</td>
<td>37</td>
<td>50%</td>
<td>41%</td>
<td>62%</td>
<td>56%</td>
<td>51%</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>WebCT</td>
<td>23</td>
<td>33%</td>
<td>33%</td>
<td>35%</td>
<td>31%</td>
<td>29%</td>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>Other VLE developed in house</td>
<td>17</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other intranet based developed in house</td>
<td>9</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FirstClass</td>
<td>7</td>
<td>10%</td>
<td>15%</td>
<td>6%</td>
<td>31%</td>
<td>9%</td>
<td>0%</td>
<td>28%</td>
</tr>
<tr>
<td>Commercial intranet based product</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sakai</td>
<td>4</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>11%</td>
<td>3%</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Other open source</td>
<td>4</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
<td>29%</td>
</tr>
<tr>
<td>Other commercial VLE</td>
<td>3</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other open source VLE</td>
<td>3</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NovVLE</td>
<td>3</td>
<td>4%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Desire2Learn</td>
<td>2</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
<td>0%</td>
<td>2%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>Blackboard</td>
<td>1</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Course</td>
<td>1</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>


However, in many cases although there is a high uptake with VLE engagement evidence within the research shows that VLEs are optional and not a mandatory requirement. A case study by Britain & Liber, (2006) shows that unless lecturers perceive the VLE as ‘adding value to their teaching they will be unlikely to use it for learning activities’. The case study by
Britain & Liber, (2006) suggests that many H.E. students ‘will not engage with online learning opportunities unless the use of the VLE is fully integrated into their programme of study, including its assessment criteria and their learning outcomes’.

As VLEs are now widely recognised as important components within the H.E. strategy the main focus is by the institutions ICT services in implementing the choice, funding, installing and overall maintenance of the VLEs and their technical support (Armitage, Browne & Jenkins, 2000). As recent evidence shows (Armitage et al, 2006) VLEs are a new development for many H.E. Institutions but as yet this is poorly matched by their delivery of the course content (Armitage et al, 2000). While usage of VLEs by staff, students and H.E. courses continue to grow significantly (Browne & Jenkins & Walker, 2006) there is limited data available on the levels of adoption by individual staff. In 2005 VLEs were being used by more than 200 staff at 40% of 5 Pre-92 universities and 76% of post-92 universities (Browne et al, 2006). This does not however tell us what proportion of H.E. staff are interacting and engaging with the VLE. However, a 2005 case study that included two H.E. Institutions reported staff usage levels of 90% and 44% (Bell & Bell, 2005).

Table 4: Institutional adoption of VLEs

<table>
<thead>
<tr>
<th></th>
<th>HE - Pre-</th>
<th>HE - Post-</th>
<th>HE</th>
<th>HE all</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>41</td>
<td>45</td>
<td>27</td>
<td>39</td>
</tr>
<tr>
<td>Yes</td>
<td>98%</td>
<td>84%</td>
<td>93%</td>
<td>97%</td>
</tr>
<tr>
<td>No</td>
<td>2%</td>
<td>16%</td>
<td>7%</td>
<td>3%</td>
</tr>
</tbody>
</table>


While it is clear that institutional adoption is widespread and most students are experiencing some use of VLEs equally it appears that adoption by staff within these institutions is quite varied and often significantly lower. This is due to the barriers faced by academic staff that hinders adoption of the VLE and it appears that individual academic staff are seemingly less enthusiastic than management or their support staff (O’Donoghue, 2006). Furthermore, the above data focuses on the overall institutional perspective and academics could provide a missing part of the VLE picture (Morón-Garcia, 2006). As with the case study by Britain and Liber (2006) Blackboard and or the Web-CT platform remain deployed within many institutions and remain the most commonly used VLEs. However recent developments and
changes over the last decade within ICT have undoubtedly revolutionised academic activities. This is due to open source platforms such as Moodle and in-house development (Browne et al., 2006).

2.1.6 The Key Concepts of E-Learning
There are many definitions for E-learning and this is synonymous with the term online learning. Online learning is facilitated and supported by web-based technologies (Palcher & Daly, 2011). As E-learning becomes ubiquitous many H.E. Institutions have incorporated this technology into their teaching and learning framework. As such the concept of E-learning no longer ‘requires a physical presence on campus’ (Palcher & Daly, 2011). However, online learning and E-learning are known as terms and in the context of this paper there is still a mandatory requirement for students to attend campus for lectures and class seminars. A VLE should provide full flexibility not only for students but for the lecturers. This is because E-learning services require full flexibility of the learning scenarios and in H.E. the pedagogical approach has now become student centred (Dube, n.d.). The role of Blackboard, Moodle and Web-CT is to provide students with access to course information and is there as a learning resource that more importantly is now designed for learning which has now become more popular than instructional design (Britain, 2004). How Blackboard, Moodle and Web-CT are used depend on how creative the lecturer is. The features and tools that support learning and extend communication between students and lecturers provide the facilities that engage students in learning (Britain, 2004). Learning is an activity in itself and as such motivation for learning is intrinsic and not seen as extrinsic (Clarke, 2013) therefore the concept of E-learning and specifically the use of a VLE calls for motivation, engagement and collaboration from the student and lecturer in order to achieve the maximum result (Dube, n.d.).

2.1.7 Virtual Learning Environment Design
This section looks at the design of VLEs to determine if this is having an impact on how students are engaging and learning. Previous and current research by (JISC, 2009): (Scheuennann et al., 2004) shows that the design of VLEs plays a role in engaging individuals in computing activities. As computing has advanced in processing power and network connectivity (Hoyos et al., 2010) suggest that the overall design of a Virtual Learning Environment can determine the extent of interaction by students. Currently there are a variety of VLEs used in H.E such as Blackboard, Moodle, Web-CT (Web-Computer Tools) now owned by Blackboard and Lotus Learning Space (Browne et al., 2008). However, due to emerging technologies there is evidence within the research literature (Hoyos et al., 2010): (Livingstone & Kemp, 2008) that external learning tools should be integrated within existing
models. But if the VLE being used is commercial based then there may be a variety of conditions imposed for integrating external tools and each tool may impose different conditions to be integrated in the VLE (Hoyos et al, 2010). VLEs include tools and activities distributed within but an institutions business systems administration department has the overall say as to what VLE they will integrate and use. However, this group may involve a LEG (Learning Environment Group) and a VLE project board who oversee and have the responsibility of the operational and physical side across the University. They have the devolved responsibility for VLE governance through the UEB (University Executive Board). As a tool for learning VLEs can entail an integration cost for the institution (Austin, 2013); (Britain & Liber, 2006) and as such within the VLE contract there are respective conditions that need to be met before any system can be integrated (University of Queensland, 2013); (Perraton & Creed, 2000). It is however, important to mention that many educators do not have the option of choosing or deciding on the use of a specific VLE because institutions impose what their educators will use (Scheuennann et al, 2004). The research literature shows that developing VLEs present technical, transitional and pedagogical concerns and the VLE should be customised with these issues in mind (Scheuennann et al, 2004). In comparing Blackboard to Moodle (Logan & Neumann, 2010) have suggested there are very little differences except that Moodle is open source software. It is generally how each one is being used and their inherent file structure, coupled with the community behind each product that present some differences. Other research shows that Moodle tries to support a social constructivist view (Logan & Neumann, 2010). This learning environment can therefore been seen to support a constructionist pedagogy while providing a social experience which Blackboard does not do due to its inherent file structure. However, Blackboard does provide tools which encourage contact between student and lecturers and access to a wide range of media. Research by Lane (2007, 2008) suggests that the inherent structure of Blackboard could constrain lecturers approach in the way that they design the learning path for their course. From an academic point of view the VLE should be designed to be of value when combined with other and more traditional forms of course delivery and support by enriching the overall learning experience (Perraton & Creed, 2000) : (Livingstone & Kemp, 2008): (Becta ICT Research, 2004). It is also important to ensure your efforts to populate the VLE area with valuable resources are not wasted because behind a successful VLE area was the enthusiasm of individual teachers or trainers and often linked with their good use of technology to improve learning in the classroom and workshops (Ofsted, 2009).
2.1.8 Benefits and Barriers to using a VLE

ICT is now seen as an integral part of the daily lives of many people (HEFEC, 2010). Within the research literature (Becta ICT, 2004):(JISC, 2009): (Browne et al, 2006):(VLE4VET, n.d.) there seems to be a pragmatic and practical stance of respecting the capabilities of the VLE. Evidence in the literature suggests that VLE’s will never replace direct teaching within the classroom or teachers (HEFCE, 2011):(VLE4VET, n.d.):(Mowafy & Kuhn & Snow, 2013). However, a VLE can provide a mixture of face to face teaching and online learning. The advent of the learning platforms means that students and lecturers have access to a shared online learning environment (JISC, 2009). However this action can require an understanding of the technology (HEA, 2011) but many educators have reported that using the technology is merely only used as a means to an end (Mowafy et al, 2013):(HEFCE, 2010). The technology can enable them to make better use of the limited time they have with their students as activities can be completed online (HEFCE, 2010). This enables a more effective timescale for working and teaching individual students (HEFCE, 2011). VLEs support communication between educator and the student and they can be used to support communication between student and student (VLE4VET, n.d). Due to computing and technological advancement over the last two decades communications within the VLE are supported for synchronous and asynchronous online discussion tools (JISC, 2009). These systems can be defined as ‘computer based environments that are relatively open systems that allow interactions and knowledge sharing with participants and instructors and provide access to a wide range of resources’ (Cho & Liu, 2005). A VLE provides the tools which can encourage contact between students and their educators (Logan & Neumann, 2010). Although much of the research literature emphasised the potential value that VLE use has in H.E., others have specified disadvantages (JISC, 2009). Students using a VLE may become isolated and have feelings of isolation, frustration and anxiety coupled with confusion. Research commissioned by JISC and by the British Library in (2009) warns that ‘despite their familiarity with computers, learners lack the critical and evaluative skills required to interpret information found online. The second phase of the JISC Learner Experiences of e-Learning programme, reporting in 2009, also highlighted the need to support learners in developing digital literacy skills’ (JISC, 2009). There is also evidence (Lingard, 2007): (Dale & Lane, 2007) showing increasing external and extrinsic forces of motivation for using technology to support learning. Research shows for many institutions their technology is the key objective and this drives the decision making. However, learning should be the key objective and pedagogy should drive the decision making (JISC, 2009).
2.1.9 The Potential of new technologies to support learning
The advancement in technology has paved the way for more self-directed and independent study particularly for H.E. and lifelong learning (JISC, 2008:2009). The use of technology can now support a variety of ways that learners manage their own understanding (South-West Educational Development, 1999). As online technology becomes increasingly ubiquitous, it is easy to look at the way that people use this technology to support the activity of learning (Dale & Lane, 2007). The internet and the growth in internet-focused peripatetic devices looks set to continue (ITU-D, 2010); (Clarke, 2013); (Browne et al, 2008). There is also a rich literature that examines the use of technology in supporting learning (Naismith & Lonsdale & Vavoula & Sharples, 2004); (Livingstone & Kemp, 2008); (Browne et al, 2008); (Becta ICT Research, 2004). Where technology is used to deliver information, it serves as a range of functions. It can for instance supply information about courses, colleges, Universities and more. This can increase people’s access and remove the limitation of access to information through conventional communication such as postal mail and telephone (Naismith et al, 2004). There is evidence within research literature that shows projects have been undertaken to evaluate and explore a wide of new technologies for learning (Naismith et al, 2004). For instance, weblogs Warburton, (2005) and virtual classrooms Neumann, (2005). The following sections provide a brief introduction to some of the technological tools that are currently used in some H.E institutions to support the learning process:

I. Weblogs
Weblogs are defined as websites that consist of a series of entries that have been arranged in reverse chronological order, which are updated with new information about particular topics (Tech target, 2001-2014). As Warburton (2005) suggests weblogs can be used by students and tutors to support communication. Within a VLE there is a tool and a feature that could be described as web-blogging. This particular feature is called a wiki (Neumann & Logan, 2010). Wikis are tools which provide ways to quickly share information without the need of expertise or advanced tools. Blogs will and can contain posts and these are similar to journal entries. They can be from a group or from an individual person.

II. Virtual Classrooms
A Virtual classroom is defined as ‘an online classroom that allows students to communicate, view presentations, interact with learning resources and work in groups’ (University of Queensland, 2011). Virtual classrooms can be used to hold lectures and tutorials online, particularly for engaging with external students (UOQ, 2011). With the medium of the internet almost becoming ubiquitous for everyone at any time due to Web 2.0 technology,
Virtual classrooms are now becoming a reality. Virtual classrooms can have a massive impact on student learning and their perception of learning and this may change the learning process. There are many VLEs that have tools and features incorporated that enable virtual classroom learning.

III. Assessment Tools
Assessment tools are defined as tools to help educators identify the strengths and weaknesses of an individual and individual’s skills (Tertiary Education Commission, 2010). These tools allow the learner to track their progress over time and enable educators and H.E. Institutions to report on the progress made by their learners (TEC, 2010). Within many VLEs there are evaluation tools that allow students to submit content and receive grades and feedback from the lecturers. These evidence based tools provide and guide effective teaching practice that can improve on teaching and learning.

IV. Lesson Videos and online clips
Lesson videos and online clips such as Khan Academy, and O2 Learn allow educators to learn more about the successful techniques and approaches of others, and offer students access to excellent teaching beyond the classroom (DoE, 2013). Teacher-Tube and ItunesU provide free online lessons and videos for students, which have been developed and uploaded by teachers, academics and other experts (DoE, 2013). There are a variety of rich media resources, and other ways of accessing knowledge such as online subject communities, experts and other educators. Lesson clips and online clips and links to videos can be posted onto a VLE or uploaded to the forum and spaces section.

V. Social Networking
Social networking is defined as using a dedicated website or other web application which enables learners to communicate with each other by posting information, comments and messages (Rouse, 1999-2014). Social networking has been around a long time but through the medium of the internet it has the potential to be developed into a learning tool. This tool can help and develop with learning as it provides the capacity for collaborating and sharing (Digizen, 2005). Social networking relies on effective communication between people and commonalities (Serrat, 2008). The commonalities between people is that they are students. The VLE has the capacity for social networking but like all the features and tools they need to be made available and activated by the lecturer.
2.10 Conclusions
While there are a wide variety of technologies available to support the learning process the potential for future technology is wide and varied. Tools for supporting learning such as the VLE (Browne et al, 2006): JISC, (2009): Becta ICT research, (2004) do provide many benefits for students and educators. While the literature evidence in case studies by (JISC, 2008:2009): (Browne et al, 2008): (Becta ICT research, 2004): (Dale & Lane, 2007) shows VLEs having a significant impact on the process of teaching and learning it also shows that many institutions need to look at the design and implementation process if they are to incorporate a range of pedagogy approaches to enable students to participate fully with the VLE (Jara & Mellar, 2007): (Perraton & Creed, 2000): (Livingstone & Kemp, 2008). There has been two criteria identified which were learner satisfaction and learner use. This was to represent the effectiveness of the learning environment based on previous research by (Vygotsky 1978): (Alavi & Wheeler & Valacich, 1995). The findings suggest that students using a VLE who do not have full access to all of the learning activities and features are not given the opportunities to explore and experiment with the VLE. However, this may be due to many lecturers adopting to new technology and the transition period seems to be an enduring outcome. The overall objective is to improve the student learning experience (Jara & Mellar, 2007): (Clarke, 2013): (Dale & Lane, 2007). This can only be achieved by allowing students access to all the learning and activity features within the VLE. As lecturers deal with many changes that new technology brings they have to continually adapt and acquire new skills and this transition is ongoing.
Chapter 3 Methodology

3.1 Introduction
The purpose of this chapter is to provide a justification for using a particular methodology and an explanation as to why this methodology was used for this study. This chapter has eight sections that involve research design and some guiding principles. The methodology which involved qualitative research. The data collection that discusses the reasons why collecting empirical data is important in the context of this study. The data collection method which compares and contrasts various data collection methods and justifies the chosen method for this study. The design of the questionnaire provides a discussion of the chosen design and a sampling section explaining why this sample was chosen. The pilot study section provides a description of the procedures involved in the design of the pilot questionnaire and how feedback from this questionnaire influenced design and structure changes in relation to the formal questionnaire survey. The next two sections include discussions on investigating the main issues involved with this study and who the participants were.

3.1.1 Research Design
The main aim of this section is to discuss and describe the research design that has been utilised. With concerns for validity, and the generality of the research, the following questions were used in order to aid and act as the guiding principles in formulating the research design questionnaire:

• Data on what?: What does this data represent?

• Strength of the claim: How well does this data inform me of the issues that are being addressed in the questionnaire?

• Analysing the data: How can I analyse the data and understand the qualitative data obtained?

By using this approach it enabled an opportunity that allowed the construction of a detailed picture regarding student’s experiences, their attitude, their perceptions regarding the design and use of the VLE.

3.1.2 Methodology
To examine the challenges posed by the design of a VLE and its use in H.E. qualitative data was collected using a qualitative research methodology involving a survey questionnaire. The data was collected from the questionnaire to understand the issues in question because the research is aimed at exploring VLE design and to compare use and engagement by students. The primary data was interpreted in order to seek established themes that might emerge from
the literature research. The term survey is commonly applied within a research methodology which is designed to collect data from a specific population or a sample from that population, it typically utilises a questionnaire or interview as the instrument (Robson, 1993). Survey questionnaires are widely accepted as one of the key tools for conducting and applying basic research and are used as part of a social science research methodology (Rossi, Wright, & Anderson, 1983). There are established theories and evidence discussed in previous and current literature that are common across several of the articles and they are discussed within the literature review. Some of the theories include a range of discussions about the design and value, the range of pedagogy, how useful the technology is in supporting learning, the purpose of a VLE and are discussed and evaluated in depth within the literature review.

3.1.3 Pilot Study
The main aim of the pilot questionnaire was to gather a range of collective data that could be analysed and to gain valuable feedback that would enable the primary survey questionnaire to be designed in such a way that prevented confusion to students. The pilot questionnaire aimed at identifying any ambiguous questions and additionally determined whether or not the order and style of questioning was right. Any ICT terminology that was used that students might perceive as hindering their capability in giving a precise response was simplified and fully explained. In addition many of the students helped in providing valuable feedback on the style of questions. There were (n=19) questionnaires distributed and all questionnaires were completed. Pilot studies enable opportunities that allow for evaluation of both reliability and validity of data (Gillham, 2007). Pilot study questionnaires allow researchers the chance to practice with design and style of questions because the design, formatting and style of questions is crucial in order to obtain the correct data (Gillham, 2007). Valuable feedback about the style of questions was analysed to determine how to format and style questions in a way that would not confuse students and provide the correct data that would allow effective analysis. When the pilot questionnaire was returned and information was analysed a review of the questionnaire was completed. The review concluded that changes needed to be made as feedback concluded that the style and formatting of the questions to capture the data could have been improved upon and the layout caused some confusion to students. The formal research would then be implemented only after research that was based on the design of questionnaires and the use of pilot studies (Converse & Presser, 1986) had been completed and alterations had been done.
3.1.4 Data Collection
In order to generate data two questionnaires were developed as a questionnaire is one source that allows for the collection of empirical data. Empirical data enables opportunities that allow for the analysis of findings within the study. With this method it is intended to identify some key elements of the current and previous theory applicable to the context of the study as this help to provide a framework for the analysis and conclusions. In total there were (n=104) students. However, as a result of data gathering it was acknowledged that the questionnaire was one of the essential roles in research study involving a considerable period of time and resources. The questionnaire was divided into two main parts which composed of general questions to explore the background of the respondent and the second part provided a ranking scale for the reasons for effectiveness or ineffectiveness regarding the use and perception of the VLE.

3.1.5 Data Collection Method
There are distinct advantages in using a questionnaire versus the personal interview method because questionnaires are less expensive and they are easier to administer than arranging personal or telephone interviews. For a qualitative research study, there are a myriad of research methods that have been advanced by authors. These include telephone interviews, personal interviews and e-mail surveys (Bertram, n.d). For this project a survey questionnaire was used because this has been seen within social science research to be the most appropriate method for collecting data (Rossi & Wright & Anderson, 1983). The use of survey questionnaires allow inter-active methods between the researcher and students which would enable the researcher to be placed in a better position so they could provide an explanation that would clarify ambiguous questions and regulate how students provided their answers. E-mail surveys are another method that can be used to generate data. The decision was made against using e-mail surveys because it might take time for students to reply (Rossi & Wright & Anderson, 1983). Some e-mail surveys might not reach the chosen sample because there is no assurance that the correct e-mail address has been supplied (Rossi et al, 1983). As a result the e-mail survey could end up not being completed or returned. Many students do-not filter junk e-mails and many others ignore e-mail surveys. Some research was completed into telephone and personal interviews to see if either of these methods was suitable. A telephone interview places the researcher in a situation whereby they need to speak to a range of people to obtain data. This approach can be complex due to people not answering their telephone or not willing to provide information over the telephone. An incorrect number can cause frustration because this action can waste time, resources and effort. This approach can be a
financial burden because of the amount of calls that may need to be made. Due to the lack of resources, the high probability of wasting precious time and financial cost this method was deemed not feasible for the study. Personal interviews involve arranging a suitable time to meet with students and this method involves a range of questions. This method might involve booking rooms and arranging places to meet interviewees. Due to time and travel restrictions, time scale and time management this method was deemed not feasible for this study. However, in justifying reasons for using questionnaires, they are seen as economical and reliable in collecting research data compared to the other methods mentioned above (Rossi & Wright & Anderson, 1983). The main drawback was that students were not sure if information that was supplied by them would be used against them, case of students not supplying comprehensive information or withholding essential information were prevalent. However, privacy measures had been taken in order to preserve the safety of responses. During the process of preparing questionnaires, additional sheets were attached. These were marked as appendix A and appendix B. The information on the sheets allowed the student to read and then decide to participate or not. For the questionnaires, it was expected that the exact number dispensed to the students would not be the same submitted back. The main reason this can occur is that some people are inclined to disregard completing questionnaires. To eliminate that problem, a counter strategy was adopted by using a follow-up process with the aim of ensuring that questionnaires were successfully completed. Any difficulty that was likely to occur was therefore solved and as a result all questionnaires were completed. The process of collecting data took approximately 5 days.

3.1.6 Design of the Questionnaire
The main aim of this section is to describe the methodologies that were used and how these methods were applied. This section seeks to justify the chosen research design in addition to the precise methodology that was used. A questionnaire was designed to obtain qualitative data as this enabled an opportunity to arrive at a more complete understanding of explored issues. This approach was based on previous survey questionnaires that have been used in H.E. (LEA, 2011): (Battersby, n.d). The questionnaires were composed of open and closed questions while other questions were based on the Likert scale. The use of the Likert scale questions would hopefully determine a pattern of happening and also determine how much a study participant would either agree or disagree with the form of question asked. Using a Likert scale enables the respondent to choose one option based on their opinion, knowledge or behaviour and this option best aligns with their view (McLeod, 2008). The open questions utilised in this study involved students selecting among the various alternatives that were
provided which closely matches their views regarding the subject matter being discussed. The results obtained are based on a section of the student population. A sample of the primary research questionnaire used in the study is within and marked in the appendix.

3.1.7 Sampling
The study is aimed at investigating VLE design and the challenges posed for students in HE that are using this. To address this, there was a need to identify the study students. From the nature of the research question a target population of students was identified. Primarily, the users are best suited for this study considering that they will provide the most reasonable insights since they interact with a VLE. In targeting the student population, a technique called accidental sampling was used in this regard as it was convenient for the researcher because the sample population was readily available (Gillham, 2007). Having researched other forms of sampling such as quota sampling it was decided that convenience sampling would be used due to time restrictions. Convenience sampling allowed the use of a sample of students but there are drawbacks to using this type of sampling because the results may not be wholly representative (Gillham, 2007). To compensate for this a breakdown of the whole group was done in terms of age, sex, whether full-time or part-time, if undergraduate or other and their experience of IT. It was felt that these characteristics play a role in students’ knowledge and experience of dealing with challenges posed by interacting with a VLE. Students can tell more appropriately their IT experience with the changed elements in relation to their past practice. Having provided the rationale for identifying this target group, the number of participants was identified. In this regard, there were (n=104) students.

3.1.8 Participants
The research participants involved a range of adult students with various ages that were from a range of academic schools within the University of Derby. The participants were asked to complete a questionnaire with the understanding that the results they provided were for this research project only. The participants were approached while they and the researcher were attending the University because this was convenient and this approach allowed for data to be collected quickly and is an inexpensive way of ensuring sufficient numbers of a study. The participants were chosen because they were readily available and they had free time between lectures and were willing to oblige.

3.1.9 Exploring Issues
The issues that are being explored include but are not limited to a lack of training in the use of the technology and a high expectation to use the technology in a HE learning environment. A
wide range of demographics has been chosen as this will allow for the opportunity to analyse different groups to determine if there are any patterns of use. The questions within the survey aim to determine if there is a pattern of use between males and females from different academic schools. To understand who has had previous experience of using a VLE to analyse if having previous knowledge might influence student’s perceptions. To determine if having an induction to using the technology would be beneficial regardless of previous knowledge. This is because there are a wide range of VLEs used in education. To determine the frequency of engagement of use in order to analyse if there are patterns due to the design of the VLE. This is because the design and layout of a VLE can affect how people use it (Conole et al, 2004): (Scheuennann et al, 2004). To determine how students use this technology and what they use it for. This is to understand if students are aware of the range of learning features, learning activities and learning tools that are associated with this technology. To determine how students find accessing the VLE at the University. This is to understand if any patterns emerge within groups between accessing and use of the VLE. To determine any developments that may assist students in the foreseeable future. This is to obtain valuable information that may be useful for further studies. By exploring a range of users who are involved with using and engaging with the VLE valuable information could be analysed which would allow for some assumptions to be made based on this evidence. More over by comparing the data collected from study students, the views that were mentioned in the review of the literature could either support or challenge the findings of this study.
Chapter 4 Findings and Results

4.1 Introduction
This chapter starts by presenting the findings obtained from the research by setting out the results of the questionnaires. Showing that a wide variety of students who are connected with various faculties had completed the questionnaires. However, this section also shows that a high percentage of students are associated with the computing and maths school. The students had a range of options from a Likert scale (McLeod, 2008). This scale provides options of strongly disagree (1) disagree (2) neutral (3) agree (4) and strongly agree (5). This has been used to show how students perceptions were and these results are presented in the graphs and charts shown throughout this chapter. This chapter shows existing and previous IT experience against engaging with the technology. The impact of VLE design against engaging with technology. The impact of VLE design against using the technology for communication purposes. The impact of VLE design against using the learning tools, features and activities. Comparing having an induction or no induction to using the technology. Comparing IT experience against accessing the VLE outside of University. Comparing future ideas that involve engagement of other resources that may be embedded in the technology and all are briefly summarised within.

4.1.1 Background of the students in the sample
In total there were 104 questionnaires received from students who were all studying fulltime at the UOD as shown in Figure1. The research sets out to investigate the design of a VLE to understand if design influences the learning process and compare student’s requirements to understand usefulness and engagement when using the technology to support and enhance learning. The students are attached to various faculties connected to the UOD as shown in Figure4 and their ages ranged from 18-21 to 50+ as shown in Figure2. This was an attempt to include the more mature student but although this option was supplied all the students were aged 39 or below. The largest number 66 (or 64%) were in the 18-21 age range with 27 (or 26%) females and 39 (or 38%) males. The remainder 38 in total (36%) were split among age ranges. However, 27 (or 25%) were males and 11 (or 11%) were females. The difference in the figures is because at the time of the survey questionnaire being distributed there were fewer females available. This naturally was a shame that a more exact and thorough turn-out could not be achieved- that is to say, one is always concerned that the data merely shows the register of the various faculty’s availability. However, 43 or (41.3%) of the total amount are connected to the computing and maths faculty shown in Figure3 where there is an assumption that they have IT experience and IT knowledge. 32 or (30.76%) of the total amount are
connected to the Derby Business School, 1 (1%) is connected to the Engineering and Technology faculty, 5 or (4.8%) are connected to the humanities faculty while 23 or (22.11%) are connected to the science faculty. The majority of students 91 or (87.5%) had access to a computer and the internet outside of University. However, a small percentage of students 12.5% or 13 in total do not have easy access to a computer or the internet at home. This number is significant because they are attending courses and completing modules that are delivered almost entirely through online materials that are deposited within a computer based virtual learning environment. The UOD does require students to undertake study at home but without ready access to the internet students will find the use of the VLE less flexible than is intended.

Figure 1: Students who completed the questionnaire
Figure 2: Age range of student’s

![Age of student](chart)

Figure 3: Percentage connected to C+M faculty

![Computing and Maths Faculty](chart)
Students were asked to give a response with regards to their IT experience whether they had a lot of experience in the use of IT and confident in using the technology. Or whether they had limited IT experience and were not so confident in using IT. Of the 104 students 89 or (85.5%) felt that they were confident in the use of IT. While 15 students or (9.62%, and 4.81%) as seen in Figure5, part 2 were not so confident in the use of IT or IT technology. This number is statistically significant because they have to use IT technology to access the VLE (Austin et al, 2013) and it is a requirement of any course that students have IT experience. This is because there is an expectation within a HE learning environment that students have previous knowledge. However, if students have limited IT experience they still need to be able to retrieve course materials and participate effectively in learning using the technology. This is because the UOD stores their materials within the VLE and anyone who has not attended education for a period of time or has not had recent experience of using IT or current technology for a period of time may struggle with using the technology. If students had used a VLE before attending the UOD it can be assumed that they have knowledge and experience. Therefore as results in Figure6, part 2 show the majority of students who used the VLE on a daily basis had previous experience compared to other students who had no experience. This would suggest having previous experience and knowledge allows for more interaction with the technology. But it could also suggest that the student’s behaviour pattern allows them to watch how others are learning with this technology and they learn from their friends and other peer groups.
Figure 5: Part 2 Q1 (A) ‘I have lots of experience of computers and feel confident in using them’

![Pie chart showing frequency of Q1A responses]

Figure 6: Part 2 Q1 (B) before coming to the UOD have you interacted with a VLE?

![Bar chart showing how often users use the VLE]

4.1.3 VLE Induction or No Induction

Students were asked if they had attended an induction to the VLE at UOD. Induction would allow students to become familiar with the use of the technology and in turn they could become accustomed with the processes of using it. As can be seen from the findings Figure7, part 2 there is a small percentage of students who never use the VLE. This could suggest that they had missed the induction process. As such missing this information may mean that they need to ask for further assistance when using the tools and features. This would mean
approaching friends or study peers if they feel comfortable in doing so. But this can waste valuable time and a frustrating process. This is because there are deadlines given to students to complete work and to submit this online. However, using the technology on a daily basis would allow them to become comfortable in the process of use because other students on their course need to use it and asking for help would allow them to continue using it.

Figure 7: Part 2 Q1 (C) VLE Induction

4.1.4 Useful for learning and Induction to the VLE

Students were asked in the questionnaire if they found learning with the VLE to be useful. As can be seen from the results in Figure 8, part 2 the majority of students agreed that the VLE was useful for assisting them with their learning. Both Unimail and the personal file storage affect the communication experience. Unimail benefits by not only providing lectures with an easy way of contacting students, but is also a student source for constant social updates, job opportunities and allows for a professional email account be used for applying for jobs or placements. The personal file storage helps students easily communicate with their university account, by providing an online storage space to transfer files quickly to and from University, which is efficient and an email or memory stick alternative. However, a small percentage strongly disagreed that using the VLE helped them learn and this is shown as ‘other’ in Figure 8, part 2. This might suggest that those students who didn’t have an induction to the technology struggled to understand what the purpose of the technology is and what it can be used for. This would also suggest that they missed vital information and they might need to ask for further assistance when using the technology.
Figure 8: Part 3 Q2 (A) ‘I find learning with the VLE useful’

4.1.5 Friendly interface and Engagement
Students were asked in the questionnaire if they found the VLE to have a user friendly interface. As can be seen from the results shown in Figure 9, part 3 the majority of students disagreed that the user interface was friendly but they continued to utilise the VLE on a daily basis. This could be due to the fact that they have no other option but to use the tools supplied by the UOD because the VLE is used as a depository that allows for the storing important information and online materials that participants need to access for their individual modules. However, the design of the current VLE at the UOD is commercialised software which has been known to be restrictive in its use (JISC, 2009); (Logan & Neumann, 2010). The course resources area currently works well, with useful lecture notes, assignment submissions and announcements, which benefits students greatly. But being commercialised software prevents any alterations to the interface or layout due to contract restrictions between the UOD and suppliers of the software. But this daily usage might be because students need to use it. However, disagreeing with how friendly the interface is could suggest that students might be used to other types of software usage such as Moodle (Logan & Neumann, 2010) or open-source learning.
Figure 9: Part 3 Q2 B ‘I find the VLE has a user friendly interface’

![VLE Interface Chart]

Figure 10: Part 3 Q3 ‘I engage with the VLE’

![Use of the VLE Chart]
4.1.6 VLE as a means of communication

Students were asked for their perceptions of using the VLE as a means of communication. Communication processes include sending emails, using group discussions, using VLE online forums and accessing course announcements. This was to analyse how students found using the VLE as a means of communication when they had experience of IT or no experience and to analyse if students found it easy to communicate using the VLE. As can be seen from figure 11, part 4 the majority of students agreed that they found it easy to communicate when sending emails. However, there is a small percentage that did not find it easy to communicate this way. This could suggest that some students don’t use this technology for sending emails and they prefer using their own email software such as outlook or google mail. However, email software (Unimail as mentioned above) is combined with the VLE which enables students to create a professional email address and subsequently create a new email message and send. But if students didn’t have an induction or training in the use of the learning tools and features they would continue to use their own software and not realise this was possible.

With regards to Figure 12, part 4 and Figure 13, part 4 the majority of students were indecisive in their perception of use toward these activities for communication purposes. Some students had said that “they didn’t know these particular tools were available”.

Other students had said “they were unsure of how to use the activities”. This might suggest that some students have a lack of understanding or they lack the knowledge of particular tools and this seems to be prevalent. As the VLE involves a combination of learning tools it is imperative that students know what they are for and how they can be used (JISC, 2009). It can be seen in Figure 14, part 4 that many students found it easy to access their course documents through the VLE. This could suggest that a high percentage have IT knowledge and VLE experience.
Figure 11: Part 4 Q1 (A) ‘Easy to communicate using the VLE for sending emails to lecturers’

Figure 12: Part 4 Q1 (B) ‘I find it easy to communicate using the VLE for group discussions’
4.1.7 Using learning tools features and learning activities

Students were asked for their perceptions of using learning tools, features and learning activities. This was to analyse how students found using these learning tools and whether using the learning tools, features and learning activities improved their learning. This was used to analyse if there were any patterns of use or non-use between students. As can be seen from the findings in Figure 15, part 5 and Figure 16, part 5 the majority of students were indecisive in their perception. The use of technology should provide many benefits (Austin et al, 2013) not only to students but to lecturers and staff but these findings could suggest that
some students don’t use the learning activities or the learning features associated with the VLE due to a lack of knowledge or understanding. This may also suggest that they didn’t have an induction or training in the use of learning tools and features. However, a small portion of students had strongly agreed that when using these features and learning activities they improve their learning. But this improvement would only be seen in their course work which may also suggest that students have used these tools and found them easy to use due to their behaviour pattern because they have become accustomed to them. As shown in Figure 17, part 5 the majority of students agreed that they could contact their lecturer when using these tools and as can be seen in Figure 18, part 5 and Figure 19, part 5 a majority agreed that the learning tools and activities were easy to follow therefore they found them easy to use. This could suggest a behaviour pattern is forming in students because of their daily use of the VLE. However, there are some students who have said they disagreed and strongly disagreed that the learning tools are easy to use and follow. VLEs are now important components of H.E (Armitage et al., 2000) and as such they should be designed to be of value when combined with other forms of course delivery. In Figure 20, part 5 and Figure 21, part 5 many of the students agreed that the VLE was flexible and this approach enabled them to use this flexibility to suit their style of learning. However, there is a small amount of students who don’t agree that it is flexible. This could suggest that some students don’t use the technology on a regular basis and as such they don’t see the capabilities of the VLE.

Figure 15: Part 5 Q1 (A) ‘VLE features and learning activities help me improve my learning’
Figure 16: Part 5 Q1 (B) ‘VLE features and learning activities help me complete my work on time’

Figure 17: Part 5 Q1 (C) ‘When using VLE features and learning activities, I find I can collaborate with students and lectures’
Figure 18: Part 5 Q1 (D) ‘VLE features and learning activities are easy to follow’

Figure 19: Part 5 Q1 (E) ‘VLE features and learning activities are easy to use’
4.1.8 Access and availability to resources

Students were asked how they felt about their access to technology and the availability of technology. This part of the questionnaire was to understand how students found accessing the VLE outside of University and if they had suitable resources and easy access to them. This has been used to understand if students have easy access to computers and the internet outside of University. This was used to analyse if they are lacking resources or having problems accessing resources and if so was this preventing students learning effectively? As can be
seen from Figure 22, nearly 54% of all students said they had easy access to computers outside of the University. As seen from Figure 23, there are 43% of students who agreed that they always find a computer at the UOD and 31% of students strongly agreed. There is a small percentage who state that they don’t have easy access but the UOD provides computing facilities. IT technology is now widely available and there are a range of applications such as Blackboard access that students can download to their smart phone and use if they didn’t have access to a computer. It would only enable opportunities for students with a smart phone to access the VLE. The disadvantage of this is that not everyone owns a smart phone and it would limit the audience and all students need to be taken into account, not just a percentage of them. However, there are many libraries available that students can use if they don’t have easy access to computers. The course materials are provided online and as such students need to access these easily. As can be seen from Figure 24, 49.04% of students found having the course documents available useful. This could suggest they have easy access to computers or IT technology which would enable them to obtain this information quickly.

There is a high expectation in a HE learning environment for students to use IT technology. But there are library facilities that include books, papers, articles and many more. The suggestion is that the use of technology is good for the HE learning environment because it eliminates any form of paper such as course documents that the student may want to print off and read or make notes on in sessions because everything is in a readable format online. As seen in Figure 25, almost half of the students or 41% either strongly agreed or have agreed that having a paper copy of documents in sessions would be useful. This could suggest that they prefer paper over reading information online. Numerous studies have shown that people comprehend what they read on a sheet of paper far better than when they read the same words on a computer screen (Christensen, 2013).

Because of this high expectation for students to use technology in a HE learning environment, everything is stored online in the VLE. Course related resources such as course resources, timetables and grades can be accessed and these increase the ability to access important course information, which might affect the overall learning experience for students. As seen in Figure 26, there were 26% of students who either said they agreed or they were indecisive in their perception. The online resources at the UOD are supposed to be easy to find but many of the students had stated that ‘these were difficult to find naturally’. This goes against Nielsen’s rule that users should know where to go quickly, without wondering where to go next (Nielsen, 1999). This could suggest that the inherent file structure of the
current VLE is causing concerns for some students because the majority of students as seen in Figure 26, part 6 didn’t find it difficult to access the course materials via the VLE. Students were asked for their perceptions and feedback on how they found using the VLE and if it met their individual requirements. As individual students in a HE learning environment they need to decide if using this technology meets what they use it for. As can be seen in Figure 27, part 6 54% of students agreed that it met their individual requirements.

Figure 22: Part 6 Q1 (A) ‘I have easy access to a computer and the internet outside of University’

Figure 23: Part 6 Q1 (B) ‘I can always find a computer to use in University’
Figure 24: Part 6 Q1 (C) ‘I find having the course materials and documents available is extremely useful’

![Pie chart showing frequency of responses]

Figure 25: Part 6 Q1 (D) ‘I would prefer to have a paper copy of documents provided in sessions’

![Pie chart showing frequency of responses]
4.1.9 Possible future improvements

This section is about improving the VLE or indeed if improvements are not going to be required. This part was to gain feedback from students about how they think the VLE could be improved upon and to analyse if a change of VLE has been suggested. This was to recommend any improvements or further research about other resources such as using the library catalogue for reserving books and having a comprehensive online guide that explains how to use the VLE effectively. The UOD provides some great resources for students but they
are not in located in one place. The problem is most students only know about a select few of these resources and combining them in one learning place could be advantageous for their learning experience. This might improve how students interact with the VLE. As can be seen in Figure 28, part 7 the majority of students agreed browsing the University library catalogue through the VLE would be useful and Figure 29, part 7 shows the majority would find reserving library books through the VLE very useful. This would suggest that students would like online resources to be combined in one place because this would enable them to find things naturally, easily and quickly without them wondering where to go next. (Nielsen, 1999). As mentioned in chapter 4 there is an induction to the VLE provided by the UOD. However, as seen in Figure 7, part 2 if induction is missed or cancelled this can cause some concern for students. The VLE has a wide range of tools, resources, features and more that students can use to improve their learning.

To compensate for missed or cancelled inductions students are relying on asking their peers for assistance in using the technology and in turn this is wasting their valuable study time and possibly hindering other students learning. As can be seen in Figure 30, part 7 the majority of students would find an interactive guide to using the VLE helpful. This would suggest having some form or online guide on how to use the technology would benefit them. In Figure 31, part 7 the majority are seen to be indecisive in their perception of changing the VLE. This might suggest they are fulfilled and happy with the technology but it could also suggest that they have not used any other VLE and are reliant on what they currently have. There are many VLEs available to use in HE learning and each one will bring its own issues and concerns. However, listening to what students require and understanding their needs should be an ongoing process.
Figure 28: Part 7 Q1 (A) ‘I would find browsing the University library catalogue through the VLE useful’

Figure 29: Part 7 Q1 (B) ‘I would find reserving library books through engaging with the VLE helpful’
Figure 30: Part 7 Q 1 (C) ‘I would find an interactive and online comprehensive guide to using the VLE helpful’

Figure 31: Part 7 Q 1 (D) ‘If I was given the opportunity I would change the VLE’
Chapter 5 Discussion

5.1 Introduction
As an aide to the reader this chapter provides a brief overview of the study and devoted to a discussion of the findings in relation to the study question. This study sets out to investigate the challenges and issues that the use of VLEs pose. The dissertation has a focus on evaluating VLE design and comparing student’s requirements. The following discussion will focus on application, appropriateness and usefulness of the VLE from student’s perspectives.

5.1.1 IT and recent experience of IT
In response to the first question most of the students were male. This could have been due to the approach used when attempting to ask students to participate. There were more males who completed the questionnaire and this was naturally a shame because having an equal amount of males and females would have given a more balanced insight in how students use the VLE and what they use it for. However, society as a whole views computers and computing technology as being ‘highly technical and part of a male domain’ (Campbell & Mc Gabe, 1984). Research by (Ray et al, 1999) compared the attitudes of men and women with regards to the value of computing technology, the impact of computer technology on people and the relative comfort of men and women when using computing technology. Early literature from the 1980’s found that men had a more positive attitude towards computer technology. However, this being said there is evidence shown that at most Universities in the UK there are more female students than males (Ratcliffe, 2013). In certain subjects such as education and veterinary science the female students outnumber the men but computing and computing science is male dominated. It seems to be unclear as to why there is such a gender gap but it could be stemming from how they were taught at school (Ratcliffe, 2013). The UOD provide IT and library IT facilities for students but if they are not confident in their use of IT this can be detrimental to their learning. Some of the findings show as students’ progress their learning experiences and their perception of using technology for learning can change and this can have an impact on how they use it.

5.1.2 Induction to VLE
In a H.E. environment there is an expectation that students can use technology proficiently. The technology in question combines a range of computing tools, learning features and learning activities. The majority of students who had used a VLE before coming to the UOD attended an induction at the UOD. However, some students had commented:
‘We were only shown the basics of the VLE’
‘We were shown some important links and how to access resources’
‘Our induction was very brief’
‘On occasion the tutor failed to show up’

Given the wide range of activities and learning features associated with the technology it is a fair assumption that some students never interact with learning features or activities. This is particularly important because lecturers in different faculties use the VLE in different ways and their approach to using it for supporting their learning groups might be different. All students and the lecturers need to feel comfortable in using technology for learning but if students are not getting the full benefit from an induction to the technology they have to rely on other peer groups, friends and even searching for their own information about how to use it. The expectation in H.E. for students to use this technology is now so high but without a full induction students will struggle to understand it and not use the technology to its full capacity.

5.1.3 Engaging with the VLE
As previously stated there is a high expectation in a H.E. learning environment that students have experience of using technology for learning. The VLE is used for the storing of course and online module materials and for course announcements. It is difficult to understand why the system is used for administration purposes when there is an expectation for it to be used to support and supplement learning. As such it becomes an administrative tool as it provides opportunities that allow staff to post information to it. In reality the VLE at UOD is seen by many students to be a depository for important administration and information as students use it to access their online course materials and to read important announcements. Many students have stated

‘We didn’t know these features existed’
‘I only access it for my course materials’
‘I don’t use it for my learning’

If this is the reality then it is a fair assumption to say that the UOD need to make the capabilities of the system more prominent. They need to provide an induction that explains the technology can benefit the students.

5.1.4 Design and Layout
The VLE that students use at the UOD is a commercial based piece of software which in turn makes it restrictive in its use for lecturers and students (JISC, 2009);(Logan & Neumann, 2010) due to its inherent file structure and because it is technically defined. However, this is
unlike open source software which is not technically defined. As such students and staff have no control over how information is presented on screen but open source software such as Moodle allows opportunities for the creation of a student profile and different layouts that the staff and students can tailor and control for their individual learning programme (Logan & Neumann, 2010). They can add a profile allowing for a more proficient form of tracking when lecturers use assessments or send announcements. Lecturers can track which students are reading announcements and completing their assessments. However, it seems from the findings that this commercialised software is the only option that students are given to use. As lots of students are now involved with using technology on a daily basis it would be a fair assumption to say that they should be given an option on which technology is being used and asked for feedback on the technology in question. Evidence within the research shows that the design and layout should be such that students find it easy to use in supporting their learning (Clarke, 2013) but feedback received from student’s questionnaires shows that how easy it is to use for supporting their learning is highly dependent on the course they are attending, the faculty they are associated with and the lecturer who is using it. The reality is there are many VLEs used for many different things and as web information becomes more and more diverse computing learning tools will need to change and be adapted to suit individual learning in a H.E environment.

5.1.5 Future use and developments

VLEs are a combination of learning tools that are designed to assist and support students in a variety of ways. In a HE learning environment there is now an expectation that students use technology and there seems to be an empowerment toward student led learning. That being said, technology used to support learning has many advantages and disadvantages (Brunel University, 2010). As lecturers and students rely on using this technology it should be made visible and easy to access on a wide range of channels. This would mean all student systems within the University should be accessible and the system should be easy to use on mobile devices as well as on desktop PCs, tablets and laptops. In turn this would allow students and lecturers opportunities to use the VLE anywhere and at any time for learning. However at present the VLE seems to be used only as a document retriever and as an administration tool. While this benefits the students and staff it does not entail students learning or improving their learning through using the learning activities, the features or the learning tools. From a pedagogical perspective this is a concern (JISC, 2009) while from a managerial perspective and a technical perspective these are concerns that can be easily overcome with upgrades of the VLE software.
Chapter 6 Conclusion and Recommendations

6.1 Conclusion
This dissertation investigates the challenges and issues that the use of VLEs pose. How do students use the technology and does this use improve on their learning? The study discovered that there are several factors that prevent students from using a VLE to its full potential. These factors are: attitudes, behaviour, expectation, VLE complexity, understanding, skills. These factors lead to surface learning and not in-depth learning that is expected from within a HE learning environment. To investigate the challenges and issues that the use of VLEs pose the study involved HE students who use the VLE in their studies, as this allowed opportunities to analyse how they engage with it. There have been a number of works referenced within this project that suggest VLEs are supposed to be used to supplement and support learning. However, due to VLE complexity (Clarke, 2013) many lecturers don’t use it to support the learning process. Many lecturers do not use the technology to supplement student learning due to pedagogical considerations and time pressures (Lingard, 2007). Instead they use it as an administration tool providing announcements and course materials. There are lecturers keen to use technology to support learning if they see the value in it while others feel the activities such as group discussions are a waste of time (Lingard, 2007). The challenge is to improve the student learning experience and a VLE allows for learning anywhere and at any time and it is a popular means of learning due to convenience and flexibility (Becta, 2004).

Through conducting the questionnaires about the use of features, learning tools and learning activities it is visible that 54% of students feel that the current VLE meets their individual requirements. However, these findings demonstrate that when students use learning activities and learning tools they have an impact on how they engage and learn. Another key factor which explains lectures unwillingness to use the technology is pedagogies. Institutions need to decide on how they are designing their courses before they introduce the VLE. As such a learner centred system should be used which would enable individual learning which would result in better engagement (JISC, 2009). This impacts on institutions and higher level stakeholders to provide a system that works effectively for both students and lecturers.
6.2 Recommendations
After conducting the study ‘investigating the challenges and issues that using VLEs pose’ the following recommendations have been made acquired from the findings and lessons learnt throughout the study to ensure students and lecturers have a more positive outlook toward the use of a VLE.

6.2.1 Recommendation for Students
Using a VLE presents many challenges for students. Learning tools, features and learning activities are there to support learning but many students do not know they are available. As such students could form community forums to air their views so the management and lecturers can gain an understanding of their learning experiences when using the VLE.

6.2.2 Recommendations for Management
As technology rapidly changes at an increasing pace and HE institutions having to ensure they have the next generation of technology to stay ahead of their competitors, one approach might be to implement a pedagogical framework for facilitating online group, online forum and tutorial discussions as pedagogies should be recognised. By adopting this approach it will allow lecturers to see the benefits on individual students. As such this approach will:

- Allow for student in-depth learning of subject matter
- Allow for individual learning
- Allow for better student engagement with online learning

From an organisational point of view, the research findings emphasise the importance of:

- Training in the use of the VLE
- Adequate IT support
- Software standardisation to ensure universal systems across the organisation
- Use involvement in new technology implementation process
- End use input before implementing to avoid failures
- Provision of clear documentation

The above elements should be considered by management as supporting mechanisms for lecturers in this ever increasing technology age.
6.2.3 Future Research
A possible area for future research would be to collect some data from lectures and study their perceptions of using a VEL for supporting their teaching and learning.

The current study’s results show that the total number of the population of the male data was 66, however, the female data population was only 38 (similarly valid) but not matching the volume of the male data. The survey was carried out across many faculties which themselves were very dependent upon the availability of the participants. This naturally was a shame that a more exact and thorough turn-out could not be achieved- that is to say, one is always concerned that the data merely shows the register of the various faculties’ availability. Therefore, it would be sensible to undertake a far much larger survey with all faculties, and different age groups in order to fully understand student’s feelings and perceptions of using a VLE.
Chapter 7 Personal reflection

7.0 Introduction
This section of the study will discuss my thoughts about each aspect of the research.

7.1 The Project as a whole
Along with the rest of the Information Technology students and other final year students at the University of Derby, I started preparing for my dissertation near the end of 2013. We had to choose a topic for this project but I was unsure of what topic and having read the ones that were offered I knew I didn’t fancy doing any of them. Not because I wouldn’t have the capabilities but the fact was the topics didn’t appeal to me. So I decided to do my own project and began to lay the groundwork for it with some trepidation as I needed to find a supervisor and I was beginning to have some doubts about this. However, in some areas I do feel I could have achieved more if I had of decided on my topic in the summer of 2013. Time management is important and I feel I have good time management skills. I feel due to time constraints that I chose this topic based on use. I felt some trepidation regarding the feasibility and usefulness of the study, and with regards to my own inexperience of interacting with VLEs because before I came to the UOD I didn’t know what one was never mind used one. However, I did discover through the research that E-learning is a form of VLE and I had used this a few years before. The project made me wonder whether more fundamental unseen assumptions might be waiting to reveal themselves and at this early stage I could only hope that that was not the case and wait and see what would come up.

7.2 Literature Review
I found the researching an interesting part of the project but the most difficult part because there is so information to sift through. I tried to read quite widely in an attempt to gain some background knowledge and theories of VLEs, learning spaces, pedagogies, open source software and commercialised software to get an insight into the use of the technology and to have an understanding. I had read an article about pre-92 and post-92 H.E institutions that are involved with technology enhanced learning in the United Kingdom only. Finding that institutional strategies and a HE institutions teaching and educational framework tends to influence the involvement of TEL. I then discovered that TEL may include a VLE. However, papers by (Mason, 1993) suggested that no teaching becomes knowledge until we actually act upon it. I had read the multiple theories of intelligence (Campbell, 1979-21014) which conferred (Mason, 1993) suggestion that as adults we begin by reading and observing what
goes on around us. This then brought other concerns and I decided to look for literature in the fields of teaching and learning, computer science, cognitive science and technology.

Some of these papers highlighted concerns that included design of user interface (Thimbleby, n.d) & (Lewis et al, 1998) and the use of technology enhanced learning (Browne et al, 2010) all of which were particularly instructive in this regard and presented some helpful insights. However, further reading led me to an article by a book by (Ryan et al, 2000) which presented information about the virtual university. This book had some useful information relating to pedagogies and highlighted pedagogical concerns. A further study by (Scheuennann et al, 2004), which suggested VLEs should be built with pedagogical issues in mind. An article from SEDL, (1999) and a paper which compared two VLEs currently used in a HE learning environment (Logan & Neumann, 2010) gave useful context and different perspectives on pedagogies. My literature review drew briefly on publications from (Jara & Mellar, 2007: (Beetham & Sharpe, 2013) to develop an understanding of some of the difficulties faced by educators when using VLEs. This literature helped to allay some of my fears regarding the legitimacy of my study, since it seemed to build up a picture congenial to my aims and it seemed to cohere with my own concern about the use of the technology and the resulting importance of informal information that I was expecting to tell.

7.3 Methodology
This was one section I found relatively easy, it was just discussing how I was going to collect the data and about the students. I feel this is the best section as I felt reasonably comfortable writing it. As I had a layout of a plan I was going to use to create and generate the data for my study. I realised that I had more males than females which I found to be a shame and a large percentage came from the computing and maths school. This was because I am connected to this school so it was easier to distribute the questionnaires throughout the computing labs. However, in hindsight I should have distributed the questionnaires evenly throughout the other faculties. Had I done this the results might have given a better indication of how participants at different faculties interact with the VLE. I should have also obtained equal numbers of males and females to present a better insight into the use of the VLE but we look to learn and gain vital experience and knowledge from our mistakes.

7.4 Analysis and Findings
Thankfully I had been paying attention in the dissertation lectures and my research question did not bind me to any foregone conclusions. However, the realisation of this assumption, and the fallacy of it, felt like a revelation of sorts. I had not seen the wood for the trees but this
was so obvious, and yet a stubborn assumption had meant that there were some ideas in my initial conception of the research that simply did not relate to reality. As I completed more research I realised I was spending so much time on other subjects and home life and my study pattern began to change and became erratic. Thankfully I was able to adapt to this but there have been times through my behaviour that I have wanted to walk away. I probably would have told anyone all this before I conducted the research, but actually meeting people made the study much more real. It is so easy to say that everyone is the same and that we all learn the same but nothing can be further from the truth. Once you have actually spoken to people about how they learn and about what interests them, what their aspirations are, and so on, it goes beyond being a theoretical belief to become an experiential truth. That may sound like an excessively metaphysical description of a few conversations, but for me it made a palpable difference to how I conceived of the research question I had set myself. For many of the students then, particularly those who were more resourceful their opinions of the technology resources we use at the UOD were consequently indistinguishable from what I would have expected to hear. Similarly, there were a lot of revelations regarding the VLE and the findings again agreed with my sense of normality. However, there were a number of more nuanced findings that were of interest. Although many participants seemed fairly nonchalant that, if they wanted to, they could secure access to all the forms of media and communication some of the participants did mention difficulties with computer experience and knowledge of current IT. This was largely unsurprising, though, and it was consistent with various reports I had found that reported that there were some significant differences between younger participants who had computer experience and others who had not attended education for a period of time. This was due to circumstances, but others suggested either that increased awareness on their part allowed them to gain experience and use technology so they could develop their skills. This difference of interpretation also appeared to mark a more profound difference in background, outlook and/or abilities, which was an important theme throughout the research. Indeed, the variety among the interviewees again highlighted the importance of distinctions between the different faculties and the range of participants. The discussions I had with many of the participants in my study, lead me to believe that many were having issues with the VLE for a number of reasons. Indeed, especially given their circumstances, it was impossible not to see this because I use the same technology as participants.
7.5 Discussion
This was my least favourite part of the study. The discussion section has allowed me to revert back to this information and realise how much I have learned about the use of TEL, students in HE and HE in general especially given my own aspirations of becoming a teacher.

7.6 Conclusion
The conclusion and recommendation part of the project I felt to be hard. When I first started this project I was aware it was my own topic and in hindsight I should have started looking at topics in the summer. I have made sure I introduce each chapter with the key aspects outlined and in an order that flows smoothly.
References


Bell, M. & Bell, W. (2005) It’s installed… now get on with it! Looking beyond the software to the cultural change *Journal of Educational Technology* Vol. 36 Issue (4) pp. 643-656


(Accessed: 27/1/2014)


(Accessed: 10/11/2013)


(Accessed: 4/1/2014)


Mason, C. The Original Home-Schooling Series, 1993, Volume 4, Charlotte Mason Research & Supply Company, United Kingdom


Rada, R Understanding Virtual Universities 2001, Intellect Books, 1st Ed, Wiltshire, United Kingdom


Rheingold, H. The Virtual Community Homesteading on the Electronic Frontier, 1993, 1st Ed, Addison-Wesley, Reading, MA


Wang, V. (2009) Beginnings of the History and Philosophy of Andragogy 1833-2000. In Integrating Adult Learning and Technology for Effective Education: Strategic
Bibliography


Appendices A-1

Table 1 Part 2 Q 1 (A) I have lots of experience of computers and feel more than confident in using them

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>10</td>
<td>34</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 2 Part 2 Q1 (B) Have you ever used or interacted with a VLE on any other course?

<table>
<thead>
<tr>
<th>Use and none use of VLE</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>used a VLE before</td>
<td>68</td>
<td>65.38%</td>
</tr>
<tr>
<td>Never used a VLE</td>
<td>36</td>
<td>34.62%</td>
</tr>
</tbody>
</table>

Table 3 Part 2 Q1 (C) Did you receive any induction to using the VLE?

<table>
<thead>
<tr>
<th>Induction Yes/ NO</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLE induction at the UOD</td>
<td>53</td>
<td>50.96%</td>
</tr>
<tr>
<td>Never had a VLE induction at the UOD</td>
<td>51</td>
<td>49.03%</td>
</tr>
</tbody>
</table>

Table 4 Part 3 Q1 (A) I find learning with VLE useful

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>29</td>
<td>46</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 5 Part 3 Q1 (B) I find the VLE has a user friendly interface

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>14</td>
<td>36</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 6 Part 3 Q1 (A) I engage with the VLE

<table>
<thead>
<tr>
<th>Daily</th>
<th>2-3 times a week</th>
<th>Once a week</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>26</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 7 Part 4 Q1 (A) I find it easy to communicate using VLE for sending emails

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>10</td>
<td>20</td>
<td>53</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 8 Part 4 Q1 (B) I find it easy to communicate using VLE for group discussions

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>26</td>
<td>46</td>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 9 Part 4 Q1 (C) I find it easy to communicate using VLE online forums

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>25</td>
<td>51</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 10: Part 4 Q1 (D) I find it easy to access course and module announcements

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>18</td>
<td>33</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 11: Part 5 Q1 (A) VLE features and learning activities help me improve my learning

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>12</td>
<td>43</td>
<td>39</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 12: Part 5 Q1 (B) VLE features and learning activities help me complete my work on time

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>13</td>
<td>22</td>
<td>56</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 13: Part 5 Q1 (C) When using the VLE features and learning activities I find I can collaborate with lecturers

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>26</td>
<td>33</td>
<td>38</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 14: Part 5 Q1 (D) VLE features and learning activities are easy to follow

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7</td>
<td>36</td>
<td>56</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 15: Part 5 Q1 (E) VLE features and learning activities are easy to use

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>9</td>
<td>27</td>
<td>49</td>
<td>19</td>
</tr>
</tbody>
</table>

Table 16: Part 5 Q1 (F) The flexible nature of VLE allows me to organise my work to suit my style of learning

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>16</td>
<td>43</td>
<td>29</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 17: Part 5 Q1 (G) VLE allows me to organise some of my work to suit my style of learning

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>20</td>
<td>47</td>
<td>24</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 18: Part 6 Q1 (A) I have easy access to a computer and the internet outside of University

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>11</td>
<td>35</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 19: Part 6 Q1 (B) I can always find a computer to use in University

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>14</td>
<td>45</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 20: Part 6 Q1 (C) I find having the course materials and documents available extremely useful

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>10</td>
<td>41</td>
<td>51</td>
</tr>
</tbody>
</table>
Table 21: Part 6 Q1 (D) I would prefer to have a paper copy of documents provided in sessions

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>15</td>
<td>29</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 22: Part 6 Q1 (E) I find it difficult to access the course materials via the VLE

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>43</td>
<td>14</td>
<td>14</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 23: Part 6 Q1 (F) In general the VLE meets my requirements

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>26</td>
<td>57</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 24: Part 7 Q1 (A) I would find browsing the University library catalogue through the VLE helpful

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>26</td>
<td>54</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 25: Part 7 Q1 (B) I would reserving library books through the VLE helpful

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>11</td>
<td>25</td>
<td>45</td>
<td>17</td>
</tr>
</tbody>
</table>

Table 26: Part 7 Q1 (C) I would find an interactive online comprehensive guide to using the VLE helpful

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>35</td>
<td>42</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 27: Part 7 Q1 (D) If I was given the opportunity I would change the VLE

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>19</td>
<td>41</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>
Appendices B-1

Student Blackboard/VLE usage Questionnaire

This questionnaire is in the form of a Blackboard Survey aimed to gather feedback on student perception and use of Blackboard/UDo.

Part 1: General Details

Please tell us a little about you and your background

Q1: Are you (please tick in the text box provided)

Male ☐ Female ☐

Q2: Are you a (please tick the one relevant to you)

Foundation Degree Student ☐ Undergraduate Student ☐ Post-graduate Student ☐
Joint Honours Student ☐ Master’s Degree Student ☐
Full-time ☐ Part-time ☐ Other ☐

Q3: How old are you? (A range of ages provided below: please tick the one relevant to you)

18-21 ☐ 22-24 ☐ 25-29 ☐ 30-34 ☐ 35-39 ☐ 40-44 ☐
45-49 ☐ 50+ ☐

Q4: Which Academic School are you associated with? (please tick the one relevant to you)

Art & Design ☐ Computing & Maths ☐ Derby Business School ☐ Engineering & Technology ☐
Health & Social Care ☐ Education ☐ Hotel Resort & Spa Management ☐ Humanities ☐
Law & Criminology ☐ Learning Enhancement & Innovation ☐ Other ☐
Science ☐ Sport Performance & Outdoor Leadership ☐
Part 2: Previous and recent experience of using IT technology and computing software

Please provide an overview of your previous or recent experience and perception of use towards, information technology, computers and computer software. **Circle the number that corresponds with your experience**

<table>
<thead>
<tr>
<th>I have lots of experience of computers and feel more than confident in using them</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Expressing your experience of the use of IT and computers**

Before attending the University of Derby, had you ever used or interacted with a VLE on any other course or programme for learning or to support your learning? **Circle your choice**

Yes

No

At the start of your programme at the University of Derby did you receive any induction in using the Blackboard VLE?

Yes

No

If you have circled yes could you please give some details of the type of induction you received

Is there any form of Blackboard related training that you would have liked to have received but did not: please indicate this in the box below, if not applicable please put N/A
Please indicate how useful you think interacting and engaging with Blackboard is for you

Circle the number that corresponds with your usefulness and engagement. If you have never used the Blackboard VLE please circle N/A

<table>
<thead>
<tr>
<th>Part 3: Your use of Blackboard</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find learning with Blackboard very useful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I find Blackboard has a user friendly interface</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Part 3b: You're Engagement with Blackboard:

I engage with Blackboard:
- Daily
- 2-3 times a week
- Once a week
- Sometimes
- Never

One of the benefits of the VLE is that it incorporates the ability to communicate with your lecturers and students. It is often said that Blackboard is easy to use.

How do you find using Blackboard for any of the following communication purposes?

<table>
<thead>
<tr>
<th>Part 4: Your perception of using Blackboard as a means of communication</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find it easy to communicate using Blackboard for sending emails to lecturers and others</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I find it easy to communicate using Blackboard for group discussions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I find it easy to communicate using the Blackboard online forums</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I find it easy to access course and module announcements</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Do you think there are ways that the communication aspects of Blackboard could be improved?

Yes
No

If you have circled Yes could you please indicate how you think communication could be improved in the box below:

Blackboard has a range of features and learning tools that can help and support your learning. (examples are Wikis and Social networking) It is claimed that another benefit of the VLE is its flexibility in supporting learning which allows learners to organise their learning in a way that suits them. Please give your perception of this below:
How do you find using Blackboards learning tools, features and learning activities?

<table>
<thead>
<tr>
<th>Part 5: Your perception of Blackboard learning tools activities and flexibility</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Blackboard features and learning activities help me improve my learning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The Blackboard features and learning activities help me to complete my work on time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>When using the Blackboard features and learning activities I find I can collaborate with students and lecturers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The Blackboard features and learning activities are easy to follow</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The Blackboard features and learning activities are easy to use</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The flexible nature of Blackboard allows me to organise my work to suit my style of learning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Using Blackboard allows me to organise some of my work to suit my style of learning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

While Blackboard is seen to have a range of learning tools, features and activities, if you feel there are any learning tools or features that could be included in Blackboard please comment in the box below:

It is also claimed that another benefit of the Blackboard VLE is the accessibility and ease of access to course materials. Please indicate your perception of how easily you can access Blackboard and if the learning materials that you can access are helpful or not.

How do you find accessing Blackboard?

<table>
<thead>
<tr>
<th>Part 6: Your Perception of ease of access and availability to Blackboard</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have easy access to a computer and the internet outside of University</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I can always find a computer to use in University</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I find having the course materials and documents available is extremely useful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I would prefer to have paper copy of documents provided in sessions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I find it difficult to access the course materials via Blackboard</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>In general Blackboard meets my individual requirements</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Some additional features that may at some future date be incorporated into the Blackboard system have been listed below. Please provide your perception of whether you would find these helpful or not.

### Part 7: Looking to the future and the possibility of further developments within Blackboard

<table>
<thead>
<tr>
<th>Feature</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would find browsing the University Library catalogue through Blackboard helpful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I would find reserving library books through engaging with Blackboard helpful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I would find an interactive and online comprehensive guide to using the Blackboard VLE helpful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>If I was given the opportunity I would change Blackboard</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Are there any other features you would find helpful if they were incorporated into Blackboard? If so, please list them in the box below:

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Thank you for your help in completing this questionnaire!!!
The results will be a massive help towards the completion of this project.