



**JAMES MARTIN
WILSON**

**APPLYING THE MOTIVATION-HYGIENE THEORY AS
A MEANS OF MEASURING LEARNER SATISFACTION
WITH BLENDED LEARNING COURSES IN HIGHER
EDUCATION**

**A APLICAÇÃO DA TEORIA DA MOTIVAÇÃO-HIGIENE
COMO MEIO DE MEDIDA DA SATISFAÇÃO DOS
ALUNOS EM CURSOS DE B-LEARNING NO ENSINO
SUPERIOR**



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SUPERIOR**

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Dedicação/Dedication

“A mother’s love is a blessing
No matter where you roam
Keep her while she’s living
You’ll miss her when she’s gone
Love her as in childhood
When feeble, old, and grey
For you’ll never miss a mother’s loveTil she’s buried beneath the clay”

The Chorus of an Irish Folksong

My dearest wonderful Mother, the late Josephine (Dodie) Donovan who
had dreamt of this moment for many a year.
This is for you.
It has always been for you.

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This thesis is the result of a journey that begun with an ism and has led to a four-year long study process. Along the way, I have encountered many challenges both professional and personal, some being exhaustive to deal with while others were a delight to work through, making the experience one that will remain rooted in my thoughts for years to come.

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Thank you all!!

Keywords

Blended learning; e-Learning; Higher education; Motivation and Hygiene; Student satisfaction

Abstract

This study describes research on a postgraduate blended learning programme within the Department of Education at the University of Aveiro in Portugal. It is based on a multi-philosophical paradigm and examines students' satisfaction levels through the application of Herzberg's Motivation and Hygiene Theory.

The main question being addressed in this research is: "Can the Motivation and Hygiene Theory be adopted as a means to measure student satisfaction with their blended learning environment?" Embedded within this research question are four fundamental questions which set the scene for the development of this research study and are explored in greater detail in Chapters 4 and 5 respectively:

1. What are the factors responsible for bringing about learning satisfaction with their b-Learning course?
2. What are the factors responsible for bringing about learning dissatisfaction with their b-Learning course?
3. Can these factors be represented as Motivation and Hygiene factors?
4. Will this method of measuring learning satisfaction lead to a set of guidelines that could be considered as a framework for the development of b-Learning courses?

The results indicate that the Motivation and Hygiene Theory or an adapted version such as the Enricher and Enabler Theory proposed in this study could be considered as a plausible means of analysing an institution's b-Learning processes.

The opportunity to carry out future research is evident and can be varied depending on the research objectives in mind. Examples where further exploration would be beneficial lay within the application of this theory to the wider sector; the use of larger samples, focusing on the teachers, as well as the learners and the application of Web 2.0 technologies as means of gathering information.

The results of this research will be of great significance to those areas of education that are interested in locating quick and efficient means by which to evaluate their b-Learning and to no lesser extent e-Learning environments.

Palavras-chave

Blended learning; e-Learning; Ensino Superior; Motivação e Higiene; Satisfação do aluno

Resumo

A presente tese descreve um estudo sobre um programa pós-graduado em blended learning no Departamento de Educação da Universidade de Aveiro, Portugal. Fundamenta-se num paradigma multi-filosófico e examina os níveis de satisfação dos alunos através da aplicação da Teoria de Motivação e Higiene de Herzberg.

A principal questão em escrutínio nesta investigação é: “Pode a Teoria de Motivação e Higiene ser adoptada como um meio de medir a satisfação dos alunos relativamente ao seu ambiente de blended learning?” Embebidas nesta questão de investigação encontram-se quatro questões fundamentais que estabelecem o cenário para o desenvolvimento deste estudo e que são exploradas em maior detalhe nos capítulos 4 e 5, respectivamente:

1. Quais são os factores responsáveis pela promoção da satisfação dos alunos relativamente ao seu curso em b-Learning?
2. Quais são os factores responsáveis pela promoção da insatisfação dos alunos relativamente ao seu curso em b-Learning?
3. Podem estes factores ser representados enquanto factores de Motivação e Higiene?
4. Conduzirá este método de mensuração da satisfação dos alunos a um conjunto de orientações que possam ser tidas como um enquadramento para o desenvolvimento de cursos em b-Learning?

Os resultados indicam que a Teoria de Motivação e Higiene – ou uma versão adaptada como a Teoria de Enriquecimento e Capacitação proposta neste estudo – poderia ser considerada enquanto meio plausível de analisar os processos de b-Learning de uma instituição.

A oportunidade de conduzir investigação futura é evidente e pode ser variada, dependendo dos objectivos de investigação em mente. Exemplos onde uma futura exploração seria benéfica residem na aplicação desta teoria ao sector mais lato da educação; o recurso a amostras mais vastas, com enfoque nos professores bem como nos alunos e na aplicação de tecnologias Web 2.0 como meio de coligir informação.

Os resultados deste estudo serão de grande significado para aquelas áreas da educação interessadas em identificar meios rápidos e eficazes pelos quais avaliar as suas ofertas de b-Learning bem como os seus ambientes de b-Learning.

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Abbreviations and Acronyms

BECTA	British Educational Communications and Technology Agency
CAI	Computer-Aided Instruction
CBL	Computer-Based Learning
CEMED	Centro de Multimédia e de Ensino a Distância
CETIS	Centre for Educational Technology and Interoperability Standards
CIDTFF	Centro de Investigação Didáctica e Tecnologia na Formação de Formadores
CD-ROM	Compact Disk Read Only Memory
CMS	Course Management System
CIFOP	Centro Integrado de Formação de Professores
CNED	Centre National d'Enseignement à Distance
DDTE	Departamento de Didáctica e Tecnologia Educativa
EDRU	Evaluation and Development Review Unit
F2F	Face-to-Face
HEA	Higher Education Academy
HEI	Higher Education Institution
ICT	Information and Communication Technologies
IFETS	International Forum of Educational Technology and Society
ISDN	Integrated Services Digital Network
ITEP	In-service Teacher Education Programme
JISC	Joint Information Systems Committee
LMS	Learning Management System
MEd	Masters in Education
MMedu	Masters in Multimedia in Education
MMSS	Motivational Messages Support System
NALS	National Audit Learning Survey
NII	National Information Infrastructure
NLN	National Learning Network
OECD	Organisation for Economic Co-operation and Development
OU	Open University
PDA	Personal Digital Assistant
RSS	Really Simple Syndication
SDL	Self Directed Learning
SOI	Structure of Intellect
SPD	Student Professional Development
STOPP	Student, Teacher, Orientation, Policy and Procedure
TCLP	Tennessee Career Ladder Program
VLE	Virtual Learning Environment
UA	Universidade Aberta
UNAVE	Associação para a Formação e Investigação da Universidade de Aveiro
WBL	Web-Based Learning
WEA	Workers Education Association
WWW	World Wide Web
XML	Extensible Mark-up Language

Related Dissemination

This thesis contains material which the researcher has used previously in the following publications and presentations.

- Wilson, J. & Moreira, A. (2007). Incorporating the Motivation-Hygiene Theory as a means of Evaluating b-Learning Environments in Higher Education. In Mendez-Vilas, *et al.* (Eds.), *Current Developments in Technology-Assisted Education, (1)*: 484-488, FORMATEX, Badajoz, Spain.
- Wilson, J. & Moreira, A. (2007, September). *Evaluating e-Learning Environments: Introducing the Motivation-Hygiene Theory*. Paper presented at the 3rd E-Learning Conference-Computer Science Education (elconf06) Conference Proceedings. University of Coimbra, Portugal.
- Wilson, J. & Moreira, A. (2009, April). *Evaluating e-Learning Environments in Higher Education: towards a more learner-centred approach*. Paper presented at V International Conference on Multimedia and ICT in Education (m-ICTE2009). Universidade Nova, Lisbon.
- Wilson, J. & Moreira, A. (2009, June). *Evaluating e-Learning Environments in Higher Education: towards a more learner-centred approach*. Paper presented at the IV International Blended Learning Conference Proceedings: Engaging Students in the Curriculum. University of Hertfordshire, England.

Chapter 1

Introduction to the Study

The world is caught in a communications revolution, the effects of which will go beyond those of the industrial revolution of two centuries ago. Then the great advance was the invention of machines to multiply the potency of men's muscles. Now the great new advance is the invention of machines to multiply the potency of men's minds. As the steam engine was to the first revolution, so the computer is to the second. [Lord Crowther]¹

¹ First Chancellor of the British Open University - these words from his inaugural speech were cited by Sir John Daniel (vice chancellor) at a speech given in celebration of the retirement of Professor Jim Burrows on 21st December 2001 - <http://www.open.ac.uk/johndanielspeeches/Burrows.htm> [Accessed July 2007].

1.0 Introduction

An abundance of comparative studies have been carried out to examine differing modes of traditional and technology-based educational environments with a view to examine which could be regarded as the better method of instruction. Unfortunately, in the majority of cases no significant difference had been found between them (Russell, 2001). In an abundance of literature, the method of evaluation used to examine these new learning technologies is often questioned. It is argued that the process of evaluation, judgements about value and worth, is complex, often controversial and challenging. Nowadays, there exists a strong movement towards the importance of authenticity, the adoption of socio-cultural models of learning and the prevalence of practitioner-based evaluation.

The implications involved in evaluating learning technologies is clear but not only must one evaluate this impact, the reverse must also be considered; one must also evaluate the impact technology has on evaluation, as well as considering the cost-benefits of such a learning approach. Also, additional information needs to be gathered about the most appropriate approaches to adopt, taking into consideration the differing situations and the strategies for communicating findings effectively. A major part of evaluation has focused primarily on the structure and content of output and whether learners have learnt, that is, the use of pre and post exams to evaluate competence levels, as well as using a form of Likert² scale, which in reality only covers the surface of learner satisfaction.

This case study takes the stance that although there has been an abundance of development in the production of toolkits, check-lists and fundamental frameworks for evaluating learning technologies, which support novice evaluators, the true value of these is yet to be demonstrated and further research into their true effectiveness is required. It purports to introduce a new theoretical framework to evaluate learning technologies through learner satisfaction that is widely used in the field of management and in particular the field of employee satisfaction and motivation, the Herzberg Motivation-Hygiene Theory. To date, there has been some usage of such a method in the area of faculty satisfaction but there is practically no evidence of its application to learning technologies in Higher Education. These issues are addressed in more detail in Chapter 2.

² A Likert scale named after Rensis Likert (1932) is a type of psychometric response five-point scale often used in questionnaires. A typical test item in a Likert scale is a statement. The respondent is asked to indicate their degree of agreement with the statement.

Considering the fact that institutions are becoming more accountable in their provision of courses and the costs-benefits of every course weighs heavily on the shoulders of every responsible person, it is vital that not only must learners be satisfied with the course; they must be motivated to continue with the course. Attrition and retention levels are becoming increasingly problematic for many institutions that provide flexible learning courses.

Fundamental to the evaluation of these courses must be the satisfaction levels of the learners. With the increase in diverse student populations and the development of emerging methods of learning delivery, evaluation needs to take on a new perspective. It is necessary to prove the worth of our technology-based courses and if the learner is not satisfied they will not remain on-line for long and our courses will lose value and worth.

It is the researcher's opinion that the application of the Herzberg theory as a means for evaluating blended-learning courses will shed new light into learner satisfaction, as well as assist in providing indicators that will enable the teacher/facilitator to improve the motivational appeal of the course in order to combat attrition and retention levels and attract new learners.

1.1 Overview of Relevant Theory and Research

1.1.1 Educational Technology

We are moving to a knowledge-based economy where the ability to find, process, assess and analyse information will be key. Most learners are at ease with technology and expect it to support their learning in a wide variety of ways. Some learners will have access to a wider range of technologies outside school or college than are provided in class. Many routinely produce work that combines text drawn from internet research with digital pictures, sound-clips and music. Many learners can access their school's or college's Intranet from their home computer. Technology is already increasing creative and collaborative activities across the curriculum. BECTA³ (January, 2006:1).

It is widely viewed that those who provide higher education need to rethink better flexible ways of reaching students. Being more flexible involves the right of students to choose aspects

³ The British Educational Communications and Technology Agency – <http://publications.becta.org.uk/> [Accessed 21-March-2008] was discontinued by the UK Department for Education on 31 March 2011. Further information can be located at <http://www.education.gov.uk/schools/adminandfinance/procurement/ict/a0073825/becta>.

of a course that is relevant to them. This increase in student choice has been made possible due to the different array of learning and teaching techniques and technologies that have emerged in the past few years. For example, technological advances like CD-ROM, online resources, Podcasting, Webcasting, lecture capturing and videoconferencing are making flexible provision more of an option.

The rationale behind this new advancement in the increase of flexibility in higher education is centred on particular imperatives:

- The changing student-base wanting to study in higher education.
- The widening range of mature students with families.
- The widening range of working professionals as students.
- The potential to reach students in deprived areas or with limited access.

The changes in social and cultural environments are also altering the type of student who wants to study in higher education. Returning students and non-traditional students are now a very significant proportion of the higher education student population. These students need a flexible approach towards their studies that may not be the same as that offered to the traditional student.

The emergence of constructivist theories and the demand employers are placing on educational establishments to offer students a means by which they can receive training in developing their generic skills, is forcing institutions to rethink their positions on what is taught, when it is taught, where it is taught and how it is taught.

Developments in information and communication technologies (ICT), as well as the developments of new interactive multimedia, computer-mediated communications (CMC) and the Internet also contribute to idea that higher education needs to be reformed to cater for these social and cultural swings. ICT also contribute to the development of lifelong learning skills, as well as play a key role in the way students perceive their learning or construct knowledge. As such, it is widely anticipated that ICT will have a fundamental role to play in changing student learning outcomes and increasing the measure of flexibility of provision in higher education.

With this increase, technological and industrial change will be fuelled in order to deal adequately with the pace and magnitude of the change which is intensive and dynamic. The ability to learn in a flexible manner that is innovative and accompanies social and industrial manoeuvres will be critical for the success of the organisation and therefore a flexible approach to education becomes an integral part of the learning organisation (Heacox, 2006).

Over the past decade higher education institutions (HEI) have increasingly become involved in the use of Web-based learning (WBL) or more commonly referred to as e-Learning (McNaught & Kennedy, 2000; Spratt, Palmer & Coldwell, 2000; Salmon, 2002; Heacox, 2006; Oliver & Conole, 2007) which is discussed in greater depth in Chapter 2. With reference to the initial adoption and use of new technologies in distance learning in higher education, Tearle, Dillon and Davies (1999:14) state “it is no longer possible to opt out” as e-Learning becomes a mainstream issue for HEI.

The provision of higher education in flexible forms is increasing rapidly and the growth can be expected to continue. The Web-based Education Commission⁴ (2000) noted a growing use in the United States of online content and tools in traditional courses. 40 percent of colleges were using internet resources (compared with 15 per cent in 1996) and 59 per cent were using electronic communications for tuition purposes (compared with 20 per cent in 1995). Off-campus use of online delivery was also growing rapidly in the United States with 84 per cent of four-year colleges offering distance learning courses by 2002 (compared with 62 per cent in 1998).

According to the Nua⁵ Internet Surveys more than 544 million users are online worldwide as of February 2002 and according to the Internet Systems Consortium (2011)⁶, <Figure 1>, more than 700 million hosts are available from January 2010. Several factors are facilitating this substantial growth:

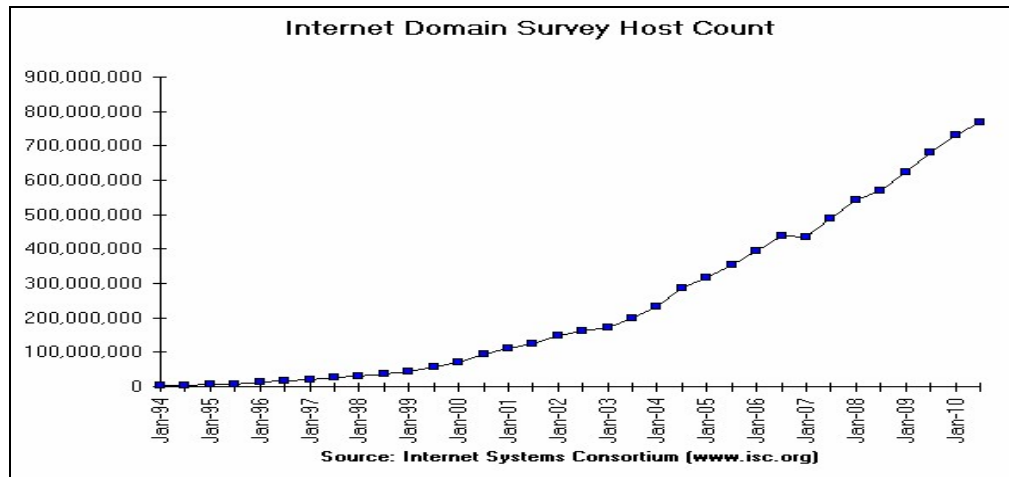
- A large and growing base of installed computers in the home and workplace.
- Network security, infrastructure, and bandwidth improvements.

⁴ The Commission was established by the US Congress, in November 1999, to develop policy recommendations geared toward maximizing the educational promise of the Internet.

⁵ The Nua site had a searchable database of Internet reports and surveys from around the world. Unfortunately, as of October 2006 it no longer seems to be available online.

⁶ Internet Systems Consortium was previously known as Internet Software Consortium until 2004 and is available online at <http://www.isc.org>.

- Advances in the speed of personal computers and modem & DSL⁷ performance.
- Cheaper and more reliable access to the Internet.
- Consumer acceptance of online commerce.



<Figure 1> Internet host count (Jan. 2011)

Another prerequisite for a successful implementation of e-Learning is the change of the learner's and the organiser's mind because the way of learning is so much different compared to traditional learning (e.g. learner-centred vs. teacher-centred) and offers other possibilities to integrate in the overall working or living process.

In addition to that, there is no single ideal way of using e-Learning efficiently, because there are different application scenarios which require different approaches. Maybe e-Learning alone is not the best way because it might be wise to combine it with traditional instructor led training, so-called "blended learning" which can be described as the mixture of different learning concepts and techniques. This term is discussed in greater detail chapter 2.

There has been a noticeable development in the demand for places in higher education throughout Australia and Europe over the last ten to fifteen years and this blended and flexible approach is an important means of meeting this demand. It can also accommodate the continuing increase in student numbers from various sectors and in particular, employed professionals and those living in rural and isolated regions.

⁷ Digital Subscriber Line

In the UK, the need for academics and other staff to engage with new learning technologies in higher education (HE) was most visibly propounded in the Dearing Report (Dearing, 1997). According to the report, the combination of continued HE expansion with ongoing financial constraint requires a major re-think of how education is delivered. New learning technologies offer a solution to this problem and have, in addition, been claimed to transform and enhance the student learning experience (Salmon & Jones, 2004).

The adoption of new learning technologies implies significant changes in the working environment of lecturers, managers and other HE staff. The Dearing Report stated that “many academics have had no training and little experience in the use of communications and information technology as an educational tool” (The Dearing Report, 1997:36). A number of commentators have identified such technological illiteracy as the big barrier to the take up of WBL in HE settings (Joyes, 2000; Salmon & Jones, 2004).

In pursuit of this theme, over the years others have focused on a deep-seated technophobia amongst academics who are apprehensive of radical, unproven innovations and resistant to changes that might undermine their professional status (Thomas, Carswell, Price & Petre, 1998; Spratt *et al.*, 2000). More recently, a local UK government official has voiced his discontent at academics apparent resistance to change by saying that “they [academics] think they have a right to be set in aspic in what they do” (Lord Mandelson, 2010).⁸ However, as was noted even ten years ago, “such commentary suffers from anecdotal claims and enthusiasm of the recently converted” (Vermeer, 2000:329). Consequently, some commentators may have had a tendency to over-focus on the knowledge and attitude deficits of staff.

When institutions pursue policies and practices designed to provide higher education programmes more flexibly, a key intention is to give students and for that matter lecturers, choice about the place, pace, timing, style and other aspects of their learning. The idea of choice is seldom an issue within institutions. However, Collis (1996) discovered differently. In a study of a project which was developed to offer flexible courses throughout Europe using

⁸ Lord Mandelson, the then UK Business Secretary speaking at a conference in commemoration of Lord Dearing at Nottingham University on 14th February 2010. A brief summary of the speech can be found at <http://www.independent.co.uk/news/education/higher/leading-article-getting-universities-on-the-agenda-1902374.html> [Accessed 10-March-2010].

various means of educational technology and new media resources she discovered that students were offered minimal choice. She discovered that the principal reason behind this was due to the time constraints that course developers experienced.

Faculty who wanted to develop a flexible delivery found that they were not allotted sufficient time to do so and their institutions expected them to provide a system of delivery that reflected traditional approaches which did not support a flexible delivery and hence suitable choice for their students. However, due to the standardisation processes embedded within the Bologna Process: a plan to integrate the higher education frameworks of 45 European countries by 2010, this issue of choice for both students and academics is expanding as we are encountering borderless universities that enthuse the idea of flexible choice which is no longer limited to curriculum choice (Laurillard, 2002; Blass, 2005; Nagy & MacDonald, 2007).

Flexible learning strategies can play an important role in accommodating different learning styles (Diaz & Cartnal, 1999; Blass, 2005; Nagy & McDonald, 2007). The style of a learner may influence their choice and independent learners may choose online courses and dependent learners may choose a more traditional route. Learners who embrace new technologies are usually driven by intrinsic motivations and prefer their independence in learning. These types of learners will be drawn towards these courses and would easily study at home without ever meeting a faculty member or a fellow student: to be precise they are digital natives or on their way to becoming so (Agre, 1998, Prensky, 2001; Prensky 2008, Redecker, 2009).

The Web-based Education Commission of the U.S.A. (2000) refers to the promise of the internet to provide a learning-centred approach rather than one that is classroom geared and promotes the development of lifelong learning. More recent statements have shown that technology-enhanced learning can empower faculty to consider ways of improving their traditional pedagogy (Conole, de Laat, Dillon & Darby, 2006; Trinder, Guiller, Margaryan, Littlejohn & Nicol, 2008; Becta, 2009; New Media Consortium (NMC), 2009). However, Prensky (2008 [online]⁹) highlights the fact that there are still sceptics among faculty who challenge the technology revolution:

⁹ See this work and other free publications on his Web page at <http://www.marcprensky.com/> [Accessed 10-March-2010].

[...] it's a problem because what the teachers are really saying is this: We don't trust the technology of today, or the future. We don't trust the world in which you kids are going to live. We believe the way we did it in our time was the "real" way, the only reliable way, and that's what we want to teach you kids – the basics.

In a recent study involving this researcher (Wilson & Butterfield, 2008) which involved the level of usage of learning resources and tools by the students, the study found that students use online materials in a traditional fashion, that is, they make little use of the Web to explore and research and rather treat it as a repository of the materials they need to study. In effect, the Web becomes little more than a 'page-turner' for them. It also highlighted the fact that, as a consequence of this page-turner/repository approach, the institutional VLE and Microsoft Word were the more favourable and widely used resources by the students.

There was also an issue regarding the type of subject matter that is being studied by the learners and whether it is suitable for flexible provision in higher education. Subject areas that require a great deal of laboratory work and experiments may be difficult to simulate or reproduce in an online environment (Wilson & Butterfield, 2008). Therefore, it is important that appropriate and suitable pedagogy for the online experience is developed and a move away from the dominant lecture-based tradition is encouraged (Conole *et al.*, 2006; Wilson & Butterfield, 2008).

1.1.2 Evaluation

A review of higher education literature reveals that there was a growing interest in the use of learning technologies around the beginning of this century (Pea, Tinker, Marcia, Bransford, Roschelle & Hsi, *et al.*, 1999; Spooner, 1999; Bullock & Schomberg, 2000; Oliver, 2000). Learning technologies include a wide variety of Internet-based and other communications tools, such as "N-way video streaming, digital library and museum database management, simulations, teleconferencing, telephony, and wireless communications" (Harley, 2001:10).

Evaluating the merits of learning technologies in higher education has been and is still a concern (Jackson, 1990; Kenny, MacDonald & Desjardins, 1997; Salmon, 2004; Holtham & Courtney, 2005). Oliver (2000) and others in the same issue of Educational Technology and

Society¹⁰ provide an excellent review of the most pertinent issues and establish a basis for that issue of the journal.

For many years Ehrmann (1995), of the Flashlight Project¹¹ has been arguing it is necessary to ask the right questions about learning technologies otherwise we will be wasting our time. He reiterates the claim that because learning technologies vary tremendously in their purposes and procedures, evaluations cannot answer the question of “how well is this technology-based approach working, relative to the norm, since there isn’t a norm” (Ehrmann, 1995:22). Instead of asking these unanswerable questions he suggests we ask whether educational potential has been realized in improved learning outcomes. This is a question that needs to be addressed even more today considering the current economic and educational climate many institutions in Europe find themselves faced with.

Across the world there are ongoing efforts to accumulate collections of lessons learned which are based on faculty evaluating their own practices when using various learning technologies. For example, the US Sloan Asynchronous Learning Networks Consortium at <http://www.sloan-c.org/> and the UK Joint Information Systems Committee (JISC) Centre for Educational Technology and Interoperability Standards (CETIS) at <http://jisc.cetis.ac.uk/>. There are also efforts to encourage higher education institutions to improve their own evaluation techniques. For example, the American Association of Higher Education Teaching, Learning and Technology roundtable group <http://www.tltgroup.org/> and a growing number of affiliates such as the Joint Information Systems Committee’s exploration of roundtables in the United Kingdom at <http://www.roundtable.ac.uk/>.

An important lesson from the literature is that the use of technology-enhanced learning needs to be evaluated and assessed taking into consideration the specific needs and styles of the participants and in particular the learners. This would involve learning difficulties (Abbott, 2007), new learning relationships (Ramsey, 2003) which would include collaborative communication and content (Ala-Mutka, 2008) and the effects of all the related trappings

¹⁰ Available online at <http://www.ifets.info/others/> [Accessed 23- February-2009]

¹¹ Since 1992, the Flashlight Program has been helping educators and their institutions to study and improve educational uses of technology. Since 1998, Flashlight has been a program of the non-profit Teaching and Learning Technology - TLT Group based in Maryland, USA and can be located online at <http://www.tltgroup.org/flashlightp.htm>.

associated with Web 2.0¹² (Redecker, 2009). Otherwise, the results may not be applicable towards improving the overall performance of the course or programme

Over the last three decades, several new approaches (discussed below) to the theory and practice of educational evaluation have emerged to address these ongoing concerns. In practically every case it has been proposed that greater attention to the interests and values of the participants in a learning programme needs to be embedded into the evaluation process.

One of the first approaches that focused on the participants as the key to the evaluation process was Stake's Responsive Evaluation. Stake (1975, 1984) argued against automatic use of social science to test achievement of objectives. He noted that often those carrying out the evaluations needed help understanding their programmes and how to improve them more as opposed to the traditional view of whether their programme is better than all possible alternatives or if it has achieved prescribed objectives. He urged evaluators to be responsive to the shifting concerns and questions of the learners regarding their actual programmes of study and their evolving professional and personal agendas. Nowadays, with the shift in the student population from a traditional young undergraduate to a more mature, professional with family commitments, this proposal carries even greater weight and significance.

Guba and Lincoln (1981) further developed Stake's ideas as they created Effective Evaluation and further refined their approach into Fourth Generation Evaluation (Guba & Lincoln, 1989). They claimed that through a rigorous process called the hermeneutic/dialectic evaluators could assist learners/participants with conflicting value perspectives and questions to identify the most important areas for evaluation so that they would be motivated to act on the results.

Patton (2008) has drawn upon many theories in developing his "Utilization Focused Evaluation" approach. He proposes that it is relevant to identify and work with key participants in an organisation who have the capabilities to develop a vision for the value of gathering information and using it to improve the functions of the organization in ways

¹² The term 'Web 2.0' was coined in 2004 by O'Reilly (2009) as a common denominator for recent trends heading towards the 'Read-Write Web', allowing everyone to publish resources on the Web using simple and open, personal and collaborative publishing tools, known as social software: blogs, wikis, social bookmarking systems, podcasts etc.

responsive to each situation. This sounds very logical upon reading but it would be necessary to first assess who are the significant key individuals within the organisation who possess such capabilities and qualities and regarding this study, the understanding of technology-enhanced learning.

Philosophical and sociological foundations for involving participants have been explored (Ryan & DeStefano, 2000). Fetterman (1996) proposed Empowerment Evaluation to train stakeholders in building capacity to become their own evaluators rather than depending upon external experts:

Empowerment evaluation has an unambiguous value orientation, it is designed to help people help themselves and improve their programmes using a form of self-evaluation and reflection. (Fetterman, 1996:5)

However, it would be necessary, once again, to define who are the stakeholders or the key stakeholders who should be involved in self evaluating the programmes.

Finally, Cousins and his associates have summarised many of the ideas discussed previously into what they term Participatory Evaluation (Cousins & Whitmore, 1998) and Collaborative Evaluation (Cousins, Donohue & Bloom, 1996). Their assumptions are straightforward, easy-to-use and applicable to any institution. They assume that if the people responsible for the development and delivery of the educational programmes seek feedback from the participating stakeholders or in this research case, the learners, they will address the most important issues and will want to use what they have learnt to develop and deliver programmes that are geared towards the needs and styles of the participants.

1.1.3 The Motivation-Hygiene Theory

Although these approaches to evaluation discussed previously differ in many ways, they all emphasise the fact that evaluations are done for particular participants whose values vary. Thus, on a criterion of fairness, participant evaluations try to take discrepant value positions seriously and systematically. Additionally, these approaches assume that attention must be paid to participants' values if they are to have sufficient interest to use the evaluation results. Therefore, focusing on the actual participant is fundamental to achieving good understanding

of the environment in question. One technique that offers this participant-oriented approach is Herzberg's Motivation-Hygiene Theory.

Herzberg (1959) constructed a two-dimensional paradigm of factors affecting people's attitudes and feelings about their work. He concluded that such factors as company policy, supervision, interpersonal relations, working conditions and salary are hygiene factors rather than motivators. According to the theory, the absence of hygiene factors can create job dissatisfaction, but their presence does not motivate or create satisfaction. In contrast, he determined from the data that the motivators were elements that enriched a person's job; he found five factors in particular that were strong determiners of job satisfaction: achievement, recognition, the work itself, responsibility and advancement. These motivators (satisfiers) were associated with long-term positive effects in job performance while the hygiene factors (dissatisfiers) consistently produced only short-term changes in job attitudes and performance, which quickly fell back to its previous level.

In summary, satisfiers describe a person's relationship with what she or he does and many are related to the tasks being performed. Dissatisfiers, on the other hand, have to do with a person's relationship to the context or environment in which they perform the job. The satisfiers relate to what a person does while the dissatisfiers relate to the situation in which the person does what he or she does (Gawel, 1997).

In relation to teachers, some of the above factors change, as was found in a survey by Tutor (1986). The survey asked classroom teachers: "To what extent did salary influence your decision to participate in the (TCLP)¹³ programme?" The results for the four highest-average items indicated that at all three levels teachers viewed salary as a strong motivating factor, easily the most important of the eleven Herzberg hygiene factors on the survey. Of Herzberg's five motivation factors, achievement ranked as the most important one. However, the overall conclusion drawn from Tutor's research is that salary was the single most important influence on the teachers' decisions to participate in TCLP, regardless of their position in the organization. Further, the teachers perceived the amount of salary increase to be tied to achievement and the other motivation factors.

¹³ The Tennessee Career Ladder Program for Teachers was developed in order to examine middle Tennessee teachers' views towards their career progress within their local education authority. A full text version of the study can be located at ERIC (<http://www.eric.ed.gov>) [Accessed 10-April-2007].

Herzberg's theory has been applied to understand learner's attitudes towards on-line training programmes over a three year period (Chyung, 2002). The results showed a set of motivation and hygiene factors, which were based on responses to open-ended questions. In short, the results seemed to support Herzberg's findings that there are two distinct set of factors, one which affects learner satisfaction and another which affects learner dissatisfaction. This is examined further in Chapter 3.

While there is no ideal way to manage people all of whom have different needs, backgrounds and expectations, Herzberg's theory offers a reasonable starting point. By creating a learning environment that promotes learning satisfaction, we are developing learners who are motivated, productive and fulfilled. This will be examined in greater detail in the following chapter.

1.2 The Aims, Questions and Significance for Research

1.2.1 Research Aims

The objective of this research study is to carry out comparative evaluations of two sets of learners' attitudes towards their learning environment in a higher education institution. One group is studying on a blended-learning course and the other is studying on a traditionally delivered course where one module is delivered in a blended fashion. The researcher intends to examine as a unit sequences of events relayed by the learners during which an individual learner's attitudes toward the learning process is characterized by the learner as being highly positive or highly negative.

In particular, the researcher plans to examine the effects of those attitudes by adopting Herzberg's Motivation and Hygiene theory, so as to discover the origin (factors) of their attitudes. These factors will then be examined in order to discover how given kinds of factors lead to low or high moral and the consequences of the moral state. With the resulting information the researcher will examine the possibility of developing a framework or set of guidelines that will assist in maximizing "satisfiers" and minimizing "dissatisfiers", of new and existing courses or modules. Also, it will serve as a means to help design and improve the quality of the b-Learning courses at the initial stage of development and prior to the launch stage.

1.2.2 Research Questions

The research questions to be address are the following:

1. What are the factors responsible for bringing about learning satisfaction with their b-Learning course¹⁴?
2. What are the factors responsible for bringing about learning dissatisfaction with their b-Learning course?
3. Can these factors be represented as Motivation and Hygiene factors?
4. Will this method of measuring learning satisfaction lead to a set of guidelines that could be considered as a framework for the development of b-Learning courses?

1.2.3 Significance of the Study

This case study provides uniqueness, as to date there is little recorded evidence of research studies worldwide have been carried out that have attempted to apply Herzberg's theory as a means of evaluating technology-based learning environments (Lengnick & Saunders, 1997; Lee & Shih, 2001; Chyung, 2002). It is also going to add insight into evaluation of b-Learning environments that can inform subsequent developments of b-Learning in the higher education sector.

As mentioned previously, the researcher's intention is to develop a framework or set of guidelines that will assist in maximising "satisfiers" and minimising "dissatisfiers" of new and existing courses. With such guidelines, implementation of cyclical rapid process of analysing motivation factors and revision of a course or module would be greatly simplified and would reduce the amount of analyses involved throughout its overall lifespan. This resulting framework will be of vital importance towards the development of new technology-based courses and modules because it can be applied at the development stage before it is presented to the learner. It is the researcher's opinion that the adoption of such a framework will, at the least, reduce the level of dissatisfaction that many learners encounter during and after the launch stage and will assist greatly in reducing the amount of restructuring or redevelopment that may be required during an evaluation stage and as such, assist in cost-benefit issues of a

¹⁴ For the purpose of this study, the word "Course" can also imply to the word "Module" when the focus is related to the samples in this particular research study.

project and very importantly, becoming a means of reducing attrition and maximizing retention levels.

The focus of this research is on one blended learning course and one traditionally led course which has one embedded blended learning module within the syllabus from the Department of Didactics and Educational Technology (DDTE)¹⁵ at the University of Aveiro in Portugal (see Chapter 3 for a more detailed report). The department has received excellent external assessment reviews ever since its foundation in 1994. The department is always looking for ways to improve the delivery of its courses and to improve retention and attrition figures. It welcomes new research studies that can shed light on improving its courses particularly those that incorporate a technology-based approach.

As students on these courses are very often mature, professional individuals who are dispersed sporadically throughout the country and in other countries within the CPLP¹⁶ group it is imperative that the department has in place a system of evaluation that can produce fast and efficient results. If these results will indicate how satisfied or dissatisfied their students are with their modules and will highlight the key issues that need to be urgently addressed in order to reduce the probability of dropouts and increase retention, as well as increase the motivation level of their students, then this can only be of great benefit to the department.

The department is fully supportive of research that will contribute towards the development of their courses and assist in delivering learner-centred environments that cater for a diverse student population. It is the researcher's view that this study will introduce to the department a means by which learner's view can be collated quickly and efficiently and offer a framework that can assist them to deliver a course better suited to their learners in such a manner that satisfaction and motivation levels increase.

1.3 Conceptual Framework

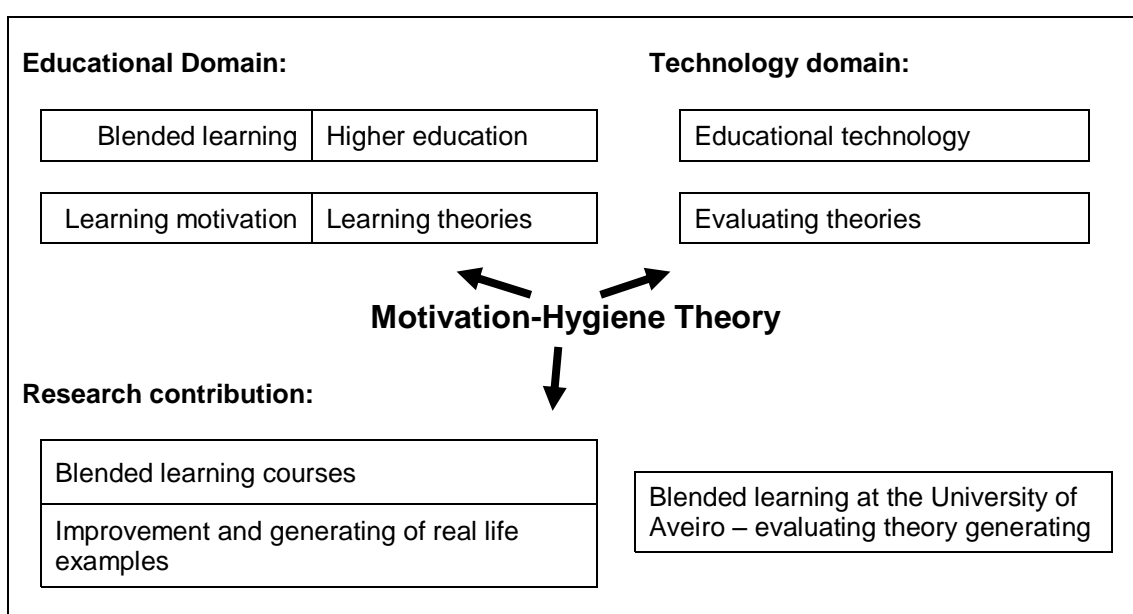
As with any research study, a conceptual framework is required so that a clearer understanding of the key issues involved is produced. The manner in which these issues are associated and

¹⁵ The DDTE was renamed in 2009/10 as the Department of Education. However, for the purpose of this research the title DDTE will continue to be applied.

¹⁶ *Comunidade dos Países de Língua Portuguesa* – The Community of Portuguese Speaking Countries.

work interconnectively to successfully deliver the sound research plan is also of vital importance. <Figure 2> outlines the three main domains and related areas that are drawn upon for this research.

There are two major knowledge domains: educational and technological literature that are utilised in order to carry out this research. Educational and technological domains are therefore discussed in the literature review section, whereas the methodological domain is covered in the research method section.



<Figure 2> Conceptual framework for given research problem

1.4 Overview of Methodology

1.4.1 Philosophical standpoint

Although Herzberg's theory is being applied to this research study, it is still worthwhile to consider the differing philosophies involved so as to see whether Herzberg's theory could be associated to any of them. Two philosophies were examined: positivist and interpretivist. After examination of these, it was concluded by the researcher that neither philosophy was as applicable as the other within this research study and it could be argued that beliefs from each philosophy can be evidenced in this research study.

The oldest paradigm is positivism, sometimes referred to as 'scientific research'. The two main characteristics of positivism are assumptions that the world is ordered and that it can be studied objectively (Oates, 2006). Ontologically, the researcher is assumed as being objective and detached from the objects of research. Epistemologically, the positivist assumption is the belief that it is possible to collect objective data, which represents the real world. The positivist beliefs regarding knowledge are hypothetic-deductive which implies that a theory is formed and then using evidence, it is either rejected or accepted.

The expression of empirical testability is twofold:

- (a) in the positivist's belief that there exists a theory-independent set of observation statements that could be used to confirm or verify the truth of a theory (Hempel, 1966) and (b) in the Popperian argument that because observation statements are theory-dependent and fallible theories cannot be proven but may be falsified (Popper, 1972). (Chua, 1986:607)

With regard to this research study, the researcher is being objective as he is beginning with a theory and objectively searching for evidence to support the theory, he is examining whether pre-defined assumptions exist, that is, whether there is in existence motivational and hygienic factors. He is also examining what can be described as a real world occurrence: the reflections of students regarding their learning experiences.

The interpretive paradigm originated from the social sciences. The interpretive beliefs regarding knowledge are founded on the process of understanding the social process based on the social environment within which it is constructed. The production of common sense and social order based on deeply embedded rules within social phenomena are some of the issues that form the knowledge as perceived by an interpretive paradigm. These meanings are created and used for causal explanation – although not in the same way that causal links are used with positivist epistemologies.

Ontologically, interpretivists aim to document a particular setting by identifying, exploring and explaining the relationships and dependencies of different themes. As will be seen in Chapter 4, the research identifies, explores and explains emerging themes that have arisen from the analyses of data thus supporting elements of the interpretivist aim.

This subjective interpretation results in a methodological assumption that relies on a rich description of actors studied in their everyday life (Oates, 2006). This does not occur within this research study as learners are blended learning students that spend the majority of their time online and it is not the researcher's objective to observe the learner's within their learning environment as this would prove to be practically impossible.

Having examined these paradigms, it has proven difficult to clearly identify one as being the dominant approach adopted within this study as particles from each paradigm are evident within the study. Having addressed the matter in an open-minded fashion, since "there is no paradigm that is superior to the other" (Mahmood, 2005:57) and there are also "options for multi-paradigm projects" (Mingers, 2001:240), it is the researcher's view that this particular research study encompasses philosophies and aims from each paradigm.

1.4.2 Application of research method to research question

The rich data reaches the researcher through a database developed specifically to record all the respondents' replies to the questionnaire. It should be highlighted that in accordance with Herzberg's approach, the learners have only to address one particular question whereby guidance is offered as to how to answer the question through the inclusion of issues that could be taken into consideration.

Rigour is perceived as paramount and is applied for data collection which is coded using N6 software (discussed in more detail in chapter 3) and analysed by the researcher and checked by third parties who can be other researchers or examiners. Reliability of data is ensured by the inclusion of anonymity, as well as the fact that only the researcher, who has no professional link with the department, has access to the data and furthermore, the learners are requested to complete the questionnaire only when the course has been completed including all related assessment processes.

1.4.3 Data collection

Several authors support the idea of a combination of different types of studies in one research project (Miles & Huberman, 1994; Strauss & Corbin, 1998; Hakim, 2000; Silverman 2001:

Antaki, Billig, Edwards & Potter, 2003; Silverman 2006). It is already commonplace in marketing and policy research, which require thorough decision-making processes and this, therefore, makes sense to transfer into the academic field.

However, Herzberg used structured interviewing as his means of data collection. He presented his respondents with the key question and recorded their replies. As such and in accordance with Herzberg, this research will attempt one method of data collection by providing an online questionnaire where the learners are requested to write about their likes and/or dislikes about their learning experiences. In other words they are being asked to tell their story or narrate about what happened to them and how they felt about it. However, the structure of the story is owned by the respondent and not defined as a story or narrative approach would expect (Silverman, 2006).

An online method of collection is being adopted considering the fact that the course is blended i.e. learners are more involved with their course through the VLE Blackboard and as such, are more often logged onto their course, as well as the fact that the majority are working students who may not necessarily have the time or motivation to get involved in personal interviews about their course or modules.

1.5 Definition of terms

The following is a definition of terms adopted in this project.

B-Learning: Is learning that is facilitated by the effective combination of face-to-face and technology-based modes of delivery, models of teaching and styles of learning and founded on transparent communication amongst all parties involved with a course. This term is discussed in greater detail in chapter 2.

E-Learning: An area of learning theory and practice which has to do with the use of changing and evolving multimedia technology that is merging with Web-related activities for learning purposes. This term is discussed in greater detail in chapter 2.

Evaluation: Is the process by which people make value judgements about things. In this context it is *not* taken to mean judging students – that is, it is not assumed to refer to student assessment.

Learner: For the purpose of this study the word learner is synonymous with the word student.

Online learning: Learning that is facilitated by online technologies.

Teacher: For the purpose of this study the word Teacher is synonymous with the words Lecturer, Tutor, Facilitator and Moderator.

Traditional learning: The didactic approach to learning that takes place predominantly in classroom lectures where the lecturer is perceived as the “sage on the stage”.

University Course: For the purpose of this study a Course refers to a particular degree programme. In this case, it could refer to the degree of Master in Multimedia.

University Module: For the purpose of this study a Module is regarded as an individual subject area incorporated into a course. For example, “Communication Technologies in Education” is regarded as a module and not a course.

1.6 Summary

The chapter has set the stage for this research study by introducing the problem area, the context in which the research is being carried out and by highlighting the importance this study has on current and future programmes within the department and university where the study has evolved.

The next chapter will examine the literature associated with this particular research study and examine in detail the theory of learning, learning within higher education and research into the use of technology in higher education. Embedded in this will be a review of e-Learning and b-Learning environments and motivation and satisfaction levels of learners.

Chapter 2

Literature Review

But in all he does the educator should remember that his aim is not to put into the mind knowledge that was not there before – though he may do that within limits – but to turn the mind’s eye to the light so that it can see for itself. [Plato]¹⁷

¹⁷ Desmond Lee, “Translator’s Introduction.” Plato: *The Republic*. Second edition (revised) 1974:38. Located at <http://campus.murraystate.edu/academic/faculty/winfield.rose/teaching.htm> [Accessed 04-October-2006].

Section One: Research into Learning

2.1 Introduction

According to Gagné's (1977:3) well cited definition, learning "is a change in human disposition or capability, which persists over a period of time, and which is not simply ascribable to the processes of growth". Naturally, over time, many approaches and theories about learning have emerged and changed. Most of them have defined their own ideologies concerning what learning is and how it can be initiated, facilitated and/or supported.

This section discusses two key buzzwords in the current literature on technology-based learning: e-Learning¹⁸ and blended learning commonly referred to as b-Learning. As both words appear regularly in this study they warrant some consideration and explanation as to how they are regarded throughout this study.

Also, this section will discuss what is regarded as the prominent theories and theorists on the subject of learning, in particular, the Behaviourist, the Cognitivist, the Humanists and the Constructivists.

2.2 E-Learning

The term distance learning has been defined by many who support and agree with that of Moore and Kearsley (1996:2) who defined it as:

Planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques and special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements.

Nowadays, the term distance learning is not as common as it used to be and the term e-Learning seems to have replaced it as the more accepted representation of education and learning via electronic means.

¹⁸ Although the term e-Learning has been spelt in varying forms it is the researcher's intention to maintain the predominant spelling on the Web (with the hyphen) while adopting an upper case "L" as opposed to maintaining a lower case "e" within the context of a sentence, thus applying greater emphasis on the learning component rather than the electronic component. The same system is applied to the term b-Learning.

In the literature there are abundant definitions of e-Learning from as many writers on the subject (Rekkedal & Qvist-Eriksen, 2003; Súilleabháin, 2003). The meanings of such technical terms can and are determined in many ways by many individuals. Terms for new concepts are often derived intuitively from related concepts. E-Learning and Web-based Learning (WBL) are examples of recent concepts that have acquired their meanings from the related concepts such as, e-mail, the Web and learning. On other occasions, concepts can be derived by shading their meanings with aggregated adjectives. Online learning and distance learning obtain their meanings this way, as did Web-based Learning (Súilleabháin, 2003).

More established concepts, such as distance learning and distance education, are defined in the literature with precise and widely accepted meanings. Definitions of these terms have been proposed by Keegan (1986) and Garrison & Shale (1987). Khan (2001) and Hall (1997) associate Web-based learning with Web-browser technology, often delivered via the Internet or Intranets. Much literature associates e-Learning with Web-based learning over the Internet (e.g. Horton, 2000, Rosenberg, 2000; Driscoll, 2002). Others refer to learning activities that involve or embed computer networks as e-Learning and stress that e-Learning is not merely distance learning (Schank, 2001). The concept of online learning predates the appearance of the Web but most publications about online learning refer to materials delivered over the Internet or Intranets.

2.3 E-Learning, Distance Learning and Computer-Based Learning

As can be seen from the discussion above, confusion and misunderstanding between the term e-Learning and other older phrases such as distance learning, online learning, Web-based learning, distributed learning, computer-assisted learning and even life-long learning can occur. While e-Learning is undoubtedly closely related to at least some of these phenomena, it is important to clarify exactly what is meant by the term and concept and to distinguish it from other often associated terms. One way of doing so is by examining the historical emergence of these associated terms and in doing so it may be possible to have a clearer picture as to what distinguishes these terms from each other. This is discussed in the following paragraphs.

Distance Learning (DL), though occasionally confused with e-Learning, predates it. DL goes as far back to at least the mid-1800s with the beginning of correspondence home-study

courses in America, France, Germany and the UK (Moore & Kearsley, 2005). It was and still is, the means by which education and training was made available to groups who found it difficult to attend formal traditional face-to-face (f2f) education, such as, for example, those who lived in remote areas or working professionals. Today, educating at a distance attracts financial reward. Organisations like the British Open University (OU) and France's Centre National d'Enseignement à Distance (CNED) with student numbers in the region of 180,000 and 300,000 respectively, teach using a distance learning approach (Open University, 2006; CNED, 2009).

Over the years, as with all concepts, innovativeness plays a key role in the changing nature of the methodologies used in DL. The use of the mailing system remained dominant for distance learning courses until the early 20th century when radio began to be used which gave way to the educational television movement of the mid-20th century which was itself succeeded in the late 1970s and 1980s by the use of cable and satellite television.

The fact that the e-Learner and e-Instructor are often separated in time and/or space of course provides in the minds of many the strongest and most obvious case for viewing e-Learning as a form of distance learning. However, this is not always the case, as learner and instructor may engage in e-Learning in the same f2f space, such as a computer lab or even in a traditional classroom where interactive white boards and online resources are being used, therefore augmenting f2f encounters through the use of e-Learning technologies and methodologies. As such, the idea that e-Learning is the same as distance learning seems less satisfactory in current day teaching and learning environments (Schank, 2001).

The involvement of computers in the process along with the fact that e-Learning can take place in places like computer suites to augment a f2f delivery may lead to it being seen as a form of Computer-based Learning (CBL), a tradition which has its roots in the United States around the same time as the educational television movement (which is to say the 1950s) with the use of large and expensive mainframe computer systems to support early experiments in Computer Aided Instruction (CAI)¹⁹.

¹⁹ In the literature there is a tendency to see CAI as predating CBL

Courseware that supported independent learning began to emerge in the 1980s with the arrival of the personal computer²⁰. With the advent of multimedia in the late 1980s and early 1990s, more and more companies began using CBL as a key part of their strategic training plan and the educational agencies began noticing this development and started taking an interest. Much of the courseware created at the time was delivered via CD-ROM (and CD-I). This approach meant that CBL was limited either to single computer systems or networks, lacking the networkability that enables content to be easily and instantaneously delivered and updated.

As a consequence of this limitation, by the end of the 1990s, the Internet and the Web were seen as the viaduct for future CBL as this was seen as a promising anytime-anywhere learning package. Early e-Learning efforts unsurprisingly then consisted of “re-purposed” CBL material by vendors such as Allen communication²¹, Asymetrix²² and Macromedia²³. Therefore, it is understandable if one associates e-Learning as the latest contemporary form of CBL.

More satisfactory and apposite than either the e-Learning as distance learning or the e-Learning as CBL thesis however is a definition of e-Learning as a phenomenon arising out of a convergence of both traditions, borrowing and building upon the principles, procedures, practices and learning of the two while also taking advantage of the opportunities offered by the Web and its associated technologies to facilitate learning experiences. As is written in the European e-Learning Action Plan (2001):

E-Learning is the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration.²⁴

It can be argued therefore, that a principal reason for the multiplicity of meanings offered for e-Learning is related to the confusion arising from the convergence of these older traditions. Another explanation can be associated to the newness of the underlying technology, a

²⁰ A Personal Computer (PC) is usually a microcomputer whose price, size, and capabilities make it suitable for personal usage. The term was popularized by Apple Computer with the Apple II in the late-1970s and early-1980s, and afterwards by IBM with the IBM PC.

²¹ www.allencomm.com

²² www.asymetrix.com

²³ www.adobe.com

²⁴ From the article by Tapio Varis UNESCO Chair in Global e-Learning at the European e-Learning information portal: http://www.elearningeuropa.info/directory/index.php?page=doc&doc_id=595&doclng=6 [Accessed 10-March-2007]

technology which it is often said to be changing exponentially. In addition, there is a merging of technologies at work (Rosenberg, 2001).

There is, for example, the merging of television and computers in products like Web-TV, as well as the delivery of Web content to devices like the new generation of mobile phones and personal digital assistants (PDA) giving rise to the term “m-Learning”. Other examples include blogs (personal Web-based journals), moblogs (blogs sent from a mobile phone), wikis (modifiable collaborative Web pages) and podcasting (subscription-based broadcast over the Web), supported by technologies such as RSS (Really Simple Syndication – an XML extensible mark-up language format designed for sharing news across the Web).

All of which means that e-Learning itself is constantly changing as new opportunities are created by the increasing sophistication and popularity of the underlying technology. Based on this it may be possible to provide a more global definition of e-Learning by saying that e-Learning is an area of learning theory and practice which uses dynamic multimedia technology that can be merged with Web-related activities for learning purposes.

Unlike many of the Web-based ideas for businesses and other activities, e-Learning has survived the economic crisis experienced at the beginning of this century. However, before e-Learning reaches its full potential, it needs to go through further changes (Reeves & Aggen, 2002). Whether these changes will happen in the near future is dependent on how long the current depressive economic situation remains virile within our economic systems.

What needs to be addressed in the first instance is the creation of a mental model of e-Learning which had to be allowed to seed and grow in individuals’ minds. Mental models are cognitive structures built by individuals who influence the way they react to change and solve problems. Like learning styles, individuals construct different models in accordance with their experience of the object about which they construct the mental model. For this reason, people marketing e-Learning products often describe e-Learning as media events using terms such as ‘full motion video’ and ‘dynamic learning objects’. Instructional programmers and trainers probably see e-Learning as training activities analogous to ‘presentations’ and ‘group discussions’. Subject matter specialists, by contrast, conceptualize e-Learning as an alternative (electronic) strategy for delivering content (Reeves & Aggen, 2002).

Secondly, the quality of assessment of outcomes within e-Learning products must be improved (Marzano, Pickering & McTigh, 1993; Huba & Freed, 1999; Coen, Breslin, Nicol, & Howell, 2004; Falcão & Soeiro, 2007). For the purpose of this study, the researcher regards outcomes as any noticeable change that is expected or anticipated in the learner. Outcomes need to demonstrate whether any learning has occurred and if so how much, whether there has been a change in the learner's performance and what results have been reached (Reeves & Aggen, 2002; Falcão & Soeiro, 2007). This is especially evident in the business world where the emphasis for education and training is performance related and aligned with the goals and objectives of the organisation.

Thirdly, the development of rigorous evaluation strategies for e-Learning must be taken to another level (Reeves & Aggen, 2002; Ravenscourt, 2003; Conole & Dyke, 2004). This is important in order to know if the desired outcomes have been achieved, as well as if students' attitudes are positive towards their learning environment.

2.4 E-Learning in Portugal

It is without doubt that a new approach towards education needs to be set in place in order to accommodate the development of the new technologies that are now becoming to facilitate our lives and make access to training and courses much easier and accommodating, considering our professional and individual lives (Tavares, 1996; Falcão & Soeiro, 2007).

In Portugal, the use of educational multimedia within learning and training has become an important innovative approach towards teaching and learning not only because of its importance in pedagogical means but also because of the dynamism, interactivities and stimulation that it empowers in students (Santos, 2000; Carvalho, 2003), as well as the manner in which it is able to drive environments to steer the development of knowledge.

Based on the above context, there arose in Portugal a variety of projects dedicated towards teaching and learning at a distance. In December 2000 an Internet search was carried out in order to see what exactly was happening in Portugal in the field of e-Learning (Veiga, 2001).

<Table 1> e-Learning in Portugal (December 2000)²⁵ (Adapted from Veiga: 2001: 2)

SITE	Secondary Education	Higher Education	Professional Training	Technical Courses
O Sistema EDU http://www.argus.pt/frindex			X	X
Ensino @distancia Universidade de Aveiro http://www.cemed.ua.pt/ed		X		X
Escola <i>Virtual</i> PME http://www.estudar.-na.net			X	X
Estudar na Net http://www.estudar-net.pt	X			X
DIGITO formação http://cursosdigitopt/index.html				X
E.TIPIGAL http://www.geocities.com/etipigal/geral.htm				X
CURSOR Formação <i>on-line</i> http://cursor.netcabo.pt/html/home.htm			X	X
BY WEB http://www.byWeb.pt				X
AcademiaGlobal.com http://www.academiaglobal.com/servlet/EastCanDo/login			X	X
Instituto Europeu http://www.instituto-europeu.com			X	X
Unidade de Ensino a Distância http://www.dei.isep.ipp.pt		X		
Prof2000 http://www.prof2000.pt			X	
INA http://www.ina.pt				X

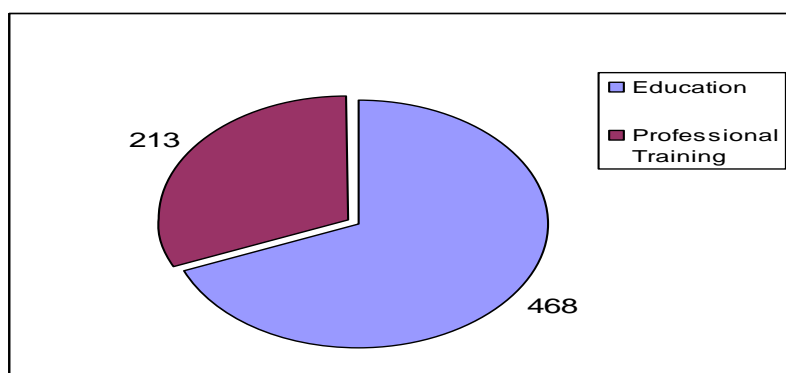
The Copernic²⁶ search engine was used in order to carry out the research and as a result some 13 sites were located <Table 1> which were dedicated to e-Learning and covered varying areas. Of these 13 sites, only 7 were up and running at the time.

²⁵ This list is not exhaustive while at the time there were other sites dealing with e-Learning but were not located through this particular search method.

²⁶ This search engine Copernic Agent Basic is an application to search the Internet. Copernic uses different search engines like AltaVista, HotBot, LookSmart, Lycos, Microsoft Live, Yahoo! and many others.

As can be seen in <Table 1> during this period, very few courses were offered within the higher education sector with the majority being provided in the professional sector and in particular, as technical training courses. This was due to the fact that many were co-financed with European Union funding.

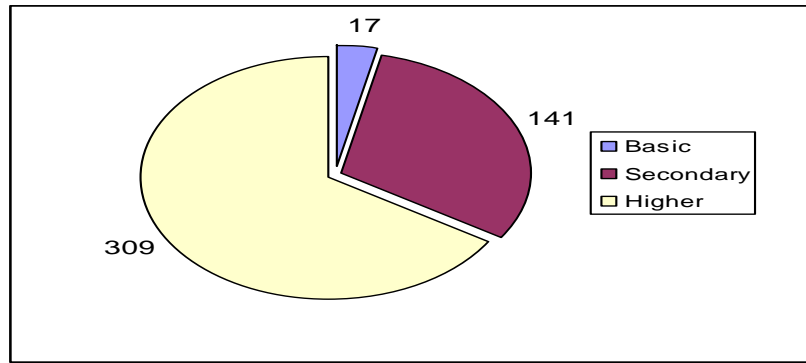
A recent report from the database of the Observatory of e-Learning in Portugal (2008) (*base do dados de Observatório do e-Learning em Portugal*)²⁷ offers evidence to support the growing increase in VLE usage across the country and in particular within higher education institutions (HEIs). The results of the report highlighted in <Figure 3> offer clear indication that there has been a large increase in the use of VLE platforms over the previous three years with a figure of 468 platforms existing within the state educational system across the country and 213 within the professional training sector.



<Figure 3> Portion of VLE platforms in use among education and professional training

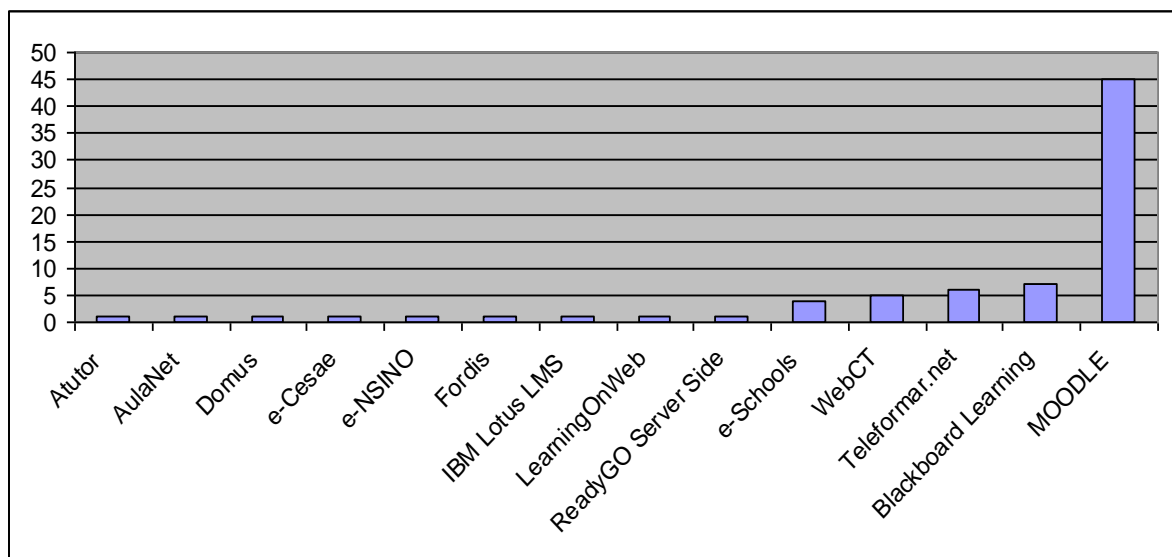
The report fragments further this data into more concise sectors within the state educational system, <Figure 4>. As can be seen, higher education (HE) has a superior portion with 309 of the 468 total. This reiterates the fact that more HE institutions are becoming involved with the use of VLE to support their teaching and learning environments.

²⁷ Available online to registered users at <http://server.e-arte.eu/~elearnin/lms2/> [Accessed 12-November-2009]



<Figure 4> Portion of VLE platforms in use among the state education sectors

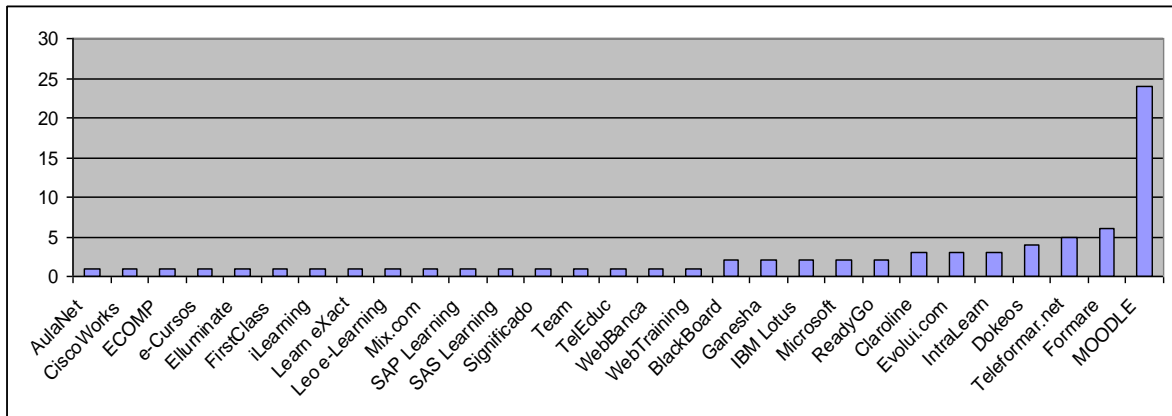
This uptake is further supported by the results of a survey carried out between 2005 and 2007 which examined the level of usage of VLE platforms in Portugal. The results are presented in <Figure 5 and Figure 6>.



<Figure 5> Level of learning platforms used in Polytechnics in Portugal (December, 2007)²⁸

<Figure 5> indicates the level of usage of VLE platforms within polytechnics in Portugal. As can be seen Moodle is the more prominent VLE in use and far surpasses any others with Blackboard a distant second. This development of an open source platform has encouraged an increase in the adoption of VLE within Polytechnics across the country.

²⁸ Source: <http://www.elearning-pt.com/lms2/>



<Figure 6> Level of learning platforms used in Universities in Portugal (December, 2007)²⁹

Due to a surge in research studies and projects surrounding online learning it is not surprising to find a vast array of VLE platforms being associated with university education <Figure 6>. Like the Polytechnics and probably for similar reasons, such as being an open source platform and also due to economic constraints, the Moodle platform is the more prominent with many platforms having been discontinued or substituted by Moodle.

2.5 Blended Learning (b-Learning)

E-Learning as with most concepts and ideas is not without its flaws. One of the main disadvantages is the inability to socially interact in the matter that is taken for granted in everyday conventional settings. This creates a special need to motivate the less independent student (Salmon, 2002) and a need for a compromise to be reached between the conventional f2f sessions and online learning. This compromise leads us towards a new approach to teaching and learning, the so-called hybrid or blended learning approach (Rogers, 2001).

Information and communication technology (ICT) is increasingly used on campus often as optional 'add-ons' to f2f teaching (Saunders & Pincas, 2004). Nowadays, b-Learning is being presented as the way forward in providing flexible and accessible learning for a widening audience. However, b-Learning is more than merely mixing online learning with f2f methods: the word 'blend' in itself indicates that there is a seamless transition between the different modes. However, learners need to understand the rationale for a blended course and there is evidence that a poorly blended course can cause confusion, especially for weaker and less advantaged students (Hughes & Lewis, 2003).

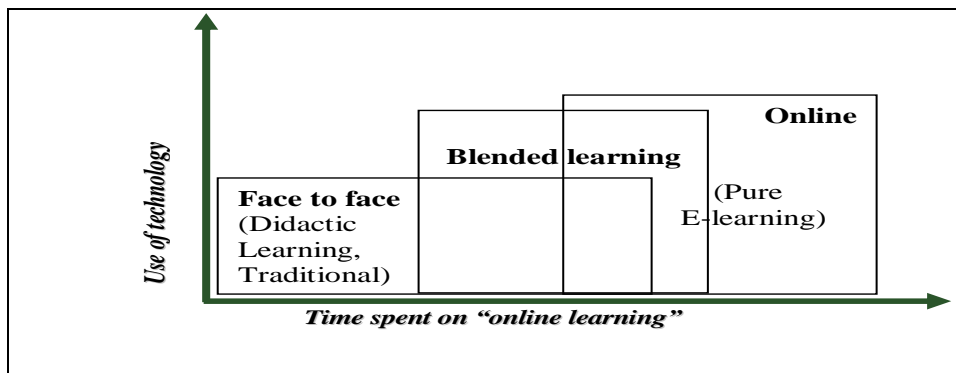
²⁹ Source: <http://www.elearning-pt.com/lms2/>

As b-Learning emerges as perhaps the most important delivery mechanism in higher education, business, government and military settings, it is vital to define it, as well as explain where it is useful and why it is important (Graham, Allen & Ure, 2005; Masie, 2005).

2.5.1 What is b-Learning?

One frequent question asked when one hears about b-Learning is, “What does blended learning mean?” Like many associated learning terms, b-Learning has the illusion of being a concrete concept. In practice it is a flexible term that means different things to different people.

The New South Wales Department for Education and Training (DET) provides a definition of b-Learning which states that “learning which combines online and face to face approaches” (DET, 2003)³⁰. <Figure 7> visualises blended learning as defined above.



<Figure 7> DET conception of Blended Learning by Heinz & Procter (2004)

As is evident, there are overlaps between the pure f2f sessions, which use some kind of online activities and the “pure” online learning, which combines some degree of f2f event. The DET has the virtue of simplicity but does not capture the potential richness of blended learning as is expressed in the definition from Procter (2003:3):

Blended learning is the effective combination of different modes of delivery, models of teaching and styles of learning.

³⁰ Source: <http://www.schools.nsw.edu.au/learning/yrk12focusareas/learntech/blended/index.php> [Accessed 02-September-2007].

This definition is more comprehensive, adding the dimensions of teaching and learning styles which will be discussed later in Section 2.7.

Although there is a wide variety of responses to this question (Driscoll, 2002), most of the variations represent a combination of a few general themes. Commonly mentioned definitions that appear in the literature and documented by Graham *et al.* (2003) are:

- Combining instructional modalities, or delivery media, (Orey, 2002; Thomson, 2002; Bersin & Associates, 2003);
- Combining instructional methods (Driscoll, 2002; House, 2002);
- Combining online and face-to-face instruction (Sands, 2002; Young, 2002; Rooney, 2003).

Others offer more profound definitions:

What is ‘blended learning’? It is the use of two or more distinct methods of training. This may include combinations such as: blending classroom instruction with online instruction, blending online instruction with access to a coach or faculty member, blending simulations with structured courses, blending on-the-job training with brown bag informal sessions, blending managerial coaching with e-Learning activities. (Masie cited in Clark, 2003:4)

An appreciation of communication is so strong on a b-Learning course that Heinz & Procter (2004:12) feel that a new definition can therefore read as follows:

Blended Learning is learning that is facilitated by the effective combination of different modes of delivery, models of teaching and styles of learning, and founded on transparent communication amongst all parties involved with a course.

The original use of the phrase “Blended Learning” was often associated with simply linking traditional classroom training to e-Learning activities as suggested above. However, the term has evolved to encompass a much richer set of learning strategy dimensions. Today a blended learning programme may combine a number of over-lapping attributes, such as offline and online learning; structured and unstructured learning; self-paced and live, collaborative learning to mention a few.

Furthermore and something that is evident in Portugal, some educational institutions regard b-Learning as the provision of supplementary resources through virtual learning environments for courses that are conducted predominantly along conventional lines. It is still a young concept and it appears that commercial companies are driving forward b-Learning in the education industry, for example, The Training Place³¹, Bersin and Associates³² and PT Inovação³³.

Although b-Learning is regarded as a complicated concept, the interesting point that emerges is that it can mean different things to different people depending on which side of the learning process they come from (Orey, 2002). There would seem to be a general confusion of notions with respect to the panacea of “blend” (Salmon, 2005). It has been suggested that the term remains in use because it is ill defined and that it is because of this lack of definition, understanding and meaning different things to different people, which gives the term potential (Driscoll, 2002).

According to Oliver & Trigwell (2005:24), “the term blended learning is ill-defined and inconsistently used” and although it is a popular term they point out that its clarity is not. They suggest that the term “variation learning” would be best adopted as it creates a shift away from manipulating the term as seen by the teacher to the idea that the term ‘learning’ is being transferred to its rightful place, that is, to the learner. In this case, an in-depth analysis of the variation in the learning experience of the student in the blended learning context can be carried out. They also suggest that in order to fully understand the term ‘blended learning’, it would be advisable to examine what term describes the ‘unblended’ pedagogy as this may be a way for researchers to deal with the overall ambiguity associated with the term.

Whatever the understanding of b-Learning, it is a term that has been around for at least ten years or more and for many, it represents different notions within different settings. For the purpose of this project and in relation to what is evident from the literature, three principal areas are involved in the b-Learning approach: a combination of face-to-face and technology-based delivery; different teaching and learning styles and transparent communication.

³¹ www.trainingplace.com

³² www.bersin.com

³³ www.formare.pt

As such, and for the purpose of this study, the researcher offers this definition of b-Learning which has already been presented in Section 1.5 above:

B-Learning is learning that is facilitated by the effective combination of face-to-face and technology-based modes of delivery, models of teaching and styles of learning and founded on transparent communication amongst all parties involved with a course.

2.5.2 Why Adopt a b-Learning System?

Osguthorpe & Graham (2003) identified six reasons why one might chose to design or use a blended learning system:

- (1) Pedagogical richness
- (2) Access to knowledge
- (3) Social interaction
- (4) Personal agency
- (5) Cost effectiveness
- (6) Ease of revision

In the b-Learning literature, the most common reason provided is that b-Learning combines the best of both worlds (Graham, 2005). Of course one has to be careful not to assume that only the “best” is being mixed in a blended learning environment as also some elements of the “worst” may be included if the environment is not designed well. Beyond this general statement, one of the questions that needs to be addressed is “how do we blend?” Graham (2005) highlights three categories of blended learning systems as shown in <Table 2>: Enabling blends; Enhancing blends and Transforming blends.

<Table 2> Different categories of blended learning systems

Enabling Blends	Enabling blends primarily focus on addressing issues of access and convenience. For example, blends that are intended to provide additional flexibility to the learners or blends that attempt to provide the same opportunities or learning experience but through a different modality.
Enhancing Blends	Enhancing blends allow for incremental changes to the pedagogy but do not radically change the way teaching and learning occurs. This can occur at both ends of the spectrum. For example, in a traditional f2f learning environment, additional resources and perhaps some supplementary materials may be included online.
Transforming Blends	Transforming blends are blends that allow for a radical transformation of the pedagogy. For example, a change from a model where learners are just receivers of information to a model where learners actively construct knowledge through dynamic interactions. These types of blends enable intellectual activity that was not practically possible without the technology.

Examining Graham's systems and taking into consideration the current pedagogic push towards delivering a learner-centred educational environment, the "transforming blend" would seem to be the one best suited as it offers the learner the opportunity to express themselves in a constructive manner.

With the development of work-based learning and life-long learning initiatives by many European governments, the impetus on providing a flexible blended environment becomes even more critical. Also, due to an increase in more mature, experienced professionals as students, institutions are now faced with learners who with the right guidance and support, relish the opportunities to express their own knowledge and the opportunities to be able to construct knowledge based on those experiences. This further reinforces the necessity for a transforming blend which enables learner-centeredness to develop and grow.

2.6 Learning Theories

Didactics as a field of science is concerned with all aspects of learning and teaching processes. Any concrete didactic method builds upon a learning theory (Motschnig-Pitrik & Holzinger, 2002) whereas learning theories have their roots in many different sciences: social sciences, neuroscience or philosophy.

Learning theories are also key requisites for understanding and creating specific learning designs (or instructional designs). Basically, most of the works on learning theories differentiate three classical main streams: the Behaviourist, the Cognitivist and the Humanistic theories. These principal theories and other derivative theories are discussed in the following sub-sections.

2.6.1 Behaviourism

Behaviourism was one of the dominating learning theories of the twentieth century. It has emerged when a growing group of psychologists broke with introspective approaches to psychological research: the main point of critique was "the impracticality of substantiating and verifying its results" (Watson, 1997:38-39). As such, behaviourists turned to concentrate on "behaviour", as something perceptible and measurable. Research focused on describing

learning in terms of stimuli and corresponding reactions, based on conditioning (Smith & Ragan, 1999; Venezky & Osin, 1991). Learning was defined as change in behaviour. Behaviourism had its beginnings with Pavlov's (1927) "Classical Conditioning" and Skinner's work with "Operant Conditioning" in the 1940s and 50s.

Exponents of behaviourism theories such as Thorndike and Woodworth (1901) and Watson (1913) developed laws which assumed that learning involved direct links between stimuli and responses. Cognitive processes were not taken into account in the development of these laws. Skinner (1954; 1963) argued that the task of the psychologist was to control behaviour by manipulating the environment. According to behaviourists "learning has occurred when learners exhibit the appropriate response to specific stimuli" (Smith & Ragan, 1999:19).

Skinner demonstrated how children could be conditioned within a series of small steps, correct responses followed immediately by positive reinforcement, continuing until complex forms of behaviour are achieved (Sprinthall *et al.*, 1994). Today's computer environment allows for small learning steps, immediate feedback providing positive reinforcement to correct responses, and encouragement to continue when an incorrect response is given.

2.6.2 Cognitivism

Cognitivism began to displace behaviourism as the main theory of learning in the 1960's. It is based on the claim that internal, cognitive processes in humans cannot be ignored when researching human learning, which was in turn one of the core assumptions of behaviourists. Cognitivists see the learner in a more interactive role within his or her learning environment, not just as a reactor. The role of the teacher also changes: the teacher is no more just the instructor or the expert but more a tutor or enabler of the learning process (Mergel, 1998). Key players in cognitivism were Piaget, (1896-1980), Vygotsky (1896-1934) and Miller (1920-age 89).

2.6.3 Humanistic

Humanistic theories of learning tend to be highly value-driven and hence more like **prescriptions** (about what ought to happen) rather than **descriptions** (of what does happen)

(Atherton, 2005). It emphasises the "natural desire" of everyone to learn. It follows from this, it is maintained, that learners need to be empowered and to have control over the learning process. So the teacher relinquishes a great deal of authority and becomes a facilitator. Key figures in humanistic models of learning were Carl Rogers (1902-1987), John Holt (1923-1985) or Paulo Freire (1921- 1997).

Building on these mainstream theories, a host of derived learning theories have evolved for teaching, learning and development and these are discussed briefly in the following sections.

2.6.4 Constructivism

Constructivism is the most recent mainstream learning theory. It is the label given to a set of theories about learning which fall somewhere between cognitive and humanistic views (Atherton, 2005). It is a study of how each person constructs their own knowledge (Orey, 2009). Learning is not seen as a pure stimulus-reaction sequence as in behaviourism, nor is it considered to be solely driven by mental and cognitive processes as in cognitivism. Knowledge is not assimilated through training, nor is it held by the learner, but it is seen as being constructed as the learner's understanding of his or her environment based on prior experiences and reflection of current and past situations (Forrester & Jantzie, 1998). In that sense, teachers are not merely considered as trainers but as facilitators who are coaching the learners in the process of knowledge construction.

2.6.5 Anchored Instruction

The primary principle of anchored instruction is the solving of complex, realistic problems by providing material (primarily media such as videotapes) that acts as an *anchor* for subsequent learning activities. The aim is to encourage a process of active knowledge construction in the learner (Cognition and Technology Group at Vanderbilt, 1993). For example, the students play the role of a pilot to learn about aeronautics subject matter such as gravity, airflow, weather concepts, and basic flight dynamics. The teacher facilitates and coaches the students through the process.

2.6.6 Social Development Theory

The social development theory³⁴ (Vygotsky, 1978) deals with the importance of social interaction in the learning process. Learning is a social process where the learner acquires knowledge and ability to perform tasks without assistance. A central concept in this theory is the so-called *zone of proximal development* (ZPD)³⁵ that denotes the difference between what a person can do with and without help.

2.6.7 Situated Learning Theory

The situated learning theory (Lave & Wenger, 1991) stresses the role of activity, context and culture, that is, situation, in which learning occurs. It shows links to Vygotsky's social development theory, as social interaction is a central component of situated learning. More recent works have further developed this theory, e.g. Wenger's *Communities of Practice* (Wenger, 1998) dealing with groups of people or learners that tackle problems by collaboration, sharing and information exchange.

2.6.8 Cognitive Apprenticeship Model

Cognitive apprenticeship is a model of learning based on the situated cognition theory (2.6.7). It provides practical steps for applying situated cognition theory. The social context also plays a major role in cognitive apprenticeship theory (Brown, Collins, & Duguid, 1989) as it stresses the benefits of a relationship between learner and expert (facilitator). The focus is not on transmission of factual information but rather addresses the social and personal level in the learner by guiding the development of his or her skills and abilities in real-world environments through observation, training, and practice (Gruber, 2009; Enkenberg, 2001; Gruber 1995).

³⁴ The theory is also sometimes called Social Constructivism, Social Cognition theory or Cognitive Development theory.

³⁵ The ZPD is characterised as the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.

2.6.9 Constructionism

Constructionism (Papert, 1992) included everything associated with Piaget's constructivism but went beyond it to assert that constructivist learning happens especially well when people are engaged in constructing a product, something external to themselves such as a machine, a computer programme, a garden or building design or a book. This approach is greatly facilitated by the ready availability of powerful 'constructing' applications on personal computers. The use of educational technology lends itself to the constructionist theory which is represented through the development of project-based and work-based learning. Promoters of the use of computers in education see an increasing need for students to develop skills in multimedia literacy in order to use these tools in constructivist learning.

2.6.10 Communal Constructionism

Communal constructivism is an emergent learning theory, first introduced by Holmes *et al.* (2001). Communal constructivism is built on the idea that students and teachers should not be simply engaged in developing their own information but also actively involved in creating knowledge that will benefit other students. In this model, students will not simply pass through a course like water through a sieve but instead leave their own imprint in the learning process.

2.6.11 Connectivism

Connectivism is another recent emergent learning theory first echoed by Siemens (2004). According to Siemens most learning theories regard learning as something that occurs within an individual while he argues that in our current dynamic technology-oriented and socialising environments learning also occurs outside of the individual and is driven by a network of knowledge that is connected and driven by the storage and manipulation of data, in other words the digital era. He also argues that most learning theories do not consider how learning happens within an organisation, that is, what part our learning environment plays or affects the learning process.

For Siemens, individuals are the starting point of connectivism as they bring with them their own personal knowledge which is interwoven among various personal and professional

networks. This knowledge is then embedded in the organisation and is enriched further and then returned to the networks by its courier, the individual. It is this connectivity of learning and knowledge through various personal networks that forms the bases of connectivism.

2.6.12 Anti-Teaching

Anti-teaching introduced by Wesch (2008) asks the question: What is the significance of teaching in current educational climates? Wesch challenges the traditional idea of the teacher asking the challenging questions and purports that we should be focusing on inspiring our learners to ask meaningful and thought provoking questions which is more “conducive to creating lifelong learners as opposed to savvy test takers” (Wesch, 2008:5). He argues that at times teaching can actually act as a hurdle to learning and nowadays, with the onslaught of new media technology learners learn best when they are left to their own devices: “...for it is then the learners are free to pursue with great passion the questions that are meaningful and relevant to their own lives” (Wesch, 2008:5).

As a consequence, Wesch (2008) argues that teachers need to focus on the environment in which they are working and less on the conveyance of information. They need to concentrate on the quality of learning and not on the quality of teaching. He proposes that teachers must challenge their environment in which they work and try to make such that it aids the teacher in creating learners who are lifelong critical thinkers. He places the learner at the heart of the process, empowering them to take control of their learning and uses them as the medium of information that allows him as a teacher to create learning environments to reflect their learning needs.

2.7 How the theories fit together

Different theories concerning the learning process also imply a different view about teaching and the way knowledge and skills should be imparted.

In Behaviourism, it is a matter of producing suitable input to cause the correct reaction. Appropriate feedback has to support this process. This implies an authoritarian teacher model: the teacher knows what is correct and incorrect and intends to transmit this to the students.

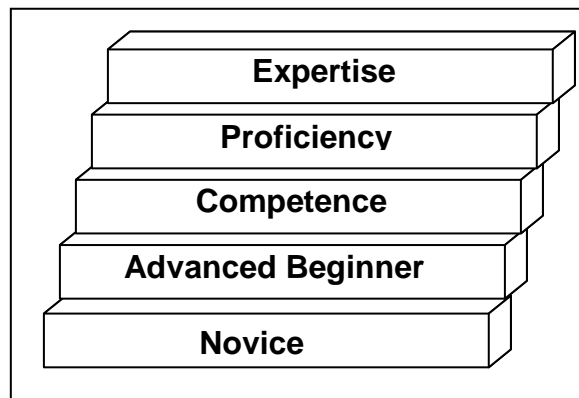
The students in turn must remember the correct factual knowledge to produce correct answers for predefined questions, that is, rote learning.

In Cognitivism, there is a more balanced outlook: learners have the opportunity to solve problems relatively independently (procedural knowledge: “know how”). However, the tasks are already didactically cleaned which means that only relevant facts are presented to the learner and the situation is usually in a simplified format and a defined problem has been presented for solution. The teacher acts as a coach or supervisor in the learning process, and when required will offer assistance to the learners.

In Constructivism, the learner’s own individual knowledge and experience is given priority. Learners are presented with complex situations and are required through analyses to depict actual plausible problems and tasks which they then have to find manageable ways to solve (social practice or knowing-in-action). Teachers play the role of coaches or moderators (Salmon, 2004) and lose parts of their apparent infallibility as they too, like the learners, are exposed to the criticism of the actual situation. Their teaching role arises solely from their vast knowledge and experience of life and from their ability to support other people to cope with complex situations.

In real life, there is no single theory that fits snugly into all situations. Which of the learning theories are best suited to a certain situation will be dependent on the background knowledge, the learning content, the subject matter and, importantly, the goal or objective of the learner for studying.

According to Dreyfuß and Dreyfuß (1986) and Baumgartner, Häfele & Maier-Häfele, (2001) we can distinguish five levels of knowledge which correlate to recommended learning theories <Figure 8>.



<Figure 8> Learner Levels (Dreyfuß & Dreyfuß, 1986)

- *Level 1 – Novice – “Know that”*: Novices are not familiar with the learning topic yet and have not as yet formed any related experiences to the topic. First, they need to learn unquestionable basic facts and rules which they can only apply to real situations. They do this with guidance because they cannot decide independently what the best rule to fit is.

In most cases the Behaviouristic model would fit the needs of novices quite well.

- *Level 2 – (advanced) Beginner – “Know how”*: Beginners start to comprehend different cases and situations and are able to apply rules according to their contexts. Skills are executed in various ways but they still cannot act on their own without close guidance and managing.

Beginners achieve good results with a combination of the Behaviourist and the Cognitivist learning model.

- *Level 3 – Competence – “Rational understanding”*: Competent individuals know all the relevant facts and rules and can distinguish between a wide range of different cases and are capable of applying solutions to them. Therefore, they can act autonomously within their own areas and solve emerging problems. Competency also means responsibility, taking a view and self-critical reflection. However, decision making is still cumbersome and difficult and competent individuals still have a long way to go before they possess the sudden intuitions real experts can have.

Competent learners can be brought to the next step by a combination of the Cognitivist and Constructivist learning models.

- *Level 4 – Proficiency “Implicit understanding”*: At this stage the learners move from analytical realisations with the subsequent application of solutions to a more holistic perception of given situations. They seem to envisage clearly the presented tasks together with plausible solutions.

In most cases only the Constructivist learning model can bring proficient learners to the expert level.

- *Level 5 – Expert “Intuitive action”*: Experts perfect the holistic perceptions because various difficult tasks look familiar to them. This works because of an improvement in their ability to perceive and construct group or family likeness between different appearances. The art of this ability manifests itself in constructing cases, out of amorphous unclear situations, which already contain their own solutions.

Experts complement their knowledge best by constructing a new one.

2.8 Learning Styles

Students vary significantly in the way they approach their studies even when variation in their perceptions have been taken into account (Sadlo & Richardson, 2003). This may be due to their conceptions of learning and how they view themselves as learners (Richardson, 2005).

As there can be a tendency for teachers to teach in accordance to their own learning preference and there is little evidence to show that teachers do change their conceptions of teaching and learning with experience (Norton, Richardson, Hartley, Newstead & Mayes, 2005), an understanding of different styles of learning is important, especially when attempting to widen the participation within higher education (HE) courses. If there is a mismatch between teaching and learning styles then consequences could be grave, leading to boredom, a lack of interest and possible drop-outs on the part of the learner (Felder, [online³⁶]).

³⁶ Available at <http://www4.ncsu.edu/unity/lockers/users/f/felder/public/> [Accessed 25-March-2010]

Studies have shown that teachers need to adjust their own styles and methods to facilitate the learning process and to appropriate the styles of their learners (Cartney, 2000, Buch & Bartley, 2002). If one thinks about how they would prefer to begin tackling a problem or theory (reading, talking, doing, thinking quietly etc.) then they might have some idea about their own learning preference.

Theories have been developed which examine learning styles and an output of some of these theories has been the creation of various frameworks and tests to assist in assessing learning styles. The more frequently mentioned and applied frameworks and tests are discussed briefly in the following sub sections.

2.8.1 The Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator (MBTI) model is structured around Jung's theory of Psychological Types (Felder & Brent, 2005). Students are classified according to their preferences from four scales derived from Jung's theory.

- *Extraverts or Introverts:* Those who are willing to try things out focusing on the external world or then those who prefer to think things through and focus on internal ideas.
- *Sensors or Intuitors:* Those who are practical and who focus on facts and procedures or then those who are imaginative and who focus on meanings and possibilities.
- *Thinkers or Feelers:* Those who are skeptical and who base their decisions on logic and rules or then those who are appreciative and make decision based on their own personal and human traits.
- *Judgers or Perceivers:* Those who follow a set agenda and seek closure on events even if the applied data or information is incomplete or those who are flexible and adaptable and will postpone closure with a view towards obtaining all relevant data and information.

2.8.2 The Learning Style Inventory

Five versions of Kolb's Learning Style Inventory (LSI) (1976, Version 3.1, 2005) have been published over the past 34 years (Kolb & Kolb, 2005). The LSI is designed to measure the means by which individuals display different learning styles based on the theory of experiential learning. The experiential learning theory defines learning as "the process whereby knowledge is created through the transformation of experience and knowledge results from the combination of grasping and transforming experience" (Kolb, 1984:41 cited in Kolb & Kolb, 2005:2).

Grasping experience is divided into two dialectically related modes; Concrete Experience (experiencing) and Abstract Conceptualization (thinking) while transforming experience is divided into Reflective Observation (reflecting) and Active Experimentation (doing). The four types of learner in this classification scheme are:

- *Diverger (concrete, reflective)*: Learners respond well to explanations on how their learning materials relates to their own lives. Teachers are expected to function as motivators for these types.
- *Assimilator (abstract, reflective)*: Learners respond well to information presented in an organised fashion and which allows the learner time to be reflective. Teachers are expected to function as experts for these types.
- *Converger (abstract, active)*: Learners respond well to opportunities to work actively and they enjoy taking risks and working on a trial and error bases. Teachers are expected to function as coaches for these types.
- *Accommodator (concrete, active)*: Learners respond well when they can apply their studies to new situations that deal with real scenarios and problems. Teachers are expected to function as moderators allowing the learners to work independently.

The LSI is used to assist learners define and understand their unique preferred methods of learning by indicating and ranking their preferences among the four modes mentioned above. It also assists in generating dialogue between educators and learners about what is the best most effective learning environment for the cohort, as well as the educators.

2.8.3 The Learning Style Questionnaire

Honey and Mumford (1992) also developed their Learning Style Questionnaire (LSQ) based upon the experiential learning theory. However, their focus was primarily towards the business world rather than academic faculties and departments and they defined the four learning modes mentioned in the previous section 2.7.1 differently. They defined them as Reflectors, Activists, Theorists and Pragmatists, each of which is discussed briefly below.

- *Reflectors* reflect different perspectives. They like to collect data and think about it carefully before coming to any conclusions. They enjoy observing others and will listen to their views before offering their own.
- *Activists* like to be involved in new experiences. They are open-minded and enthusiastic about new ideas but get bored with implementation. They enjoy doing things and tend to act first and consider the implications afterwards. They like working with others but tend to hog the limelight.
- *Theorists* adapt and integrate observations into complex and logically sound theories. They think problems through in a step-by-step way. They tend to be perfectionists who like to fit things into a rational scheme. They tend to be detached and analytical rather than subjective or emotive in their thinking.
- *Pragmatists* are keen to try things out. They want concepts that can be applied to their job. They tend to be impatient with lengthy discussions and are practical and down to earth.

2.8.4 The Structure of Intellect Test

Meeker (1996) developed a special “*Structure of Intellect*” (SOI) test. The test not only assesses thinking abilities but also helps to develop and enhance areas of deficiency, as well as giftedness. It also differentiates five ways of thinking:

- Cognition: The ability to perceive and understand new information quickly.
- Memory: The ability to retain and retrieve information in any form.

- Evaluation: The ability to make decisions and to judge correctness, suitability, adequacy, or desirability of information.
- Convergent production (sometimes called problem solving): The ability to synthesise new information from given information to arrive at what is normally accepted as the best answer or outcome.
- Divergent production (sometimes referred to as creativity): The ability to generate new information from given information, emphasising the variety and quality of answers.

According to Meeker (1996) students must be able to receive, process, assimilate, store and use the information that is being presented in order to learn. Most people have a preference for the information they can handle most easily. This refers to a person's learning style, which needs to be considered when generating online content. Meeker highlights three forms of learning styles:

- *Figural*: A figural is what we can see, hear and touch directly. It could be a photograph, a sound or a gesture. It may be visual, auditory or kinaesthetic. A learner whose figural abilities are high would be able to manipulate figures mentally or manually and would have good spatial perception and judgment. Typically such people are architects, surveyors, graphic artists or carpenters.
- *Symbolic*: A symbol is an arbitrary sign that has no significance in itself, only that meaning which we as society ascribe to it. Examples include numeric codes, alphabetic characters, musical notes, mathematical signs, and other such symbols. Individuals who have high symbolic abilities do well with numbers or letters and are often good with music. Typically such people are musicians, programmers or mathematicians.
- *Semantic*: Semantic or verbal information includes the meanings society allocate to words. It is all of the four skills; reading or writing, listening or speaking. A student high in semantic abilities is good with words and ideas and will frequently do well in formal educational settings. Typically such people are teachers, lawyers, writers or politicians.

Guildford (1967) also mentions a fourth learning style called “Behavioural” (the actions and expressions of people) which was omitted by later psychologist such as Meeker. However, as mention at the start of this section many learning problems occur because there is a mismatch of learning styles between those offering instruction and those receiving it. Therefore, to assist students who are not learning, we need to insure that the instruction is not inappropriate to their learning style.

2.8.5 The Felder-Silverman Model

The Felder-Silverman model (1998, updated 1993) classifies a student’s style of learning as being:

- *Sensory or Intuitive:* This scale is identical to the sensing-intuitive scale presented by the MBTI (Felder & Brent, 2005) and discussed in 2.8.1 above.
- *Visual or verbal:* Does the student prefer visual representation or written and spoken presentations?
- *Active or Reflective:* This scale is identical to the Kolb’s active-reflective scale and is related to the extrovert-introvert scale of the MBTI (Felder & Brent, 2005). Both of which have been discussed previously in sections 2.8.2 and 2.8.1 respectively.
- *Sequential or Global:* Does the student understand in a linear, orderly fashion or in a holistic, systematic manner?

Based on the Felder-Silverman model, Felder (1996) proposes certain strategies to present information that is appealing to the various learning styles. Some of these can be adopted in many different areas of study while other proposals are specific to engineering courses which is where the model was developed and tested. These strategies are:

- Theoretical material should be presented or introduced through the use of phenomena that are relative to the theory.
- Balance sensory and intuitive information.
- Make extensive use of visual aids in addition to verbal communication in the lectures.

- Use numerical examples to supplement algebraic examples when presenting an abstract concept or a problem-solving algorithm.
- When applicable use physical analogies and demonstrations to get your point across.
- When applicable give the students the opportunity to perform experimental observations before presenting the general principle.
- Provide time in class for reflective thinking and active student participation.
- Encourage collaborative study among the students particularly when doing their prescribed homework.
- Demonstrate the link between course topics, as well as the link between materials and subject matter on other courses and the real world.

2.8.6 The Index of Learning Styles

The Index of Learning Styles (ILS) was designed to assess learning preferences on the four dimensions of the Felder-Silverman model (Felder & Spurlin, 2005; Felder & Brent, 2005) discussed previously. The ILS was placed online in 1997 (Felder & Solomon) and is freely available at no cost to individuals. It can be used by individuals to assess their own learning profiles and for educators who wish to use it for research or in class with their students. As Felder (Online)³⁷ indicates, ILS users need to be aware of two fundamental factors:

1. The ILS results provide only an indication of learning preferences and a better indication of group profiles. However, they should not be over-interpreted. If someone does not agree with the ILS assessment, their judgement should be preferred to that of the ILS results.
2. An ILS profile offers an indication of possible strengths and weaknesses of a student and possible tendencies or habits that may lead to the student finding the academic environment difficult. The LSI does not reflect a student's suitability for a particular course, module or professional path.

³⁷ Available at <http://www4.ncsu.edu/unity/lockers/users/f/felder/public/ILSpag.html> [Accessed 25-March-2010]

2.9 Summary

This section has examined the ideologies behind the concept of learning and looked at how these are associated with the introduction and adoption of technology into the educational stream. The major focus centred upon mainstream theories and the importance of learning styles within an educational environment.

To compliment these pronounced learning styles and to direct our thoughts towards what is being examined in this research study, a discussion of the theory surrounding learner satisfaction and motivation is presented in the next section. The major focus surrounds satisfaction and motivational levels of the learners within a HE setting and there is a focus on retention and attrition levels and the influence b-Learning can have on these important factors within a HEI.

Section Two: Research into Student Learning in Higher Education

2.10 Introduction

As this research is concerned with student learning in higher education (HE), an investigation into the existing literature that focuses on this particular area is warranted. Students in HE come from a widely diverse range of backgrounds. It is evident within the European Union (EU) that many current university policies encourage this diversity and have become more accommodating with entrance requirements.

Many universities have seen students coming from multicultural societies where the host language is not their first language (Ryan, Scott, Freeman & Patel, 2000). There is a wide variety of age groups with varying social and employment situations. Therefore, a flexible delivery is encouraged which allows students to choose whether they complete courses by attending f2f classes or by studying from the convenience of their homes and accommodating various commitments, such as work and family.

Until recently, the expected outcome of being able to obtain a university degree was the guarantee of a job and one that usually covered an entire working lifetime. Nowadays, it is common for people in most employment situations to “change jobs frequently in order to

seek advancement and to respond flexibly as ‘old’ businesses die or are transformed by new technology and as new businesses come into being” (Ryan *et al.*, 2000:11). As a consequence of this, students entering HE courses are seeking flexible and accessible education that will suit their busy schedules.

Traditionally, universities have expected students to take full responsibility for their own learning. Lectures usually involve the process of transmitting the course knowledge to the student in such a manner that very little active learning is encouraged. A common scenario would be trying to get as many students as possible into a lecture theatre while the course content is dictated through the most convenient means available to the lecturer.

In some cases, the same could be said for technology-based courses as a similar approach is used to that of the traditional method, that is, “there exists a direct translation of the same system used in a traditional teaching setting” (Ryan *et al.*, 2000:14). Students, since the beginning of the nineties, have become more vocal about the quality of education for which they pay (Laurillard, 2002) and lecturers are now obliged to take more responsibility for what and how their students learn and pay attention to their students’ needs otherwise, they may not be able to retain them for long as there has been a large influx in educational offerings over the last five years.

The following section explores briefly some of the research into the developments of student learning in higher education.

2.11 Context of Teaching and Learning

Students in higher education attend a diverse range of courses and they are generally speaking enrolled in full-time or part-time classes on campus. Some students study off campus through e-Learning or b-Learning educational programmes such as those offered by the *Universidade Aberta* in Portugal³⁸, the UK Open University (OU)³⁹, the Open Learning Australia (OLA)⁴⁰,

³⁸ Available at <http://www.univ-ab.pt>

³⁹ Available at <http://www.open.ac.uk>

⁴⁰ Available at <http://www.open.edu.au>

the Universidad Nacional de Educación a Distancia (UNED)⁴¹ in Spain and the Centre National d'Enseignement à Distance (CNED)⁴² in France.

Students often have their work integrated with work or field study. On-campus students generally follow a programme which may include tutorials, lab work, assignments, examinations and work placement. Staff are encountered formally within classroom settings or informally by students seeking advice about their projects or assignments. Wilson (1981:39) contended that when considering the context of teaching and learning, be that on or off campus, “it is important to consider the nature of the individual’s experience as a learner and how that experience is interpreted”. Human beings have an innate capability for learning about self identity, techniques for survival and use of language. Much of this learning depends on interaction with others and it has been claimed that “the only way we are, is by communicating with others” (Saunders, 1999:26).

Therefore, regarding the online experience, it is fundamental to consider the intrinsic motivation and interaction with the learning materials, as well as with other participants within the learning context in order to facilitate students’ successful online learning experiences. This consideration is not a new phenomenon and in fact Ramsden (1992) suggested that students’ perceptions of the learning context are an integral component of their learning, and suggests that “students respond to the situation they perceive, which may differ from that which has been defined by educators” (cited in Savin-Baden, 2000:34).

2.12 Student Development

Quality literacy and student empowerment is dependent on the ability of the student to effectively deal with information literacy which is geared towards accessing, evaluating and using information within larger cultural, historical, social, economic and political systems Norgaard (2003). How one evaluates information and integrates it into effective communication is fundamental in the development of a concrete sense of information literacy. As such, for students to access and make judgements about information and about the quality

⁴¹ Available at <http://www.uned.es>

⁴² Available at <http://www.cned.fr>

of the information, they need to have a proper understanding of information literacy (Naidoo, 2004).

Students need to make informed decisions about the quality of institutions, programmes and instructions which entails an evaluation of the available information. Once students have enrolled onto a course they should have the opportunities to make further informed decisions regarding the quality of service they are receiving. As Naidoo (2004:2) points out, quality literacy for students entails the following aspects:

- “Awareness of how the higher education institution and programmes work.
- Understanding what can be expected of a quality higher education institution and programme.
- Using quality related information to inform judgements and decisions about the quality of an institution and/or programme.
- Knowing how student opinion can best be heard and used in respect of the quality of institutions and programmes.”

Quality empowerment involves the ability not only to participate in but also to shape education. The quality of teaching and learning, for example, is shaped by engagements between the lecturer and management and even more importantly, between the lecturer and the student. Current students are equally responsible to shape the quality of their learning experiences. By empowering students, they will have the ability not only to make the correct choices with regard to institutions and programmes but also to play a positive role in promoting and enhancing the quality of education processes and outcomes they are receiving and this hopefully will enhance the teaching and learning experience for staff and cohorts in the future.

2.13 Developing Learning Quality

As we embrace e-Learning, b-Learning and the associated technology, ensuring that we have enhanced student learning and met all course objectives can be a daunting task. For example, when exploring a variety of technologies currently in use by various educational institutions, one concern needs to focus on how to provide the appropriate interaction between the teacher and students. The quality of this technology-enhanced learning (TEL) depends upon a

variety of factors, such as technologies used, teacher training, reliability of the equipment and data communications networks to mention a few. Finding the right mix and delivering up-to-date curriculum is a challenge that can be overcome (Davis, Cover, Lawrence-Fowler & Guzdial, 2001).

Some of the problems of current technologies include cost, lack of robustness at large scales and inferior quality and educational effectiveness compared to other technologies. For example, we know that lectures are among the least effective educational interventions and putting lectures in a postage-stamp size streaming video window certainly does not make them better. At the same time, there are opportunities for computing and network technologies to help solve problems in education that paper cannot solve alone, like having a mentor handhold a student through a difficult problem or working through multiple iterations of a design in a studio environment. Finding the right role for the right technologies is a problem that requires constant vigilance (Guzdial, 2001).

Quality has become a central issue in European higher education. There have been concerns for academic standards against the background of mass higher education. Budget limitations have led to stagnating or declining government funding per student and a pressure to increase efficiency in public expenditure. In most countries, there has been a growing public demand for more transparency of the higher education system, including issues of quality. The pressure from private institutions and the opening up of the higher education market has meant that the sector itself has become more competitive. The internationalisation of the higher educational sector and other elements of the Bologna Process⁴³ have created new challenges for national policy and education laws with regards to autonomy of institutions, accountability of institutions, student participation, degree systems, quality assurance systems and teaching languages.

⁴³ The Bologna Process aims to create a European Higher Education Area by 2010, in which students can choose from a wide and transparent range of high quality courses and benefit from smooth recognition procedures. The Bologna Declaration of June 1999 has put in motion a series of reforms needed to make European Higher Education more compatible and comparable, more competitive and more attractive for Europeans and for students and scholars from other continents. Reform was needed then and reform is still needed today if Europe is to match the performance of the best performing systems in the world, notably the United States and Asia. Source: http://ec.europa.eu/education/higher-education/doc1290_en.htm [Accessed 08-September-2007].

2.14 Learner Attitudes – Satisfaction

The type of computer access that students experience will impact on their attitude towards TEL. If students have a desktop computer or a laptop at home, they may find TEL activities more convenient than students who have to locate an available computer. Also, an experienced computer user might be more comfortable with publicly available and unfamiliar hardware than a non-user. In a review of a longitudinal study involving more than 800 university students, McMahon, Gardner, Gray, & Mulhern, (1999) reported that computer access accounts for 50% of the variance that exists among student attitudes toward online learning.

Negative student responses to online learning are also due to time factors, particularly for students with part-time or full-time jobs. Students who do not have computers in their homes are often irritated by the additional time required to visit a computer lab (Crotty, 1995), a lack of convenience that contributes to working students' negative reactions towards TEL.

Students who take an online course for its flexibility may dislike online chats or other synchronous activities that occur at fixed times. One teacher on an online course affirmed this by saying: "I think people gravitate toward a Web model or virtual classroom for flexibility" (Carr, 2000:32). Other complaints include not having enough time to read and send e-mail and to perform related online activities.

Responses are further shaped by the level of students' individual computer skills. Students who use computers at home or who have laptops generally have less computer anxiety because they are more familiar with the technology used during their courses. Focus groups have indicated that "students view their lack of training in computers as the strongest inhibitor to computer use" (McMahon *et al.*, 1999:302). Inexperienced computer users can feel very intimidated in a computer suite. According to Ropp's (1999) review of the literature, most research concludes that the less experience people have with computers, the more computer anxiety they tend to exhibit. However over the past ten years this situation has changed considerably and more and more individuals are engaging with computers (Prensky, 2008) and the advent of social networking has increased the level of curiosity and uptake within all age groups within different levels of society (Redecker, 2009).

Besides issues with computer access and skill levels, student responses also reflect concerns they have about hardware issues such as network connection, speed and storage. Complaints about the slowness of Internet connections or server problems indicate that such difficulties frustrate students (Harrell, 1999). Computer hardware problems increase student concern about computer access and the quality of their online learning experience. When the connection is too slow, the server is down, or the memory is full, the computer experience becomes a hindrance to education. Also, students who may already lack confidence in computer equipment transfer their feelings of inadequacy onto the learning experience.

Even nowadays, it is evident that Internet connection and particularly computer space is still a recurring issue. Although there has been a noticeable improvement in the quality of both hardware and software resources, due to the downturns in economic climate and the reduction in funding from government agencies, institutions are forced to find ways to reduce their costs. As a consequence, non-increase in server space and a tendency not to update resources or renew some software licences are some of the options opened to administration when considering cost-cutting initiatives.

A final factor in students' perceptions of online learning is personal contact. Some students who learn online report feelings of isolation and loneliness (Wilson, 2002). These students miss the social contact and f2f interaction that an institutional setting provides. Additionally, students who lack self-motivation dislike having to motivate themselves to do the coursework. The distance learner may have problems separating "work from home life, experiencing tensions in relations with their family and spouse" (Harrell, 1999:270). At the same time, we must remember that online experiences are as varied as individual learners. Some students, in fact, see computer technology as a way to connect with peers. For many young people, e-mail and online social networks represent the Internet's most enticing features (Armstrong & Franklin, 2008; Blatter & Fiori, 2009).

According to a Forester Research⁴⁴ study of high school students who use the Web, 28% say they are online for 20 or more hours each week (Stanton, 2000). In some large school settings, direct contact with the instructor is rare, unlike in e-Learning situations. One student in a study by Roblyer (1999) said that the e-Learning environment afforded more opportunities for

⁴⁴ <http://www.forrester.com/rb/> [Accessed 08-September-2007]

interaction with the instructor than traditional courses. Other more recent research support this belief and the fact that greater collaboration and interaction can be achieved through the application of these new online tools (Jones & Madden, 2002; Mason & Rennie, 2008; Minocha, 2009; Redecker, 2009). Also, students who prefer online courses place greater value on their control of the pace of the course than on f2f interaction (Downes, 2007; Redecker, 2009).

These findings suggest that many variables contribute to the student's desire for f2f instruction. Personal contact affects how students view their online learning experience, though that response is often also framed by their individual needs. Whether students feel the need for f2f, verbal instruction may determine whether or not they feel comfortable interacting in a Web environment. For example, students with limited writing skills may feel inhibited by interacting with an instructor online since they are unable to gesture, vocalise, and/or clarify questions and responses. Also, in the case of students with a limited ability to speak English, online environments can become places of frustration rather than learning environments (Wilson, 2002).

Even though technology-related experiences are as varied as the individuals who use computers, both men and women voice positive attitudes about their online experience. Asynchronous environments such as e-mail, listservs (online mailing lists) and online tutorials have become a common part of many courses as instructors incorporate technology into their coursework. Also, more and more courses have become available entirely online at all levels of instruction.

In a study of students at six different colleges who had participated in online courses, researchers found that men and women share a common desire to take more TEL courses. In this study, 70% of both males and females indicated that they would consider enrolling in another online course (Ory, Bullock & Burnaska, 1997).

In another study, nearly 68% of students were found to be satisfied or very satisfied with using the Internet as the primary source of course materials (Beatty & Mortera-Guiterrez, 2000). The principal reasons for student's satisfaction ranged from accessibility and convenience to flexibility and student-teacher interaction. With online learning, students tend

to have control over when, where and what they learn, as well as how often and how quickly and this level of control or autonomy seems to create satisfied students (Downes, 2007; Redecker, 2009).

Whether students are involved in full-scale distance learning programmes or involved in a blended environment, their perception of the experience profoundly affects the process of education. Learning varies with each individual, as do preferences for the methods used to learn. Given the appropriate tools, students can become lifelong learners with a passion for knowledge.

The challenge for educators these days is therefore the same as it always has been: how to help students learn. The difference between the whiteboard-bound classroom and the cyber-connected classroom is just a matter of space and educators must learn how that space helps to define student perceptions of education and their attitudes towards their learning environment and experience.

2.15 Learner Motivation - Satisfaction

Motivation affects the amount of time that people are willing to devote to learning. Humans are motivated to develop competence and to solve problems in other words they have competence motivation (White, 1959). This implies that people will work hard for intrinsic reasons even when extrinsic rewards and punishments clearly affect their behaviour. Intrinsic and extrinsic motivation is discussed further in 2.15.1 and 2.15.2.

Filipe (2005) highlights that a successful online learner is one who possesses self discipline, is organised and manages his/her time well. However, regardless of the learner's own attitude and ability to learn online, this success will depend greatly on the manner in which challenges are put to the learner. They should be at the proper level of difficulty in order to be and to remain motivating. Tasks that are too easy become boring and tasks that are too difficult cause frustration. In addition, learners' tendencies to persist in the face of difficulty are strongly affected by whether they are performance-oriented or learning-oriented (Dweck, 1989). Students who are learning-oriented like new challenges while those who are performance-oriented are more worried about making errors than about learning.

Social opportunities also affect motivation. Feeling that one is contributing something to others appears to be especially motivating. For example, young learners are highly motivated to write stories and draw pictures that they can share with others. Students in an inner-city school were so highly motivated to write books to be shared with others that the teachers had to make a rule: “No leaving recess early to go back to class to work on your book” (Cognition and Technology Group at Vanderbilt, 1998).

“Learners of all ages are more motivated when they can see the usefulness of what they are learning” (Bransford, Brown & Cocking, 1999:49) and when they can use that information to do something that has an impact on others and in particular their local community (Barron, 1998; Kvaavik & Caruso, 2005).

2.15.1 Intrinsic or Expressive Motivation

Intrinsic means innate or within hence intrinsic motivation is the stimulation or drive stemming from within oneself. In relation to learning, an individual is compelled to learn by a motive to understand, originating from the individual’s own curiosity. The basic idea behind intrinsic motivation and intrinsic rewards is that learning, both searching for answers and finding those answers, is reinforcing in itself.

It is an axiom of most motivational theories that motivation is strongest when the urge to engage in a particular behaviour arises from within the learner rather than from outside pressures.

The will to learn is an intrinsic motive, one that finds both its source and its reward in its own exercise. The will to learn becomes a "problem" only under specialized circumstances like those of a school, where a curriculum is set, students are confined, and a path fixed. The problems exist not so much in learning itself, but in the fact that what the school imposes often fails to enlist the natural energies that sustain spontaneous learning. (Bruner, 1966:127)

2.15.2 Extrinsic or Instrumental Motivation

Extrinsic motivation is encouragement from an outside force. Performance and behaviour is based on the expectance of an outside reward, such as financial or the receipt of praise even to

avoid negative remarks or consequences. Extrinsic rewards can be abused to bribe or coerce someone into doing something that they would not normally do.

Studies have shown that extrinsic rewards do not produce changes that are permanent. Thus, changes in behaviour, as a result of extrinsic rewards, are due to external motivators and not as a consequence of an inward desire.

The fact is that extrinsic motivators do not alter the attitudes that underlie our behaviors. They do not create an enduring commitment to a set of values or to learning; they merely, and temporarily, change what we do. (Kohn, 1993:784)

A common rebuttal to this is that although extrinsic rewards may reduce intrinsic interest, extrinsic rewards are still useful when there is no intrinsic interest to start with. Then it is okay to use extrinsic forces to motivate an individual (Chance, 1992).

2.16 Levels of Motivation

When students become satisfied or unsatisfied with their learning environment their motivational levels are also affected. It is understandable that satisfied students will feel motivated to work whereas unsatisfied will be less inclined to dedicate themselves fully to their learning tasks. As this study is examining student's satisfaction it is logical and practical to examine important theories on motivation and its needs, levels and requirements. The following sub-sections will discuss briefly some of the major theories on motivation.

2.16.1 Maslow's "Hierarchy of needs" Model

Maslow is the classic model here. Abraham H. Maslow (1908-1970) was a humanistic psychologist who rejected the prevalent paradigm of exploring psychology either from experimentation with animals (behaviourism under Watson⁴⁵) or from the experience of mixed-up people and concentrated on human potential for self-actualisation. He is chiefly known for his "hierarchy of needs" model <Figure 9>.

⁴⁵ John Broadus Watson (1878-1958) is widely regarded as having been the founder of the school of behaviourism.



<Figure 9> Maslow's "Hierarchy of needs" model⁴⁶

The essence of the hierarchy is the notion of "pre-potency", which means that you are not going to be motivated by any higher-level needs until your lower-level ones have been satisfied. However, the pre-potency only makes sense over a substantial time-scale (Atherton, 2005). This idea of firstly dealing with foundation-based needs in order to support higher needs coincides with Chyung's findings (2002) which are directed at the development of motivation and hygiene factors as plausible factors in evaluating e-Learning environments. This is examined further when the model central to this study, the Motivation and Hygiene Theory, is discussed in section 2.18.

2.16.2 Keller's ARCS Model of Motivation

Keller's (1987) Attention, Relevance, Confidence, and Satisfaction (ARCS)⁴⁷ model of motivational design emphasises the motivational requirements of learners. The model has been successfully tested for its validity and reliability in a variety of contexts including classroom-based instruction (Visser & Keller, 1990; Small, 1997), distance learning (Visser, 1998; Visser, Plomp, Arimault, & Kuiper, 2002), Web-based learning (Maushak, Lincecum & Martin 2000), multimedia (Gibson, Herbert, & Mayhew, 1998) and computer-aided instruction (Suzuki & Keller; 1996; Song, 1998). The premise is that after conducting a motivational analysis of the learners, instructional designers use the model to develop effective and appropriate tactics and strategies to enhance and maintain the learner's motivation.

⁴⁶ Adapted from Atherton at www.learningandteaching.info/learning/motivatn.htm [Accessed 07-July-2007].

⁴⁷ More can be found through Keller's ARCS page at <http://www.arcsmodel.com/home.htm>.

Motivation is a personal and individual emotion and some people seem to have an innate proclivity to learn, while others do not. However, external factors can also affect motivation (Keller, 1999). For instance, much empirical research exists on the effects of systematic instructional design and learner support. Visser and Keller (1990) studied the validity of the clinical use of motivational messages designed with the ARCS model of motivation. They found that adult learners in Mozambique benefited from the motivational interventions.

2.16.3 The “Motivational Messages Support System” theory

Visser (1990) used motivational messages and instructional content to encourage adult learners to pursue self-directed learning activities outside the classroom. Visser’s (1998) later use of the Motivational Messages Support System (MMSS) showed that such systematic support can improve motivation and reduce dropout rates of correspondence students.

Visser and her colleagues (1999) subsequently examined the use of the MMSS with distance learners, also with positive effects on motivation and retention. A later examination of motivational messages with international distance learners also yielded positive results and revealed more insight about how the messages helped learners (Visser *et al.*, 2002). Visser (2002) found that the use of MMSS increased completion rates, self-confidence, and satisfaction of distance learners and she concluded that contrary to practice, it may be more beneficial to focus on the support system for the learners rather than to revise existing instruction. Likewise, in all studies, students said they appreciated the messages.

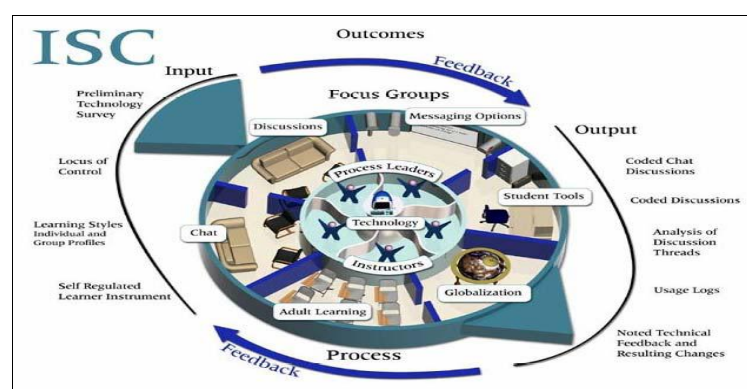
2.16.4 The “Situational Context of Learning” theory

Furthermore, the literature seems to indicate that people may be more motivated or self-directed in different topics and at different times. Caffarella (1993) first suggested that autonomy may be a trait that can be developed and may be situational in context, indicating that formal education could promote this characteristic.

The situational context of learning received more attention in the literature at the beginning of the century. Beatty (2002) examined social interaction in Web-based learning. The research used a survey of descriptive case studies, as well as interviews and surveys of authors of the

case studies. His “situationalities framework” resulted in prescriptive instructional design issues including learning goals, values, conditions and outcomes that instructional designers should regard when determining instructional methods of technology-mediated learning environments.

Boyer likewise researched andragogical systems implications for social, self-directed learning with international graduate students in a two-phased study (Boyer, 2001; Boyer & Maher, 2002). The mixed method research presented a systems model metaphorically as architecture in a virtual community of learners, represented in <Figure 10>.



<Figure 10> Boyer’s ISC Model (Gabrielle, 2003:23)⁴⁸

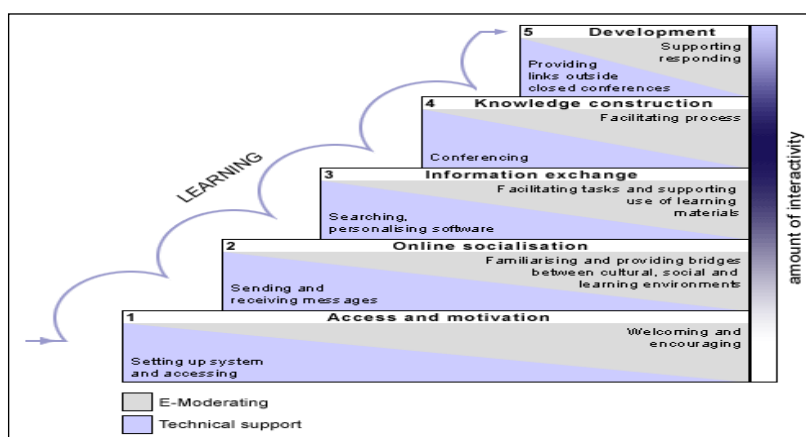
Specific themes that emerged from qualitative analyses included: role difficulties, academic expectations, intimidation concerns, the importance of input relationships and participation, and the value of systems elements of input, process, output and outcomes (Boyer & Maher, 2002). The results revealed different levels of participation, self-directed learning and active involvement, which is consistent with the literature on the situational nature of motivation.

2.16.5 E-moderating

Salmon’s e-moderating model <Figure 11> describes a five-stage process which engages the student with online communication technology (Salmon, 2000). It is based on a simple principle that there are certain things that have to exist in order to achieve the effective operation of the learning via technology. Rather than only accessing information, one

⁴⁸ Source: <http://gabrielleconsulting.com/resources/GabrielleDissertation.pdf> [Accessed 14-March-2007]

underlying issue here is the use of activities and making students interact with each other and the e-moderator. Another issue is the fact that motivation places an integral role in the success of learning via technology and is placed at the initial stage of a course.



<Figure 11> Salmon's E-Moderating model⁴⁹

In practice there is a need for flexibility that this model does not cater for (Lisewski & Joyce, 2003). There are a number of other issues, such as applicability to blended learning, where the Online Socialisation stage can be redundant because of the difficulties in developing a Social Environment online. However, in a later report, Salmon (2002) concluded that current studies tend to focus more on critical success factors rather than whether online learning does or does not foster a positive feeling among the learners. She highlights three critical factors as being fundamental in the success of online learning:

- Mechanisms to foster **participation** e.g. training of e-tutors or e-moderators.
- The amount of **time** to be committed to the module or course must be clearly stipulated to both the tutor and learner.
- **Emotions** e.g. frustration, non-physicality of the experience.

As can be seen above, how a learner feels is one fundamental factor and should be given greater consideration when assessing the effectiveness of a learning environment. This is core to the fundamental reasoning behind this study; placing the learner/user at the heart of the evaluation process.

⁴⁹ Source: Gilly Salmon's site at <http://www.atimod.com/e-moderating/5stage.shtml> [Accessed 26-March-2010]

2.17 Motivation and Self Directed Learning (SDL)

The literature seems to indicate that both motivation and self-directed learning can positively affect performance. Hancock (1991) used the “Paragraph Completion Method” test to categorise learners at a military academy into high and low conceptual levels. She found that learners with high conceptual levels had greater achievement and motivation when they were given an opportunity to have non-instructor lead training by participating in planning course objectives and other self-directed learning activities.

Rowley, Bunker & Cole (2002) found that converting a course from a classroom-based environment to blended instruction and adding a problem-based learning approach increased performance for adult learners at a military training education college. Volumes of literature confirm that motivation is an important factor in drop out rates of distance learners (Perraton, 2000; Berge, 2001). These high dropout rates have been improved through the use of mentors and tutors (Harrison, 2002), blended instruction (Rowley *et al.*, 2002), motivational messages (Visser, Plomp, Arimault, & Kuiper 2002) and other methods of learner support to improve performance and retention. These themes are explored further in the following sections.

2.18 Herzberg’s Motivation & Hygiene Theory

We caution against emphasizing only the virtues of computer-mediated distance education. Most of the articles about distance education that are written for practitioners (i.e., administrators and teachers), and lay people (e.g., potential students) emphasize the positive opportunities presented in distance education. In some of these upbeat studies, students may not have had opportunities to express their confusions and anxieties with Web-based distance education. At the end of the semester, students might make positive comments about the courses because of a relief of finishing a course and concern about hurting instructors’ feelings. (Extracts from Hara & Kling, 2001:68)

Frederick Herzberg and his colleagues constructed a two-dimensional paradigm of factors affecting people’s attitudes about work, often referred to as the Dual Structure Theory of Motivation. He concluded that such factors as company policy, supervision, interpersonal relations, working conditions, and salary are hygiene factors rather than motivators. According to the theory, the absence of hygiene factors can create job dissatisfaction, but their presence does not motivate or create satisfaction (Herzberg, Mausner & Snyderman, 1959).

In contrast, he determined from the data that the motivators were elements that enriched a person's job. He found five factors in particular that were strong determiners of job satisfaction: achievement, recognition, the work itself, responsibility, and advancement. These motivators (satisfiers) were associated with long-term positive effects in job performance while the hygiene factors (dissatisfiers) consistently produced only short-term changes in job attitudes and performance, which quickly fell back to their previous level.

In summary, satisfiers describe a person's relationship with what she or he does or how they relate to the tasks being performed. In relation to this research proposal, this would refer to the overall course content and the process of learning. Dissatisfiers, on the other hand, have to do with a person's relationship to the context or environment in which she or he performs the job. In relation to this research project this would refer to means or medium by which a person is learning, that is, for example, technology-based or face-to-face (f2f).

The satisfiers relate to what a person does while the dissatisfiers relate to the situation in which the person does what he or she does (Gawel, 1997). This theory has been used widely in the business world and has stood the test of time and has been applied to the higher education sphere mostly in accordance with faculty satisfaction (Tutor, 1986; Heller, Clay & Perkins, 1993; Castillo, Conklin, & Cano, 1999; Dinham & Scott, 2000; Evans & Olumide-Aluko, 2010) but very few cases can be found where it has been applied to e-Learning or b-Learning courses.

Chyung (2002) adopted Herzberg's theory to understand learner's attitudes towards online training programmes, over a three year period, at Boise State University's Instructional and Performance Technology department. Her primary concern was with the degree of drop outs that were happening in a large majority of on-line courses. "One of the problems in Internet delivered instructional programmes is high attrition" (Chyung, 2002:1).⁵⁰ An evaluation questionnaire consisting of a forced-choice question format (using a 5-point Likert scale) and open-ended questions was used. The results are presented in <Table 3>.

⁵⁰ Downloaded freely in 2005 but is no longer available online as a freely available article.

<Table 3> Motivation and Hygiene factors found in Chyung's (2002) evaluation case study

<p>Motivation Factors</p>	<p>Learning itself (i.e. learning new software) Feelings of confidence Effectiveness of instructional materials (clearly written, well structured etc.) Social interactions Instructional feedback (e.g. the speed and type of information) Flexibility/convenience of learning environment</p>
<p>Hygiene Factors</p>	<p>Required amount of time to complete tasks Technology related events/problems Required amount of cognitive effort to perform tasks Learner preferences on instructional design</p>

She concluded that Herzberg's concept is an effective guideline when examining what causes online learner retention and attrition and suggested that in order "to be systematic, it is important to put initial effort on improving the condition of hygiene factors before implementing motivational strategies" (Chyung, 2002:5).

Lee & Shih (2001), examined motivation and hygiene factors by tracing the behaviours of student's Web-based learning. These behaviours were stored in a database and then a qualitative research method was applied in order to collect and categorise influencing factors. However, the authors did not present a list of motivation and hygiene factors as Chyung did but only presented key factors that in their opinion were a combination of both motivation and hygiene issues:

- For 'style of instruction', the key issue was that interaction between the instructor and students affected the students' attitudes, emotions, confidence and motivation.
- For 'content of materials', what was highlighted was the fact that multimedia material had a positive affect on the students but such material also provided too many cues that influenced students cognitive thinking and affected their problem-solving processes.
- With respect to 'encouragement', the author's indicated that instructors should allow or encourage students to repeat online tests in order to self-correct their mistakes and

as a consequence, there would be a greater willingness on the student's part to study more and to do so autonomously.

The authors pointed out that the 'style of instruction', 'content of materials' and 'encouragement' were the key factors that enable or not students to work with the learning environment. They concluded that overall, "the development of an individual's thinking and reasoning skills depends heavily on effective characteristics including attitudes, emotions, motivation, personal interest and online learning" (Lee & Shih, 2001:4).

Nicholls (2004) presents the results of the International Forum of Educational Technology and Society (IFETS) debate, which centred on the applicability of Herzberg's principles to e-Learning. The discussion panel voiced their opinions on the subject and agreed with Chyung's (2002) findings that it is important to put initial effort on improving the condition of hygiene factors before implementing motivational strategies. They agreed that there was an overlapping of satisfiers and dissatisfiers but not the extent of challenging the overall theory.

The IFETS contributors agreed that Herzberg's satisfiers and dissatisfiers likely transferred directly across in to education and by exchanging employment for education and employees for students a set of motivation and hygiene factors were proposed. A summary of their proposals is presented in <Table 4>.

The overall conclusions drawn by the panel were as follows:

The potential importance of Herzberg's theory to e-Learning is that it can help target investment and optimise the learning experience. A reliable set of satisfiers and dissatisfiers for e-Learning would be of benefit to all e-Learning practitioners and decision makers. Until someone actually does give this topic some serious attention as a PhD or significant research project, we may remain with a substantial gap in our knowledge of how we might better retain and inspire students. (Nicholls, 2004:4)

<Table 4> IFETS proposed set of motivation and hygiene factors for e-Learning

Motivation Factors (Satisfiers)
ACHIEVEMENT Grades improving over time – Successfully executing problems or practice opportunities – The ability to act spontaneously or at least the feeling that one is capable of doing so.
RECOGNITION Positive feedback and comments from tutors. (It was suggested that peer recognition may be more important than tutor feedback).
THE NATURE OF THE WORK ITSELF Ensuring authentic application of the knowledge that the learner cares about – Learning what is of interest to the student – The ability to identify with what is being taught.
RESPONSIBILITY Responsibility for own learning. (It was suggested that responsibility may not be a motivator unless students are ready for it).
ADVANCEMENT (PROGRESSION) Advancement through a series of class levels. (A new paradigm would be needed to apply this to learning)
ADDITIONAL FACTORS Satisfaction from the gaining of new knowledge and perspectives – Gaining confidence with the subject matter – The effectiveness of the technology – Social interaction with other participants – Convenience and flexibility.
Hygiene Factors (Dissatisfiers)
SCHOOL POLICY AND ADMINISTRATION Pedagogical orientation (This would help to differentiate between those institutions who focus on “delivering the curriculum” and those that aim for “stimulating learning”).
SUPERVISION Tutoring – Mentoring – Coaching.
SALARY (FEES) Study fees (It was suggested that this is probably not a motivational factor in education).
INTERPERSONAL RELATIONS Interpersonal relations with tutor and with groups of learners.
STUDY CONDITIONS The physical environment – The utility and availability of resources to the learner.
ADDITIONAL FACTORS (Based on Chyung, 2002) Time spent on completing tasks – Technical problems – Complex online environment – Instructional sequence.

While there is no one correct system of managing learners particularly as all learners have different needs, backgrounds and expectations, Herzberg’s theory may offer a reasonable starting point. By creating a learning environment that promotes learning satisfaction, we are developing learners who are motivated, productive and fulfilled. This, in turn, should contribute to higher quality teaching and teacher satisfaction. Therefore, it is only a question

of logic that Herzberg's theory should be taken more seriously in the areas of e-Learning and b-Learning.

2.19 Learner Retention and Attrition

Drop out rates are among the characteristics that have routinely prompted distance education studies (Dowdall, 1992, Parker, 1999; Cookson, 2000; Berge, 2001). Drop out rates for distance classes have been consistently higher than those of traditional classes and according to some researchers, tend to suggest academic non-success (Ridley & Sammour, 1996; Phipps & Merisotis, 1999; Diaz, 2000; Rowley *et al.*, 2002). Although higher drop out rates may be reflective of differences in outcomes between online and traditional educational environments, the mere fact of high drop out rates is not necessarily indicative of academic non-success.

Gibson (1998) reported three categories of factors that have emerged to explain and predict attrition in distance courses:

- Student factors: educational preparation, motivational and persistence attributes and student academic self-concept.
- Situational factors: family and employer support and changes in life circumstances.
- Educational system factors: quality and difficulty of instructional materials, provision of tutorial support.

Due to governmental widening participation agendas and the publication and benchmarking of retention and drop out statistics retention issues have become strategically important to senior management of many universities and even more for those that have significant non-completers. Many institutions are caught up in a tension between Governmental policies concerning widening participation and the elitist values and expectations of pre-expansion HE which continue virtually unchallenged (Longden, 2002).

E-Learning has also long been dogged by a number of accusations, including the issue of high attrition rates with some studies suggesting rates as high as 85% (Sadler, 1999). The notion that more students will drop out of online classes than traditional f2f classes enjoys the widespread acceptance usually reserved for scientific precepts (Parker, 1999; Carr, 2000). More

importantly, though, many educators imply that the observed high drop out rates should disqualify online education as a high-quality option to traditional education (Distance Education, 2001).

There have been a few studies of the reasons for non-completion and drop outs in the past, but research on retention of campus-based students is inadequate and there is increasing awareness of the need to investigate the causes of student withdrawal and the means to improve retention (Longden, 2002; Thorpe, 2002; Simpson, 2003).

The increasing use of online, open and distance learning in HE adds to the concerns as there is evidence that attrition rates may be higher with these modes of delivery compared to campus delivery (Simpson, 2003). However, because distance learning providers have been becoming more attuned to the concerns of retention and drop outs, numerous lessons can be learnt which would be of relevance to both sets of students (Tait, 2004).

2.19.1 The Literature on Retention

There have been several studies mainly in the distance learning literature which identify the key reasons why students leave their studies and predict which students are most likely to drop out. Reasons cited for leaving include those relating to personal resilience, personal identity factors, support networks, as well as finding the course badly presented or poorly supported or too difficult. From these studies theories of retention have emerged.

The theories of retention tend to fall into one of two categories, the integration approach and the motivation approach (Simpson, 2003). Integration considers the social and academic 'fit' between the learner and the institution and academic life. While feelings of isolation are well documented in distance learning, even in post-1992 universities, those from non-traditional backgrounds can feel that they do not belong (Read, Archer & Leathwood, 2003). Increasing student engagement with tutors and peers can improve a sense of 'belonging' (Yorke, 2004).

The motivation approach places a strong emphasis on an individual's motivation to succeed and the factors which might affect this, such as employment prospects, personality, social circumstance and abilities and skills. Models for withdrawal have been developed which

combine both these approaches (Rekkedal & Qvist-Eriksen, 2003). There is general agreement that reasons for withdrawal are likely to be complex with more than one cause affecting retention (Simpson, 2003).

Different student retention issues occur at different stages in a course from enrolment, the course itself and retrieval and reclamation of lost learners (Simpson, 2003). Simpson describes a number of ways students can leave a course at the module level. They can actively withdraw, or passively withdraw by not submitting assignments or by failing assignments. Studies have also identified which students are most 'at risk'. Issues such as age, gender, previous qualification and social class/occupation have also been used as predictors of likelihood of retention with mature students (under 50), women and those with higher qualifications and professional occupations being more likely to complete.

2.19.2 'At risk' learners and support

There are two approaches to supporting 'at risk' learners. Identifying and targeting at risk learners and then offering additional support before a course runs is one approach to improving retention. The second approach is to support learners on course. The advantages and disadvantages of each approach are discussed in the following paragraphs.

An example of the pre-course support method indicates that results can be good. A retention scheme targeted at risk learners through tutor referrals at Kent University⁵¹ in 2001 and which provided them with a summer school of support and skills development showed that students who participated in the scheme had a retention rate of 97% on their studies overall (Sellers & Van der Velden, 2003). However, the distinguishing and categorising of 'at risk' students is problematic. Basing risk on external factors such as previous performance, gender, class, age etc. may 'label' some learners as disadvantaged and miss others and does not capture the complexity of the issue.

Hughes and Lewis (2003) have indicated that it is more useful to take an approach that being 'at risk' is something a learner becomes during the course of study and is a position into which a learner could move in and out. For example, a learner may start a course with no problems

⁵¹ www.kent.ac.uk

but become 'at risk' because of changes in various circumstances which could be related to the course, the institution or even the personal or professional life of the learner.

It is the interaction between the learner's identity and the circumstances of the learning experience which result in a learner becoming disadvantaged. Thus, intervention and alleviation of the learner's problem during study could help avoid the labelling effect described above. In this second approach, tutors identify and follow up students who are not participating/submitting assignments while the course or module runs with the aim of supporting those in need. However, if the course is too advanced for the learner or the external situation makes study impossible then the learner may inevitably leave.

The UK Open University has found that tutors were easily disheartened by the time taken in chasing up students and the seemingly little success rate in retaining such students (Simpson, 2003) although, there are significant gains for the institution as a whole. Intervention needs to be early, intensive and continuous. Despite the difficulty in demonstrating the success of good tutor support, there is a general view that time spent on supporting such students is worthwhile and may have a greater effect on retention than teaching ability. Tracking systems and better student support have also been suggested as the way forward to improving retention on campus (Layer, Srivastava & Stuart, 2002).

2.19.3 Influence of Blended Learning on Retention

Campus lecturers or tutors are expected to be reactive rather than proactive in dealing with student problems and chasing up non-attendees may be a lengthy process. Delivery of 'content' through lectures is not an efficient use of an academic's time (Yorke, 2002) and lecture attendance perpetuates the myth of passive learning. Blending of formal teaching with online self-study can shift the lecturer's role away from delivery towards facilitation of learning and free up the lecturer's time for inclusive and pro-active support (Yorke, 2004). In addition, b-Learning could improve retention through enabling students to learn more deeply (Fox & MacKeogh, 2003) as time spent attending lectures is replaced by accessing online content and collaborative learning between peers.

Finally, if a course has a requirement for learners to log on and either download materials or contribute to a discussion then a tracking system in a Virtual Learning Environment⁵² (VLE) could be used as an early warning mechanism for non-engagement. The advantage of using tracking is that it enables a tutor to be alerted to non-engagement with the course before the requirement for any submission of a formative assessment.

Replacing traditional lectures with active online learning and more controversially, using alternative staffing to support students has been successful in improving retention in some areas. A study of courses at US community colleges which were designed in this manner demonstrated that improvements in pass rates and reduction in withdrawal rates of disadvantaged students could be obtained even with cost reductions (Twigg, 2004).

Nevertheless, TEL is not without its disadvantages. Hughes & Lewis (2003) demonstrated that in campus-based courses with online components some learners were successful and found the experience positive. Another group of learners were also successful, but disliked the online experience mainly because of poorly designed online environments and lack of guidance and support from tutors on how to learn online.

A third group of students were similarly frustrated by the experience but did not perform well. In the study, these 'at risk' learners described combinations of factors such as dyslexia, English as an additional language, low self-esteem, weak ICT skills and heavy outside pressures which, in these particular learning environments, contributed to poor performance in online tasks such as asynchronous conferencing and online tests. It was proposed that improving online structuring of tasks and greater clarity about what was expected would improve the experience of the unsatisfied achievers but it would not necessarily improve the performance of all the low achievers who found that their learning difficulties were not helped and may even be exacerbated, by moving online.

⁵² A VLE is a software system designed to facilitate teachers in the management of educational courses for their students, especially by helping teachers and learners with course administration. The system can often track the learners' progress, which can be monitored by both teachers and learners. While often thought of primarily as tools for distance education, they are most often used to supplement the face-to-face classroom. Sourced from Wikipedia, the free encyclopaedia which is online at http://en.wikipedia.org/wiki/Virtual_learning_Environment [Accessed 13-March-2007].

A growing body of research supports this view that some socially constructed barriers to learning may disadvantage learners in online environments. For example, learners who have dyslexia (Blankfield, Davey & Sackville, 2002) or those whose cultural backgrounds predispose them to have a 'high-context' communication style (Morse, 2003) may encounter particular problems with the use of text-based communication in online learning. Others raise concerns regarding the widening participation agenda and how the use of technologies may affect those from non-traditional backgrounds (Miller, Kennedy & Leung, 2000; Selwyn & Gorard, 2003). They stress that such learners may need additional tutor support and guidance for learning how to learn online, as well as for technical competence. Therefore, it could be argued that b-Learning without an increase in learner support may well result in worsening retention statistics but good learner support could help learners overcome barriers to learning online.

It should be emphasised that the experience and skills required of a tutor are not to be underestimated and many less experienced staff would not be expected to gain such impressive results without support and mentoring from an expert. Indeed without such support and expertise this could be a high risk approach and could increase student dissatisfaction as Hughes and Lewis (2003) study suggests. In addition, the blended learning module needs to be well designed in advance and there are indications that this may require greater initial preparation and setting up than a conventionally taught module. Any cost-benefit analyses of retention measures needs to include the savings the institution makes through not having to replace 'lost' students (Simpson, 2003). Blended learning may be best costed in a similar manner to distance learning provision rather than by comparison with traditional delivery.

2.20 Summary

This section examined the various core theories surrounding the concept of motivation and examined its importance within a TEL environment. Students, for varying intrinsic and extrinsic reasons, are motivated to study and learn and they have their own preferential style of learning and these motivational reasons and differing styles need to be nurtured by the lecturers and the institution as a whole. Otherwise, it may not be long before the learners become dissatisfied with their learning experience and consider dropping out.

Blended learning could offer several inter-related ways of improving retention and supporting the learner to accomplish their objectives. The identification and monitoring of ‘at risk’ learners while a course is running and intervening promptly is one way but improving student learning and a sense of belonging are also potential benefits of blending. This importance of b-Learning and in particular, the embedding of technology within this blended phenomenon is discussed in the final section of this chapter.

Section Three: Research into Technology in Higher Education

2.21 Introduction

The adoption of technologies has provided a change agent to the way university courses are delivered which is unprecedented in comparison with the influence of other technologies such as radio, television and video (Ryan, Scott, Freeman & Patel, 2000). Ryan *et al.*, (2000: 157-8) present a delightful example of how this change has occurred.

Traditional forms of teaching

Over a 12-week seminar, students attend a series of lectures... in large groups of up to 200 or more students... Associated with the lectures there are smaller group sessions known as “tutorials”, “lab sessions” or “problem sessions”. A small group may well be as small as 15 or as large as 30; they will be subsets of the larger group that attends the lectures.

New forms of teaching

Lecturing to groups (large or small) may be carried out a distance using video conferencing... Lectures may be recorded on video from repeat transmissions or for students to pay back in their own time. Lectures may be enhanced by multimedia presentations or by accessing CAL [computer-assisted learning], CD-ROM and Web-based source materials... Smaller group seminars and tutorials may take place in a variety of computer and IT [information technology] mediated forms: video and audio conferences; synchronous and asynchronous discussion groups, using mailing lists and “threaded” discussions... The content may be delivered synchronously or asynchronously using stand-alone packages or resources downloaded from the Web... [A]ssessment may be delivered by computer, marked by computer and grades processed by computer to provide class lists and statistical summaries and to update individual records. The teacher increasingly acts as... a learning facilitator.

The researcher involved in this study, has personally experienced first hand the result of the introduction of new technologies to the classroom. Upon an international relations trip to the Tipperary Institute ⁵³ in the Republic of Ireland, he was taken by surprise when upon entering a modern classroom he was confronted with some 20 students sitting quietly, listening to their teacher and taking notes. To his surprise there was no “physical” teacher. The “physical” teacher was giving the class in another location in another town to other students who were all visible on another screen. The students at his location were also visible to the teacher and students at the other site. There was a high degree of interactivity between each group and the teacher and everyone took the situation well in their stride as if it was a normal and regular method of attending class.

The following section continues to examine the types of media currently used in higher education and how learning technologies have been tailored to accommodate learning theories.

2.22 Quality Teaching and Learning with Technology

Even at the beginning of this century we were still only beginning to explore the wide range of possibilities for using technology in all its related forms for teaching and training purposes. However, Ryan *et al.*, (2000:28) argue that technology:

[...] does not provide quick and easy solutions and that educators need to build on their expertise and experience as teachers and apply them while working with others in the development of Web-based [technology] teaching and learning.

Higher educational institutions (HEI), who strive to offer instruction through alternative methods, be that e-Learning or b-Learning, must be willing to invest in an infrastructure which ensures quality teaching and learning at all times. While placing learning materials and guidance notes on a virtual learning environment (VLE) for students to download or access at their convenience is beneficial and can facilitate learning, materials delivered online may not promote effective learning environments if they are to be used only as a depository for the students to access, memorise and regurgitate (Ryan *et al.*, 2000). Educators using e-Learning

⁵³ www.tippinst.ie

environments need to promote quality active learning, as they would attempt to do in the traditional classroom, through the use of this medium.

The most powerful learning experiences are those that engage students deeply in meaningful ways. They force active learning, and they provide realistic environments that have a way of nurturing motivation. Teachers struggle to create effective active learning environments in classroom and laboratories. The challenge is to incorporate the principles of active learning into Web-based learning. (Brooks, Nolan & Gallagher, 2001:22)

Without the need to “click” the mouse, the Web can be as passive as watching television. However, unlike earlier television, the Web can be a very interactive environment (Brooks *et al.*, 2001). The Web can also provide communication tools allowing for synchronous (real time) or asynchronous (over a period of time) communication, one-to-one or one-to-many, video or audio linked or through typed messages (Ryan *et al.*, 2000). The Internet can also assist with electronic submission of assignments and management of student data, as well as checking work for plagiarism⁵⁴ before submitting. Some online systems allow students to access information about their progress throughout the unit or module they are studying.

The process of designing instruction for delivery on the Internet or Intranet usually starts with the educator designing the course, which may include “preparing the materials, the pedagogy, the outline of the aims of the course... converting existing computer-based materials, creating quizzes, setting up mailing lists, drawing or scanning pictures, digitizing video and many other tasks” (McCormack & Jones, 1998:7). While there is a significant number of educators who prefer to build their own online learning environment so that they can maximise control over the design, appearance and function of the learning experience, many universities have adapted integrated online learning management systems (LMS)⁵⁵ for delivering the learning experience to the learners.

There are a number of commercially available LMS software applications which are used in higher education including eCollege, (www.ecollege.com), Desire2Learn (www.desire2learn.com) and Blackboard (www.blackboard.com) which is the LMS that has

⁵⁴ Turnitin® is a popular plagiarism checking tool online at <http://turnitin.com> and the UK equivalent is available online at <http://www.submit.ac.uk>.

⁵⁵ LMS is also referred to as Course Management Systems (CMS) or Virtual Learning Environments (VLE).

been adopted at the University of Aveiro⁵⁶. Online LMS software applications tend to manoeuvre the designer into using a predetermined structure without taking into consideration student pedagogy (Ryan *et al.*, 2000). This has been a concern for some online learning instructional designers wanting to have full control of how the learning materials are structured and displayed to the students. This has led to the exploration of new content management systems which “employ learning object technology” (Martinez, 2001:5-6).

When creating effective online learning environments within online LMS software, consideration must be given to basic design principles for creating Web sites. Numerous texts have been published which provide guidelines and standards for creating Web sites for effectively communicating information over the Internet or intranet. Lynch & Horton (2008), for example, provided a set of principles and guidelines for designing effective Web sites and Web pages including the effective use of text, editorial styles, background colours and textures, layout, navigation and so forth.

Clark (2003) put forward guidelines for creating Web sites which provide convenient content access to a wider audience with varying conditions including slow ISP⁵⁷ connections, computer configurations and human disabilities. Numerous other resources have been developed to assist with providing guidelines for effective Web site design and accessibility including the online W3C⁵⁸ (1993-2006).

It has to be said that it is virtually impossible to provide perfect accessibility to content on the Web for all people, due to the unpredictable condition in which Web sites will be viewed. It is however, possible to include nearly all of the richness offered by the Internet through the use of graphics and multimedia for enhancing the content without precluding the intended targeted audience (Clark, 2003).

⁵⁶ The University has subsequently changed to the VLE/LMS MOODLE.

⁵⁷ An Internet Service Provider (ISP) also called Internet Access provider (IAP) is a business or organisation that sells access to the Internet and related services to consumers. In the past most ISPs were run by phone companies but nowadays ISPs can be started by just about any individual or group with sufficient capital and expertise. An example of an ISP in Portugal could be SAPO [www.sapo.pt], in the UK it could be Virgin Media [www.virginmedia.com], in the Republic of Ireland it could be UPC [www.upc.ie], and in France it could be “Free” [www.free.fr].

⁵⁸ The World Wide Web Consortium (W3C) develops interoperable technologies (specifications, guidelines, software and tools) to lead the Web to its full potential. W3C is a forum for information, commerce, communication and collective understanding, and can be located at <http://www.w3.org>.

Regardless of the methodology or pedagogy being applied within our online learning environment one issue is fundamental for their success and that is the understanding of who our learners are or who our intended learners will be. Rowntree (1990) for example, identified four types of information that would be useful in knowing about our perspective students and that it is information that is required for the successful functioning of an online course and should also be helpful to blended learning environments.

Demographic: How many of them? What age range? Both sexes? Marital status? Employed? What occupation? Home area? Etc.

Motivation: Why are they going to take your course? How is it related to their work? Why choose **self**-instruction? What do they want to get from the course? What are their hopes and fears? Etc.

Learning factors: How intelligent and capable are they as learners? Have they had prior experience with self instruction and especially, if appropriate, with learning “at a distance”? Prior level of general educational attainment? Attainment in whatever abilities will be needed in coping with your teaching? Do they have adequate time and facilities available for study? Etc.

Subject background: What knowledge, skills and attitudes do they already have regarding the subject of your course? Do they have personal interest and experiences that are relevant?

(As presented by Rowntree, 1990:40)

Also, in relation to the learner, the assessment process stands out as playing a fundamental role in the quality of the teaching and the learning. Students are increasingly expecting more reliable and valid assessment with prompt, immediate and effective feedback on their performance.

Rowntree (1990:302) put forward two main purposes of assessment:

1. To aid learners in their subsequent learning.
2. To report on what they have already learnt either as a grade or as a written report on each learner.

The Internet provides tools which can facilitate online assessment. There exists a range of questioning types which can be created for delivery on the Internet to facilitate online

assessment. Web-based assessment tools such as Hot Potatoes⁵⁹, OLAFF⁶⁰ and TRIADS⁶¹ provide a variety of question types as described by Ryan *et al.* (2000). Most VLEs also support assessment tools with their interface.

Student assignments, which may have been prepared using a word processor, spreadsheet programme and so forth, can be submitted for assessment using common Internet communication facilities such as email, bulletin boards or embedding within a VLE. This technique can be particularly successful for students who are studying online from remote locations and it also acts as a tracking device regarding submission deadlines.

2.23 Developing Quality Learning

Research has clearly indicated that students need to be encouraged to adopt a deep approach to learn effectively. This is made increasingly difficult with the divergent and constantly changing student population. When universities were at once extremely selective of the students who would be selected to study in their courses, the traditional lecturers, tutorials and laboratories seemed to be satisfactory.

With the diversity of students enrolling in university courses in the last few years this has meant that these traditional methods are no longer satisfactory (Salmon, 2000; Biggs, 2003; Prensky 2008; Redecker 2009). This has resulted in the need for the development of teaching strategies and models of learning which may facilitate a higher quality of student learning. Some of these strategies are discussed briefly below.

The purpose of generating a teaching strategy is to “form a bridge between what we know about student learning and what we should therefore do as teachers” (Laurillard, 1993:70). While instructional design models may prescribe teaching strategies which can assist with forming this bridge, no single model assumes to have all the answers for every learning situation (Smith & Ragan, 1999).

⁵⁹ <http://hotpot.uvic.ca/>

⁶⁰ <http://www.bbk.ac.uk/olaaf/index.html>

⁶¹ <http://pcwww.liv.ac.uk/apboyle/triads/>

Laurillard (1993:70) warned that the link between what is known about student learning and what we should do as teachers is “fuzzy” due to the character of the learner being elusive, dependent on former experiences of the world and of education and of the nature of the then current teaching situation. This still holds true today and even more so with the evident explosion of technology education onto the scene (Downes, 2005; Minocha, 2009; Redecker 2009).

Ralph (1998) argued that a primary task for the teacher in any formal educational institution is to influence the students under their authority to learn the subject matter within the course. He suggested, however, “that students’ motivation to learn is not always in the teacher’s control due to their complex blend of needs, attitudes, emotions, competencies, background experiences and inherited traits” (Ralph, 1998:1). Ralph discussed certain motivational principles for stimulating student learning including the development of positive relationships between students and teachers, attracting the learner’s attention, enhancing the subject-matter relevance, building the learner’s confidence and promoting the learner’s satisfaction.

Collaborative learning or peer grouping (Wilson; 1981) is often seen as one type of small group activity in which members or peers cooperate in learning, creating projects, creating reports or preparing presentations. However, Ralph (1998), although supportive of the idea, acknowledged that collaborative learning may fail if educators do not ensure that the following conditions listed are met:

- Positive independence
- Individual and group accountability
- Promote interaction
- Interpersonal and group processing skills
- Content knowledge

These days, with the advent of Web 2.0 tools collaboration is enthused to a different plateau. Synchronous and asynchronous means of communication such as information-sharing platforms facilitate and encourage active collaboration and teamwork (Kieslinger & Fiedler, 2006).

The literature has stressed the importance of providing feedback to learners about their progress throughout their studies in higher education. In a study by Mentkowski & Associates (2000), they discovered that students regarded prompt feedback from anyone such as instructors, outside assessors and peers to be important for them in order to become motivated better in their progression on their courses. Generally, feedback is “most effective when it is delivered immediately after the learner’s attempt to perform the desired action” (Kehoe & MaCrae, 1999:216) and is delivered before the grades so that the learner can concentrate on it first before being distracted by their grades (Nicholls, 2007).

Feedback and technology or technology-enabled feedback is coming to the fore in current research and reviews. Online publications of grades and feedback through, for example, the Blackboard Grade Centre, Moodle Grade Book, or in-house develop systems enables learners to access their results at any time and place which promotes a high degree of flexibility that the learners enjoy (Bloxhom & Boyd, 2007; Parkin & Thorpe, 2009). It also generates an element of privacy which the learners prefer as they are able to engage with and respond to their feedback when they are emotionally able and willing to do so (Price & Donovan, 2008).

2.24 Evaluating Technology

Nowadays, with the emergence of new learning technologies as mentioned in previous sections there is a need to evaluate how these technologies are used to support an ever-increasing diverse group of learners. It has become standard practice for academic staff to carry out progressive evaluations in order to account for resources and to justify particular strategic initiatives.

Defining evaluation is a complicated and at times controversial process. There is no clear agreement on what ‘counts’ as evaluation. Oliver (2000) broadly defines it as the process by which people make value judgements about things. However, depending on what is being judged, the evaluation process will not be similar. For example, judgements can be made about the educational value of innovations or the pragmatics of introducing novel teaching techniques and resources or about the costs of such innovations or judgements may focus on the quality of processes such as in an audit or monitoring.

An important point here is that evaluation in this context is not representative of judging students, that is, it is not assumed to refer to student assessment. It is apparent even from the above examples that people will approach evaluation in distinct ways.

- Inspectors, for example, might be more concerned with audit.
- Managers might be concerned with day-to-day monitoring.
- Financial backers might wish to see some evidence of cost-benefit, even if only at a simple level.
- Teachers might be more concerned with judging the educational value.
- Researchers might seek to describe some new form of practice, but could equally be interested in judging other issues such as the success of new interventions.
- Software developers might be interested in formative judgements about the impact of some technology or resource.
- Policy developers might be interested in judgements about the value of new forms of practice.

Each will have their own priorities, will engage in their own distinct practices and will find some forms of evidence more persuasive than others. In addition, each will attribute a different level of importance to the process of evaluation (Harvey, Oliver & Smith, 2002).

Importantly, however, evaluation researchers such as Patton (1997) reminds us that these 'types' are only stereotypes. What should really be considered is what an individual evaluator is trying to achieve within a specific situation, rather than relying on preconceptions and stereotypes. Systematic evaluation of e-Learning and all the blends that go with it often seems to lag behind the innovative development efforts (Flagg, 1990).

There are several reasons for this lack of evaluation. First, consumers of technological innovations for education seem to assume that because these innovations are advertised as effective, they are effective. The fallacy of this assumption should be clear to anyone familiar with the generally poor success of e-Learning in most educational contexts (Cuban, 1990; Shlechter, 1991; Siegel, 1994). Nonetheless, the dominant strategy of the business interests that underwrite the development of e-Learning has been and continues to be investing much more money in marketing e-Learning than in evaluating it.

Second, as Becker (1992) highlights, evaluation of e-Learning has often been reduced to a numbers game wherein the value is represented by:

- The amount of money spent on hardware and software
- The ratio of students to computers
- The amount of time students have access to computer-based education within a school day, week, month, or year

The usefulness of such indicators in evaluating the ultimate effectiveness and worth of e-Learning is extremely limited but their pervasiveness is obvious and evidenced in the reports produced by national, state and local education agencies around the world. This type of quantitative data is relatively easy to collect, analyse and report. Further judgments concerning progress within a specific educational entity (school, district, state or nation), as well as comparisons among different entities can be rendered with a “certainty” that is untainted by the complexity of more ambiguous indicators such as measures of implementation, motivation, satisfaction and learning.

A third reason for the lack of the evaluation of e-Learning is the inadequate utility of the evaluations that have been previously conducted. Evaluation reports are usually presented in the format of social science research reports, a format that “is almost useless for most clients and audiences” (Scriven, 1993:77). Further evaluations of e-Learning are rarely carried out in a timely enough manner to have sufficient impact on the decisions that must be made in the midst of significant development or implementation efforts. These inadequacies will not be resolved unless evaluation systems that are as integral to educational practice as student assessment systems are, is embedded into the system (Holt & Oliver, 2002). In addition, the results of evaluations must be communicated in formats that are accessible to as wide an audience as possible.

A fourth factor in the paucity of useful evaluations of e-Learning may be that evaluators often rely upon traditional empirical evaluation methods that compare an instructional innovation with another approach. Frequently the results of these studies have been disappointing (Oliver & Harvey, 2002). A major weakness in traditional empirical approaches to evaluation is that the methods being compared (e.g. online instruction versus classroom instruction) are often

assumed to be cohesive, holistic entities with meaningful differences. Berman and McLaughlin (1978) and other implementation researchers (Cooley & Lohnes, 1976) have illustrated the fallacy of assuming that meaningful differences exist between two programmes just because they have different names. The focus needs to reveal the relevant pedagogical dimensions these methods express so that evaluations are to be meaningful and have utility. Pedagogical dimensions are the key to unlocking the hidden secrets surrounding the various forms of e-Learning and for that matter, b-Learning (Hughes & Daykin, 2002; Beasley & Smyth, 2004; Archer & Wong, 2007).

Pedagogical dimensions can be used to compare one form of b-Learning with another or to compare different implementations of the same form of b-Learning. Scriven (1993:58) maintains that there is an “almost universal necessity to do comparative evaluations”, despite the tendency of some evaluation theorists to deny the utility of such comparisons (Cronbach, 1980). The “universal necessity” to conduct comparative evaluations is evidenced by the strong desire of most clients and audiences for such comparisons. Therefore, it is imperative that criteria for evaluating various forms of b-Learning be developed that will result in more valid and useful evaluations (Cramphorn, 2004; Balacheff, 2007; Oliver, Roberts, Beetham, Ingraham, Dyke & Levy, 2007).

Another reason that could be considered is the fact that many of the issues which proliferate around technology-based learning may lead to confusion and resentment on the part of the educator. Most educators see their job as being that of a teacher and researcher not someone who has to also continually develop new skills in using technologies or become experts in educational theory and standards (Weller, 2007). Once they have accomplished these new skills they find themselves having to continually update themselves in or to keep at par with the changing technology and the constant stream of new “gadgets” that explode onto the scene which may be suddenly viewed as plausible innovative learning tools in their own right, creating a certain degree of frustration and confusion among educators. As Weller (2007:01) aptly put it:

If they engage with e-learning at all, then the feeling many educators have is one of bewilderment and confusion, akin to that of Einstein, who, lost on his way to a meeting, telephoned his wife Elsa and asked, ‘Where am I? And where **should** I be?’

2.24.1 Models for Evaluating Learning Technologies

Just as mainstream evaluation has recognised that different methodologies have their own strengths and weaknesses, a similar position is now accepted within the context of learning technology in Higher Education. Several authors have advocated using qualitative and quantitative methodologies in order to triangulate results (Jones, Scanlon, Tosunoglu, Ross, Butcher, Murphy, & Greenberg, 1996), thus enhancing the credibility of evaluation findings (Breen, Jenkins, Lindsay, & Smith, 1998). Such models have been described as hybrid approaches (Oliver & Conole, 1998).

Other important factors that have contributed to this development include the adoption of utility-based approaches from mainstream evaluation (Tavistock, 1999) and the description of the different strengths and weaknesses of approaches (Harvey, 1998).

While Herzberg's theory can be regarded as an acceptable method of analysing student satisfaction and attitudes, it does not cover all the relevant stakeholders involved in the development of a b-Learning course. As such and in relation to current literature, other means of evaluations may need to be taken into consideration should a thorough examination be carried out. A brief list of such models (tools and check lists) is provided below.

2.24.2 Tools for Evaluating Learning Technologies

The need for practitioners to carry out their own evaluations, has led to concerns about expertise. Lecturers, for example, may have expertise in their discipline and in teaching but it is unreasonable to assume that they will have expertise, training and in many cases even experience of carrying out programme evaluations (Oliver & Conole, 1998). As a consequence, several tools have been developed worldwide to support practitioners engaging with evaluation.

The *Evaluation Cookbook*⁶² (Harvey, 1998) for example, provides a series of evaluation 'recipes', each summarising a methodology in an easy to follow form, complete with hints and tips. These have been contributed by authors with expertise in using a particular approach, providing a rich and accessible knowledge base for practitioners to draw upon.

⁶² <http://www.icbl.hw.ac.uk/ltidi/cookbook/contents.html>

Whilst the cookbook provides a 'how to' guide for implementing evaluation studies, the *ELT toolkit*⁶³ (Oliver, 1999) focuses on their design. It is structured around a model of evaluation design that incorporates six stages, with the first two and the last relating to the context, and the middle three focusing on the details of the study itself.

An integrated approach that covers both design and application is the *Flashlight programme*⁶⁴. The Flashlight project has produced a questionnaire-based toolkit that provides a simple structure for evaluation by practitioners. The tool is based on an analysis of three elements:

- A technology
- An activity for which it is used
- The educational outcome of the activity

The tool also provides guidance on what it considers the characteristics of a good evaluation to be. These include studies of situations that are:

- Enabled or supported in crucial ways by the technology in question
- Repeated over time (in varying forms)
- Repeated in different courses (in varying forms)
- Exceptionally educationally important
- Exceptionally focused

The Flashlight tool is based on the premise that very different educators need to ask similar questions (Ehrmann, 1999). This position has been challenged as an over-simplification (Oliver & Conole, 1999), albeit a useful one. This assumption allows the Flashlight project to justify a focus on only one type of methodology but it ignores the variety of more appropriate methodologies that the ELT toolkit, for example, seeks to identify. Although criticisms of the project can clearly be made, it is important to recognise that the tool has provided a focus on usefulness and usability, and has been employed successfully in a range of real settings (Ehrmann, 1999).

⁶³ <http://www2.plymouth.ac.uk/ed/ELT%20documents/materials/toolkit.pdf>

⁶⁴ <http://www.tltgroup.org/flashlightp.htm>

A comparable approach involves the creation of handbooks, such as that of the *CUTSD project*⁶⁵ (Phillips, 2002). This resource also incorporates design and implementation guidelines, and focuses on one particular approach (action inquiry). However, unlike the Flashlight tool, no claims are made to general applicability. The handbook clearly contains information and advice that would be of use to any practitioner engaged in action research. However, the fact that it has been created for one specific project has allowed it to provide depth and specialist information rather than the breadth required for a more general resource.

The *EFFECTS project*⁶⁶ was required to demonstrate impact on several different levels: at the level of individual academics' practice, at an institutional level, and at a national level. In addition, a further level was considered which, whilst of interest to other projects of this type, was not directly achievable within the scope of *EFFECTS*: the impact on students. This approach adopted by the UK Open University (Oliver, 2000) concentrates on the notion of authenticity. This approach uses controlled observations for formative evaluation during the development process and supplements this with real life surveys of students using the resources.

The *TILT project*⁶⁷ adopts an integrative approach towards evaluation, which examines means of improving the use of resources already adopted on particular courses. However, it does adopt a quantitative stance when evaluating within-group differences between students.

As with methodologies, the range of tools designed to support practitioners is broad and each has been designed with specific aims in mind. Importantly, little research has been carried out that investigates the impact of such resources. Whilst such tools clearly have the potential to provide great support for practitioners, their relative merits have yet to be fully understood and if there is a constant changing of the goal posts regarding the development of new “gadgets” then bringing evaluation up to speed with this progress is a daunting task in itself.

⁶⁵ <http://www.tlc.murdoch.edu.au/archive/cutdsd99/cutdsd99.html>

⁶⁶ <http://www2.plymouth.ac.uk/ed/>

⁶⁷ <http://www.elec.gla.ac.uk/TILT/>

2.24.3 Checklists for Evaluating Learning Technologies

A common method of evaluation advocated in the area of learning technology is the checklist. Essentially, these consist of a list of issues that commonly arise in the process of designing and implementing learning technology. Users are asked to review resources against them and make their judgement based on this structured consideration. This approach supports decision making by providing a structured approach and can help prompt potential users to consider factors that they might otherwise neglect.

Although worth discussing and highlighting key developments in this area, it is outside the scope of this research study. Although technological issues may be raised by learners, it is their feelings and levels of satisfaction that are pivotal to this study. Having said that, it is worthwhile to always remind oneself of such evaluation tools as they may become useful in dealing with factors raised by the students and supporting further evaluation of the design and implementation processes involved.

A wide range of checklists has been developed, each with a slightly different focus. That of Blease (1988), for example, involves an initial categorisation of a piece of software into one of five types (drill-and-practice, arcade, simulation games, lab simulations and content-free tools). Each of these is then supported by an extensive series of questions, which are intended to promote reflection about the appropriateness of the software. These questions are grouped together under headings such as documentation, presentation and layout, friendliness and flexibility, achievement of stated aims, and robustness. Within each section, a range of pragmatic and pedagogic issues are covered, ranging from whether the programme has any accompanying documentation to is the software flexible enough to be used in a variety of teaching/learning situations? Although these questions may well have been useful, the framework cannot claim to be exhaustive and it has also become dated. Technological developments mean that many issues are neglected, such as the use of sound and video. In addition, more recent developments, such as the Web, are not addressed by the checklist.

Another useful illustration of checklists is provided by the staff development pack developed by the Evaluation and Development Review Unity (EDRU, 1992). These resources are intended to allow practitioners lacking experience in evaluation to assess the impact of a project or activity. The EDRU material comes in two parts: a booklet containing overviews of

different aspects of evaluation (EDRU, 1992) and a guide to carrying them out (Sommerlad, 1992). The former contains short papers on a wide range of issues, including curriculum development, staff development, evaluating organisational issues and designing and implementing an evaluation strategy while the latter aims to encourage a process of reflection rather than act as a 'cook-book' for evaluation purposes. It provides a step-by-step guide to evaluation design, starting by assessing the need for evaluation, identifying stakeholders, choosing a method, acting on findings, the role of the evaluator, and so on. Detail is kept to a minimum in order to provide a useful overview. However, this does prevent analytical methods from being covered in any depth, which will cause problems for less experienced evaluators.

Generally, the value of checklists has been called into doubt. A wide range of criticisms has been levelled at them, including Tergan (1998) who highlights areas for criticism.

- A lack of reliability (Correlation of ratings between reviewers is usually low).
- Concerns about validity (Criteria are often based solely on the consensus of developers).
- Bias (Themes important to one group of stakeholders, such as designers, may be emphasised at the expense of themes important to other groups, such as students)
- The aggregation of scores (The weighting of categories of questions is typically neglected in scored systems).
- Neglect of individual differences (Judgement is based on the reviewer's opinion, rather than on a cross-section of students' opinions).
- Neglect of context (Many reviews focus on the software as an object and not on its use in a particular context).
- The lack of tailored criteria (The categories developed in one context may not be relevant in another).

A further problem is that whilst checklists assist practitioners to ask important questions and identify key issues, they do not assist in finding solutions that can resolve these problems. The same lack of expertise that makes checklists useful also makes the more demanding questions difficult or impossible to answer.

Essentially, although such checklists may be useful as prompts for reviewers or when gathering factual information such as cost or technical requirements, their value as the sole basis for evaluation is limited. This is particularly true when interpretative issues are considered. However, they may be valuable in terms of identifying standards for designers.

Another suggestion is that they can be extremely valuable when used alongside other evaluation methods, such as for drawing up a shortlist of packages to be evaluated in greater depth in a second round of evaluation (Le Voi & Morris, 1998). Even when used appropriately, however, it is important that these resources be updated regularly in order to address technological developments.

2.25 Summary

This section has examined the effects technology has played on the teaching and learning processes within higher education institutions. With an ever increasing array of new technologies being presented it has become important to focus on the importance of such tools and whether they do play a role in enhancing the learning experience. Gone are the days of populating a VLE with static information for the student to download and learn off in a regurgitate fashion. We are now at a stage where developments in technology enable the instructor to develop and deliver innovative and cognitive-driven learning processes.

Evaluation of learning processes has always been a contentious area and the introduction of new technologies has not facilitated the situation, if anything, it has created further obstacles in the development of sound evaluation processes. Due to the rapid, innovative nature technologies are developing, it is difficult to keep pace and evaluation of their effectiveness is difficult. However, new forms of tools and checklists have been developed to try and contribute to the evaluation of these technologies but have been designed with specific aims in mind. Also, their effectiveness of some has yet to be explored fully while others have become outdated.

2.26 Conclusion

This chapter examined the literature surrounding three fundamental areas embedded within this research project:

- Learning including the types of learning themes developed through the development and application of technology in the learning processes, as well as the perceived differences between them and the historical route they have taken over the last fifteen to twenty years.
- Student learning in higher education, the diversity of student bodies and in particular their learning styles. The literature surrounding motivation and stimulus of the learner to perform as well as, what really satisfies the learner were also explored.
- Technology and the role it plays within higher education. The quality of learning through the use of technology and methods of evaluating this quality were explored.

Having now explored the relevant literature concerning this study, it is time to focus on the research study itself. This is explored in the following chapter which deals with the methodology involved in carrying out this research.

Chapter 3

Methodology

You may have a personal preference for one of these strategies rather than the other, as I do. That is by-the-way. Neither is right or wrong. Both quantitative and qualitative approaches may be needed for different aspects of a particular programme. Facts and figures may be relevant data; so may people's feelings and opinions. I recommend a strategy of "applied common sense" in which you pragmatically take what you need from both – and from any other approaches that emerge in the years to come. [Rowntree, 1992:214]⁶⁸

⁶⁸ His book "Exploring Open and Distance Learning" has been subsequently reprinted in 1994; 1996; 1998 and 2000 (twice).

3.1 Introduction

As still a relatively young concept, technology-enhanced learning (TEL) or educational technology research suffers in a number of respects as it is an area that is not yet clearly defined and scoped. Much has been written about the usefulness of both quantitative (positivism) and qualitative (naturalism or interpretivist) paradigms (Winch, 1958; Cicourel, 1964; Bernstein, 1974; Cohen, Manion & Morrison, 2000; Jones, 2004) and whether a combination of both would be more beneficial towards research outcomes (Conole, 2003; Jones, 2004).

Employing data collection methods from both quantitative and qualitative research paradigms produces data derived from more than one standpoint. If, for example, while studying a particular phenomenon the data from a questionnaire corresponds or collaborates with data from semi-structured interviews, “the more the researcher will have faith in the reliability of the data collection” (Cohen *et al.*, 2000:233-34). This combination of both paradigms is illustrated by examples from phenomenography, an approach that has successfully integrated a qualitative and quantitative tradition (Jones, 2004).

The initial focus of this study was on the application of both quantitative and qualitative research paradigms to obtain data from multiple points of view. The quantitative and qualitative approaches both utilised descriptive⁶⁹ data collecting methods in the form of an on-line questionnaire and semi-structured interviews. As such, although it is very common to do so, the researcher feels there is no sense in presenting fundamental debates about the validity of using one, either or a mixture of both paradigms when this study is attempting to apply Herzberg’s approach. The following section will explain in greater detail the approach taken by Herzberg and his team and it considers the reasoning behind why it could be considered as a useful paradigm for the evaluation of TEL environments and in the case of this research, b-Learning environments.

⁶⁹ Although the term descriptive research usually applies to quantitative research, for the purpose of this research it is assumed that all the research approaches being applied are for descriptive or interpretative purposes.

3.2 Rationale for the Motivation-Hygiene Theory

All forms of education and in particular higher education are facing new challenges from new demands in this century. Over the years, various criticisms of traditional classrooms have appeared, such as lack of personal attention and appreciation, the onset of boredom, outdated information and knowledge, lack of attainment of appropriate skills to function adequately within workplaces and inappropriateness for a diverse population (Diamond, 1997; Gardiner, 1997; Handy, 1998; Roueche, 1998).

Many researchers have advocated “solutions” such as active learning, learner-centred principles, effective use of technology and collaborative learning (Cove & Love, 1996; Chickering & Ehrmann, 1996; Bostock, 1997; Bonk and Kim, 1998; Laurillard, 2002; Salmon, 2002; Cowan, Elliott, Saults, Morey, Mattox, Hismjatullina & Conway, 2005). The expectations for technology to transform HE are disproportionately high. This enthusiastic attitude toward technology or technological utopianism is not entirely new (Kling, 1999):

Most of what we read or hear about computers in education emphasizes only one aspect, usually the good points, but occasionally the bad, to the exclusion of other points of view. This is at least partly due to the screening effect of the popular press, who favour the excitement of extremism over the calm of rationality, preferring in the name of “reader interest” to create what Monosky (1984) calls an artificial dichotomy. (Ragsdale, 1988:50 cited in Hara & Kling, 1999)

When computers were introduced in classrooms in the 1980s, “extolling the computers as a boon to critical thinking, professional educators, by and large, have been conspicuously uncritical about the computer itself” (Sloan, 1985:1). Cuban (1986) when reviewing the literature on the educational use of motion pictures, radio and television since 1920s observed the existence of a continuous cycle of technology promotion and adoption in classrooms.

The cycle evolves around technology being introduced in classrooms by enthusiastic advocates, such as administrators and researchers. However, teachers failed to effectively use technology because of the lack of equipment, time and training. Cuban (1986) cautions us not to expect too much of computers in classrooms because their use may follow the same pattern as other technologies.

As some authors criticise Computer-Assisted Instruction in K-12⁷⁰ (Salomon, 1985; Sloan, 1985; Dreyfuß & Dreyfuß, 1986; Ragsdale, 1988), others have openly criticised educational computing in general, such as information technology in higher education (Noble, 1998) and computers in schools (Oppenheimer, 1997). However, the history indicates and suggests that it is fundamental to study not only failures but also successes. Provided that we understand the capacity, capabilities and limitations of the technology we are using and more importantly, provided that we understand the learners and their learning styles and the kind of education we are trying to give them, we will be in a better position to use technology to fully enhance the learning experience. “There is no technological panacea; there are only technological solutions to some educational problems” (Simpson, 1985:91).

Bryson and de Castell (1998) propose the need to pay more attention to failures of educational innovation because it will tell us why success stories are arbitrary. Unsworth (1997) also argues that many things that we take to be trivial or embarrassing or simply wrong will be of interest to our peers in the future. He claims that people learn from errors and failures and suggests that recording them is necessary to make progress.

In recent years there has been a noticeable increase in the adoption of b-Learning within higher education and in research that concentrates on the impact it is having on educational institutions, academia and students. As such, there are many reviews of existing research underway and which highlight on areas worthy of future investigation.

For example, the UK Association for Learning Technology (ALT) has published its research strategy (ALT, 2005) and the UK Joint Information Systems Committee (JISC) has become engaged in a discussion to determine research questions for future projects (Beetham, 2005). The JISC review identifies a broad range of questions emerging from previous JISC funded projects, including a gap in the research exploring the experiences of learners involved in e-Learning and b-Learning environments.

In Portugal, due to the development in usage of the VLE and the greater adoption of b-Learning environments within higher education across the country, there has been a surge in

⁷⁰ K-12 refers to a period of education from Kindergarten (German for children’s garden) to the last year of secondary education. In Portugal this would be equivalent to the period between “jardim de infância” and “12º ano” while in the UK, for example, this would refer to nursery school up to “A” levels.

new research into the validity and capabilities of these learning environments and approaches (Gomes, 2005; Legoinha, Pais & Fernandes, 2006; Morais, 2006; Morais & Cabrita, 2007; Carvalho, Aguiar, Cabecinhas & Carvalho, 2008; Cardoso & Correia, 2009, Morais & Dias, 2009).

The most likely explanation for a lack of research on the experience of learners exposed to b-Learning environments is that the overwhelming majority of research to date has focused on establishing the value of particular course design systems and teaching methods. In other words, the overall approach has been teacher-focused and teacher-driven rather than student-focused and student-driven where the focus should be on evaluating the pedagogic worth of the innovations being adopted. This should be the case because b-Learning is a relatively new concept, newer than that of e-Learning which in its own right is still a new and unexplored phenomena and along with learning in general are clearly under-researched. They have attracted significant educational investment worldwide but their educational value is a contested issue. These factors cause an emphasis on evaluating pedagogic ‘worth’ as seen for example in Holtham and Courtney’s (2005) practitioner focussed review of the benefits and disadvantages of virtual learning environments (VLEs).

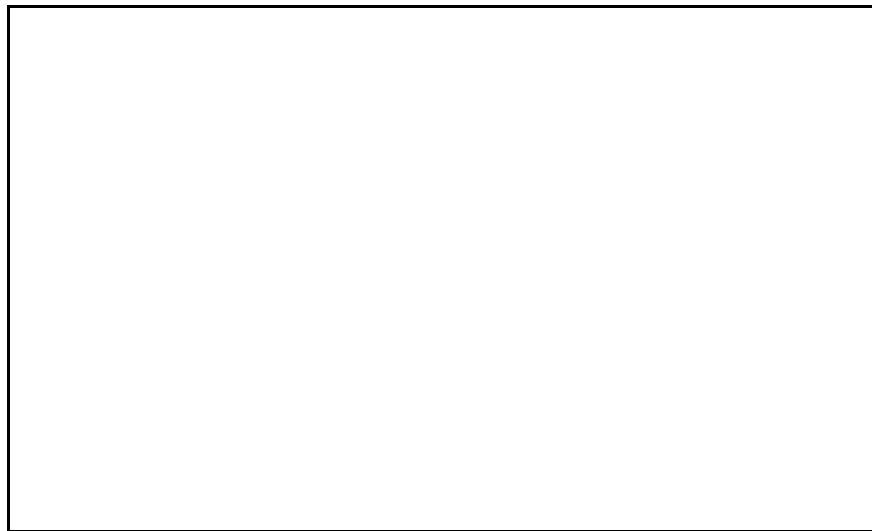
We have now reached the situation where the majority of higher education institutions (HEIs) are operating at least one VLE. In a 2003 survey, the UK figure for higher education institutions that were running at least one VLE was put at around 86% (Browne & Jenkins, 2003). In Portugal, Pinheiro & da Silva (2004) carried out a study to see which HEIs were using a VLE. Out of ninety-seven respondents in three hundred and twenty-eight which equates to a 29:6% sample, the majority had their own individual Web pages. However, only nineteen confirmed to possessing a VLE. Of the remaining seventy-eight institutions, 47% affirmed their intention to implement a VLE within two years. The remaining 49% cited incompatibility with their courses, prioritisation with other issues and a lack of research into the relevant area as reasons for non-adoption.

A more recent study (Moreira & Dias, 2009) which also examined in detail the level of usage of VLEs within HEIs in Portugal concluded that in the private sector 63.5% which equates to 80 out of a total of 126 HEIs used a VLE. This figure increased considerably within the public sector with 86.6% which equates to 136 out of 157 institutions used a VLE.

A study⁷¹ by DeltaConsultores⁷² (2007) which began in 2006 concluded that some 600 to 800 entities were using some form of technology-enhanced learning. In relation to higher education, they pointed out that there has been an evident explosion in the inclusion of e-Learning systems within the Institutions' infrastructures since 2006. However, this did not imply actual application of e-Learning or b-Learning methodologies nor the development of new innovative learning environments. An observation also supported by Moreira and Dias (2009:20):

As such, one can foresee an abundance of objective difficulties so as to characterise both widely and profoundly the innovativeness that there is in the application of ICT to educational communities in Portugal. In fact, existing knowledge, as stated at the beginning, is disperse and extremely incomplete.⁷³

With respect to the adoption of a VLE, DeltaConsultores (2007) <Figure 12> highlighted that Moodle (72%) was the most adopted LMS for the launching of technology-enhanced learning programmes. Also, in the majority of the cases, the LMS was made available by educational institutions and the main users were the teachers and not the students.



<Figure 12> VLE usage in Portuguese speaking countries (DeltaConsultores, 2007)

⁷¹ The full version of the study can be accessed by registered users at <http://www.elearning-pt.com/lms2>.

⁷² "DeltaConsultores" is a training company in Lisbon, founded in 1993, which develops various products and services related to advanced technological environments. Its Web pages are located at <http://www.dltconsult.eu/>.

⁷³ Translated from the Portuguese: "*Daí que se prevejam bastantes dificuldades objectivas em se caracterizar de modo amplo e aprofundado o que de inovador se faz no domínio da aplicação das TIC às comunidades educativas em Portugal. Na verdade, o conhecimento que existe, como se informou no início, é disperso e muitíssimo incompleto.*"

Eliciting from learners their experiences at using these new technologies can also highlight a wide spectrum of individual experiences which would otherwise be difficult to predict. For example, non-participation, involvement and collaboration of learners are of great concern to tutors particularly in online collaborative tasks (Jung, Choi, Lim & Leem, 2002; Rourke & Anderson, 2002).

Also, the role of assessment, the type of assessment and the role feedback has played in the learning processes (Macdonald, 2003) would also be worth knowing when designing a course. However other studies of the student experience have shown that time and the management of time (Allan, 2004), access to a course from home and work (Atack & Rankin, 2002) or the uncertainty in understanding the task to be carried out (Moore & Aspden, 2004) play fundamental roles in the participative levels of learners.

DeltaConsultores (2007) examined the student experience in relation to which aspect the students valued most on their courses. They concluded that the intuitiveness and manner in which materials were organised was the most valued aspect. A close second was the ability to learn how the interface functions. The least valued belonged to integration with slides or images.

Importantly, the reasons behind a learner's preferences may be highly individual. For example, Hughes & Lewis (2003) give details of a student who dropped out of an online course which made use of online testing 'out of protest' because she felt the frequent, timed tests were unfair to her as a dyslexic student. Another example from them is that of a long-term UK resident postgraduate student undergoing a personal crisis and withdrawing from an online discussion-based course because he felt his English writing skills were being exposed as too weak. Clearly, it is near impossible to ascertain these learners' experiences from their observable behaviour and yet their experiences are valid and important and there is a need for a system which can assist in bringing these concerns to the forefront as quickly and as early as possible.

Attempting to collect information concerning the student experiences can lead to complex and contradictory findings. Mason and Weller (2000) report on a large scale and careful evaluation of student satisfaction from the UK Open University's successful T171 course:

'You, Your Computer and the Internet'. Even though they used a team of expert evaluators with more than 30 years experience of collecting information from distance-learning students, one evaluator describes the experience:

Reading though all the feedback data from students and tutors is like standing at the apocryphal Spaghetti Junction and watching cars going every which way. Some students call for more group work; others want none at all. Some are disappointed in the course content; others find it the perfect marriage of both vocational and academic skills. Advice fumes the air. (Mason & Weller, 2000:197)

This is representational of attempts to evaluate student satisfaction in that it takes experienced and skilled evaluators to be able to make any clear recommendations for course development and improvement. However, this paper is also representational of a system which allows the staff to identify what are the important issues for students rather than using the students themselves to say what the important issues are for them.

Due to the now acceptable and commonplace use of b-Learning to supplement f2f teaching, combined with the findings produced from existing evaluations there is a claim to be made in favour of further explorations of students' perspectives of b-Learning and their feelings and attitudes surrounding their learning experiences. As has been mentioned on various occasions in this thesis, online students cannot be classified as the typical student in higher education: they are likely to be mature, independent individual who can be reflective, articulate and interested and informed about teaching and learning processes (Ellis & Calvo, 2004; Moore & Aspden, 2004).

The theoretical basis of research in this case study is to be found within the framework of student dissatisfaction or "motivation-hygiene theory" as developed by Herzberg in the 1960s. It is not the researcher's intention to adopt in its entirety Herzberg's theory but to apply its theoretical foundations to b-Learning environments and in particular to examine whether, in fact, one can classify learners' attitudes and feelings towards their learning experiences as being motivational or hygienic.

3.3 Rationale for the Case Study Methodology

Regardless of the approach adopted, this research is unequivocally a case study. The case study is an examination of a specific phenomenon. In this case, it is a specific process the learners are experiencing. The case study seeks holistic description and explanation (Merriam, 1988). The case study design is particularly well suited to situations where it is impossible to separate the phenomenon's variables from their context (Yin, 1994). It is the goal of this case study design to accurately describe and give voice to the informants being studied.

According to Bell (1987), the case study methodology has also been described as an umbrella term for a group of research methods that have in common the decision to focus an inquiry around a specific instance or event. As this study focus is on learner's depiction of events that have affected their feelings this can be regarded as following the lines described by Bell (1987).

The philosophy behind the case study is that by looking and analysing carefully real-life instances a complete picture can be obtained of the actual interaction of variables or events within the instances. The case study allows the researcher to focus on specific instances in an attempt to identify interactive processes that may be crucial but that are transparent to a large-scale survey. This research is concerned with students' feelings towards one particular course or module within the course and it is based on their experiences of a blended learning environment unique to the institution. It may be thus classified as a singularity.

While acknowledging that the major feature of case study is its concentration upon a particular instance, Hitchcock & Hughes (1995:322) cited in Cohen *et al.*, (2000) go further and propose seven characteristics which such a study is likely to have:

1. A concern with the rich and vivid description of events within the case.
2. A chronological narrative or description of events within the case being studied and leading up to the case.
3. An internal debate between the description of events and the analysis of events described.
4. A focus upon individual particular actors or groups of actors and their perceptions and accounts.
5. A focus upon particular individuals and particular happenings within the case.
6. The integral involvement of the researcher in the case.
7. A particular mode of presentation that is able to capture the parameters of the case.

This thesis accommodates most of these features mentioned above with a particular emphasis on (4) and (5) which relate to students feelings towards their learning environment and the factors that influence those feelings.

3.4 Context for the Study

3.4.1 Research Location

The location of the research was the Department of Didactics and Educational Technology (DDTE)⁷⁴, now known as the Department of Education, University of Aveiro in Portugal.

The University of Aveiro was founded in 1973. It has in the region of 12,000 students distributed across 58 undergraduate programmes and 65 postgraduate programmes. It has a number of active research units developing research and development programmes which target the national business community and regional industry in fields ranging from telecommunications to industrial engineering.

The DDTE is specialised in the area of teacher training. As such, it is involved in all undergraduate programmes in education at the University, as well as Master degree programmes in education and in supervision of teachers, trainers and Doctoral students.

This pioneering Department was founded in 1986 and congregated lecturers from a diverse range of departments who offered subjects in the area of Didactics and Educational Technology. At research level, members of the Department have obtained growing recognition on the national and international stage.

The Centre for Research in Didactics and Educational Technology was founded 1994 by the Institute for Research at the University of Aveiro and since 1997 has been funded by the Foundation for Science and Technology (FCT). The Centre is made up of lecturers from the DDTE, the Department of Physics, the Department of Languages and Cultures, the University of Trás-os-Montes e Alto Douro [www.utad.pt], the University of Coimbra

⁷⁴ In Portuguese: *Departamento de Didáctica e Tecnologia Educativa*. The DDTE was in 2009/10 renamed as the Department of Education. However, for the purpose of this research the title DDTE will continue to be applied.

[www.uc.pt] and the Polytechnics of Santarém [www.ipsantarem.pt], Viseu [www.ipv.pt], Castelo Branco [ww.ipcb.pt] and Coimbra [www.ipc.pt].

External evaluation of the Department by international assessors nominated by the FCT has allotted the following classifications to the Department:

1996	-	Excellent
1999	-	Excellent
2002	-	Excellent
2005	-	Excellent
2008	-	Excellent

3.4.2 B-Learning Model

The *DisNet* programme of study at the University of Aveiro was first launched in 2002 with a view to offering postgraduate and specialised training programmes in a blended fashion, that is, part f2f and part online. The educational programmes that are at the heart of this research study are the Masters in Multimedia in Education (MMEdu) and the In-service Teacher Education Programme⁷⁵ (ITEP) The study plans for both courses which are offered by the Department of Didactics and Educational Technology (DDTE) in conjunction with the Department of Communication and Arts (DCA) and the Integrated Centre for Teacher Development (CIFOP)⁷⁶ are discussed in the following sections.

Regarding the MMEdu <Table 5>, students have a total of six modules (subjects) to study over the two semesters, as well as writing a final dissertation on a chosen subject. There are four modules in the first semester, three mandatory and one from a list of optional subjects and two modules plus a dissertation to be completed in the second semester. Each module needs to be completed before a student can move onto the next one. Completion implies having handed in the required assignment(s) for that module, be that individual or group-based.

Each module is offered sequentially, that is, students study only one module at any given time, usually over a 4-week period and all related assignments, projects and exams need to be

⁷⁵ In Portuguese: Profissionalização em Serviço

⁷⁶ In Portuguese: Centro Integrado de Formação de Professores(CIFOP)

completed and approved within the stipulated time period before progressing onto the next module. Sequentially offered modules are regarded by the department as the more productive way for students to achieve success on this course. Based on internal evaluations it was concluded that by offering modules in this manner, students (mainly professional individuals took this course) were more likely to complete their programme of study and non-completion levels were reduced⁷⁷.

<Table 5> Study plan of the MMEdu University of Aveiro⁷⁸

1 st Semester Modules	Scientific Area	UC
Developing Multimedia Materials for Education	Educational Technology	3
Communication Technologies in Education	Sciences and Technologies of Communication	3
Distributed Learning Management Environments	Sciences and Technologies of Communication	3
Option	Related Scientific Area	1.5
Options: Management of Educational Multimedia Projects Evaluation of Educational Multimedia Products Design of Interaction Authoring Languages in Education		
2 nd Semester Modules	Scientific Area	UC
Multimedia and Cognitive Architectures	Educational Technology	3
Communities of Distributed Learning	Sciences and Technologies of Communication	3
Thesis Seminar	Educational Technology or Sciences and Technologies of Communication	3

A large proportion of the assignments are work-related and work-based examples are encouraged as they are representative of a real case scenario and pertinent to the student or students in question. By being work-based, students have the opportunity to analyse their own working environment or the external environment surrounding their professional lives. Therefore, the course and the learning involved is recognised as playing a fundamental role in the continuing professional development of the students, their working environments and any other external environments or factors that come in to play when carrying out their assignments.

⁷⁷ Statement put forward by the MMEdu Course Manager.

⁷⁸ Source is from the *Relatório de Disciplina* March 2009 and translated by the researcher.

In percentage terms, assessment classifications are divided into the following:

- Written exam – 30%
- Didactic materials – 30%
- Presentation – 10%
- Participation (f2f and online) – 15%
- Log book and report – 15%






Lecturers/moderators and e-tutors are involved with the delivering of the modules. There were two f2f sessions delivered for each module, one session at the end of the first week’s proceedings which totals around 9 to 10 contact hours. The second f2f meeting occurs at the end of the fourth week when students would be expected to hand in their final assignments, make presentations of their projects and get prepared to sit formal exams.

Regarding the ITEP <Table 6>, students have a total of five modules (subjects) to study over the two semesters. A clear distinction between this course and the MMEdu is the fact that most of the modules are delivered in a f2f environment one day per week which is not convenient regarding the b-Learning scope of this particular study. However, one module in the first semester (educational technology) is offered through the DDTE in a blended mode and this was the primary focus of this study.

<Table 6> Study plan of the ITEP University of Aveiro⁷⁹

1 st Semester Modules
Curricular Development and Specific Didactics (annual delivery for uni-disciplinary groups) OR Curricular Development and Specific Didactics 1 (semester delivery for bi-disciplinary groups)
Educational Technology (semester delivery for all groups) (Note: Music groups will be able to study a music variant of the subject)
2 nd Semester Modules
Curricular Development and Specific Didactics (annual delivery for uni-disciplinary groups) OR Curricular Development and Specific Didactics 2 (semester delivery for bi-disciplinary groups)
Sociology and School Administration (semester delivery for all groups)
Educational Psychology (semester delivery for all groups)

⁷⁹ Source: <https://bolsas-doutoramento.ua.pt/cifop/PageText.aspx?id=6828&ref=ID0EECA/ID0ECECA> and translated by the researcher [Accessed 14-April-2010]. This link is no longer live and this study plan is no longer current.

Online deliver and any modes of contact were driven by the LMS  Blackboard⁸⁰, as well as the use of Web 2.0 tools, such as,  Del.icio.us,  Slideshare,  RSS feeds and  YouTube to mention a few.

3.4.3 Research Sample

The research sample is comprised of full-time working professionals who are studying to compliment their professional lives which may also be driven by an expectation from their employers. The majority of the working students are employed as teachers in primary or secondary education.

The first group (cohort 2007) are students living and working in the Cape Verdean archipelago and are studying on the MMEdu which is a b-Learning delivered course of study where 20% of the course is f2f driven. The second group (cohort 2008) are students living in mainland Portugal and studying on the In-service Teacher Education Programme (ITEP) which is a f2f delivered course where 20% of the course is b-Learning delivered. This b-Learning delivery is derived from one mandatory module Entitled “Educational Technology”.

By choosing a diverse group of students as these who are studying on contrastingly-delivered courses should offer greater insight into the blended learning system offered within the department. Also, it allows for an opportunity to differentiate the experiences of blended learners from different situations and environments; students in Cape Verde who work on different islands within the archipelago and who are supported by lecturers based in mainland Portugal and students in mainland Portugal supported by the same lecturers.

3.5 Design of the Study

As discussed in the chapter one (1.4.1), the research approach adopted by the researcher is a multi-paradigmatic approach involving particples of both a positivist and interpretivist nature. Positivism asserts the importance of objectivity in social research methods and techniques derived from physical sciences. According to positivism, it is possible to measure and predict

⁸⁰ The Blackboard VLE has now been replaced by the LMS MOODLE.

the behaviour of individuals and the researcher is assumed to follow a scientific method in collecting and analyzing data using the same scientific ways used for physical sciences.

The interpretative paradigm rejected the scientific method of positivism and asserted that the scientific method cannot be used for investigating social and educational behaviour. Therefore, they called for using qualitative research methods which helps the researcher to obtain information about the values, concerns and actions of the people studied by using observation and interpretation to analyse meaning.

The method used to carry out this research study is the descriptive-survey method because it will describe the perceptions, views and opinions of learners towards items related to motivation and satisfaction in order to specify which of them are believed to be effective in promoting learning. The information obtained from the learners describe whether integrative or instrumental items were responsible for their satisfaction or dissatisfaction levels or whether there are other items involved in the learning environment perceived by students to be more significant in arousing their satisfaction levels.

3.6 Instrumentation

In order to investigate the importance of the various satisfiers and dissatisfiers, the researcher decided to use a questionnaire as the data collection instrument. The questionnaire was considered the most suitable tool to collect data from the sample. Also, considering the type of student involved viz. blended learners, the researcher considered the questionnaire to be the more suitable and convenient method than the use of interviews, observations diaries or tests.

Although Herzberg used interviews as his method of data collection, his respondents were physical employees working within physical spaces. Although, initially, the researcher had considered using interviews or at least, a sample of respondents as a focus group, it would have been difficult to arrange face-to-face meetings with a reasonable number of individuals and as a result it was decided to abandon using interviews and to concentrate solely on the questionnaire as the primary source of data collection.

The difficulties encountered by the researcher in administrating the interviews were:

- The structure of the course; using sequentially structured modules meant that the students were very busy for a large majority of the time as they were required to complete each module within 4 weeks before moving onto the next one.
- The fact that a large majority of the students were working students also affected the amount of free time they had available to attend interviews.
- Some of the students were not resident on the mainland which made it impossible to interview them. Even when considering a 'virtual' interview through, for example Skype™⁸¹ many of the students did not have sufficient access to technological resources in order to perform such an event.

In spite of the various advantages of triangulation or multi-method approach in enriching the information obtained from the research, in the previously described context, triangulation by interviewing was difficult if not impossible.

Because of the similarity between the questionnaire and the interview, the interview lies close to the questionnaire in both the form and the assumptions underlying its use for the data collection.

A questionnaire is sometimes referred to as a written, self administered interview, and by the same token an interview could be considered as an oral questionnaire. (Wiersma, 1980:142)

In the age of technology online or e-questionnaires began to become an added means of data collection and although successful in getting people to respond, it was always certain that a 100% response would never be achieved with a range of between 30-35% becoming the acceptable rate response (Barnes, 2001). Nowadays the e-questionnaire is becoming more refined with dedicate companies such as www.equestionnaire.com offering tailor-made e-questionnaires to suit an institution's needs. Apart for the standard advantages associated with e-questionnaires, such as low costs, timeliness and efficiency, the principal factor here is the

⁸¹ Skype™ is a software programme created by the entrepreneurs Niklas Zennström and Janus Friis. Skype allows users to make telephone calls from their computer to other Skype users free of charge, or to landlines and mobile phones for a fee. Additional features include instant messaging, file transfer, short message service, video conferencing and its ability to circumvent firewalls.

fact that the learners will be able to address the question in their own time, at their own pace and in their own words without the involvement of a third party.

The questionnaire in this study was completely anonymous and was provided in two parts. The first part covered general demographic questions about the respondents, such as age, gender, profession etc. The second part was constructed taking into consideration the questions developed and put to the target group by Herzberg (1969) in his research. In general, he asked one pertinent question to the interviewees and then followed this up with other suggestive questions that acted as pointers to assist the respondents comprehend what they were being asked and also to assist him clarify any statements that appeared distorted or incomprehensible (see Appendix 1A/B). The researcher decided to follow a similar line to that of Herzberg and present the respondents with one pertinent question, similar to Herzberg's and then input a group of minor questions as pointers for the respondents to consider when replying to the questionnaire <Figure 13>.

Think of a time during the study of this subject when you felt especially good or bad about your studies. Describe what happened.

Use the following as a guide to help you write about what happened.

1. Describe the event that led to this feeling.
2. How long did the event last?
3. What were the consequences of this event in relation to your studies and how long did they last?
4. What did this event mean to you?
5. How long did the feeling last?
6. Why did you feel like this?
7. What were the effects of your feelings in relation to your studies?
8. How long did these effects last?
9. Did the event make an objective difference to your studies?
10. Did what happen affect you personally in any way? Think about your relationship with people and family, your health etc. How long?
11. Did what happen basically affect the way you felt about studying on this course or did it merely make you feel good or bad about the occurrence itself?
12. Has your attitude towards any element of the subject or course been altered? If yes, can you say what has altered?
13. How seriously were your feelings affected? Indicate with a circle, one time only, on the scale below how strong you think the good or bad feeling was.
14. Do you think the situation you described could happen again for the same reasons and with the same effects?
If not, describe the changes that have taken place that would make your feelings and actions different today than they were then.
15. Is there anything else you would like to say about the sequence of events that you have described?
16. Have you any general comments you would like to make about the research?

<Figure 13> Adapted English version of Herzberg's question used in pilot study

The questionnaire was placed online whereby it was hosted on the University's Learning Management System (LMS) and was directly available to those students who made up the target groups. Initially, the questionnaire was planned to be made available at the end of each module for the MMEdu students so they could provide their opinions about each module. However, after consultation with members of staff, it was concluded that this would be too much to ask students particularly as they had a lot of work to complete at the end of each module and also the department carried out its own modular evaluation system which meant the students had other forms to fill in. As such, the questionnaire was launched near the completion stage of the MMEdu course in 2007.

In relation to the ITEP cohort, the questionnaire was drawn to their attention near the end of the module. Encouragement was provided by their course managers and lecturers/moderators/e-tutors. The objective was to allow the student's time to reflect on their studies so they would have a clearer and still fresh picture as to what they felt was good and or bad about their learning experiences. It would also not inhibit the students while completing important assignments, preparing for exams or writing up of their dissertations. Otherwise, they might not feel so inclined to complete the questionnaire or it might invoke replies that may not necessarily reflect their true opinions or beliefs.

Initially, this questionnaire was trialled on a sample of students to check its usability. The results of this pilot are presented in Section 3.8 below. A screenshot of the original question can be located in Appendix 1A with subsequent refined formats in English and Portuguese located in Appendix 1B.

3.7 Data Collection Process

As mentioned previously, the target population for this study was students studying for a MMEdu and students studying for a professional qualification on the ITEP programme. One cohort of students was resident on the mainland while the other cohort was resident in Cape Verde. Before the researcher could launch the questionnaire online he first had to seek approval from the tutors involved with the course. As one of the tutors was also the researcher's supervisor, this facilitated the purpose of achieving authorisation.

The respondents' replies to the questionnaire were supplied directly online and were collected by means of a database that was set up with the assistance of the University's e-Learning Operational Unit⁸² (*Unidade Operacional para o e-Learning*), to whom the researcher is greatly indebted, as it reduced the amount of data collection time considerably. A screenshot of the original question online can be located in Appendix 2. The replies were then transferred to an Excel file and delivered to the researcher for review and analyses. A screenshot of responses in the Excel format can be seen in Appendix 3.

Reliability of data is ensured by the inclusion of anonymity, as well as the fact that only the researcher, who has no professional link with the department, has access to the data and furthermore, as was already mentioned above, the learners are requested to complete the questionnaire only when the course has been completed including all related exams. The database was then sent to the researcher where he began to carry out an in-depth examination and analysis of the data supplied by the students.

3.8 Data Analysis Process

As mentioned above the rich data reaches the researcher through a database developed specifically to record all the respondents' replies to the questionnaire. It needs to be stressed that in accordance with Herzberg's approach, the learners have only to address one particular question whereby guidance is offered as to how to answer the question through the inclusion of issues or pointers that could be taken into consideration.

Rigour is perceived as paramount and is applied for data collection that is coded using Compute Assisted Qualitative Data Analysis Software (CAQDAS). CAQDAS refers to a broad category of software packages, in relation to this study the software NUD*IST has been adopted. This application is discussed in greater detail in section 3.8.1 below.

Many researchers make use of computer software in their analysis in the form of a word processor, such as Microsoft Word. Although this package is in fact a software tool that assists

⁸² This Unit forms part of the Multimedia and Distance Learning Centre (*O Centro Multimédia e de Ensino a Distância - CEMED*) and can be located at <http://wsl2.cemed.ua.pt/uobel/estatica/geral/index.asp>.

qualitative data analysis, word processors are normally not regarded as ‘CAQDAS’ packages because they are not specifically designed for qualitative analysis.

3.8.1 NUD*IST

In relation to this study, the researcher chose to use the CAQDAS software NUD*IST (Non-numerical Unstructured Data: Indexing, Searching & Theorizing) version 6⁸³. NUD*IST provides tools for interpreting complex data in context (Bazeley & Richards, 2000). The researcher adopted this software primarily because it was available at the department and a training course⁸⁴ was run at the department which was directed at those people who wished to use it in their research studies. Also, it was adopted by the researcher as many had advocated its use in qualitative analyses (Buston, 1997; Kelle, 1997; Barry, 1998; MacMilan & McLachlan, 1999). References can be found in many research areas as a tool for interpreting complex data in context; Medicine (Buston, 1997), Accountancy (Budding, 2003), Education (Cannon, 1998) and Management (Malina & Selto, 2001) to mention a few.

Acknowledged benefits of using NUD*IST can be structured as follows:

- Non-numerical, Unstructured Data: the input for this analysis software consists of contextual documents. These documents have to be prepared carefully because any space or starting of a new line can influence the indexing system. Also, the use of headers and sub-headers plays an important role for the tools to be applied.
- Indexing: the software enables a clear indexing of components of the documents. The researcher can choose which component of the text he wants to work with. The so-called ‘text-units’ can be a line of text, one sentence, or a paragraph. Apart from indexing or in other words ‘coding’ concepts, broad ideas or even headings, NUD*IST also indexes ‘base data’. The term base data refers to the key characteristics relating to each interview or in this case each respondent (Is the respondent a teacher or a student? Which professional body does he/she belong to etc.?). It means that base data are used to index each document in its totality. Base data characterisation can be added at any time.

⁸³ Version 6 or N6 has been replaced by a new NVivo7 version.

⁸⁴ This was a 16 hour hands-on training course at the Department of Didactics and Educational Technology, University of Aveiro, held on the 16th, 23rd, 30th of June and 7th July, 2006.

- Searching: searching for words and phrases can be done quickly and easily. The software enables the researcher requesting a specific retrieval to only search in documents indexed along a certain base category (e.g. focus on teachers, or focus on other professions etc.).
- Theorising: the software is built to support theorising. It allows researchers to explore qualitative data by retrieving indexed text segments and related memos, by doing text and index searches etc. The most important help for theorising is that NUD*IST enables the researcher to construct a hierarchical tree to order index categories (Weitzman & Miles, 1995; Buston, 1997; Bazeley & Richards, 2000).

The management and exploration of the data focus on ‘coding’. The codes that are given to the text units are called ‘nodes’. NUD*IST organise the nodes by grouping them in a tree-structure (Bazeley & Richards, 2000). Within the hierarchical tree, the main categories are called ‘parents’ and the subcategories (also ‘nodes’) are ‘children’. The result is a diagram which can be called up on the computer screen, with many branches at whose nodal points relevant data are stored (Buston, 1997). These nodes are like containers for thinking about the data and for storing the results of asking questions (Bazeley & Richards, 2000). See Appendix 6 for a screen shot of the N6 project used in this study.

An interesting tool of NUD*IST is that there are two types of index systems or nodes. The first system contains all the nodes that have been defined preliminary. These nodes are often concepts that have been identified to be important during the literature review. The second index system of NUD*IST is the ‘free node’ system. Free nodes are created while the researcher is working in NUD*IST and are ideal for storing unconnected ideas (Cannon, 1998; Bazeley & Richard, 2000). In short, a NUD*IST⁸⁵ project incorporates two data systems:

- The Document System gathers all the documentary data, research notes and memos about data and notes.
- The Node System stores all the topics, categories of the project and memos of the researcher’s ideas about these topics and categories. The Node System provides a kind

⁸⁵ QSR International, the provider of NUD*IST offers useful support for researchers. A manual is provided when purchasing the programme and the company has an interesting free tutorial on its Web site www.qsrinternational.com. In addition, questions can be asked to the NUD*IST user group associated with this site.

of ‘container’ in which the qualitative research process of abstracting from data, creating categories or concepts and exploring ideas can be stored.

3.9 The Pilot Study

The pilot study is highly recommended in order to make sure that the instruments are suitable for the sample group in question and to make any necessary alterations and revisions to the study tools before carrying out the main study. Accordingly, the main objective of the pilot study is to identify any possible difficulties and solve them immediately before embarking on the main field work. Rowntree (1981:217) defines the pilot study as “preliminary study undertaken prior to the major task”.

Generally speaking, the advantages of a pilot study are as follows:

- It gives the researcher more confidence in the research instrument(s)
- It reduces the risk of errors and mistakes
- It saves time

Phillips, Bedford, Robinson & Schostak (1994:42) have suggested that the “use of a pilot study is essential, where the draft questionnaire is tested on a small group of the people, who have the same characteristics as the sample group to be used for the main study”. Pilot studies are carried out with fewer participants than would be employed in the main study. Considering that the researcher was expecting to receive around 100 replies over a two-year period, a 5% sample was considered suitable which, equated to around 5 individuals.

3.9.1 Results and Adjustments

The researcher was looking for an understanding on the respondent’s part of the question and this understanding would be evidenced in the replies provided. In other words, could the respondents address the question in such a manner that clear, pertinent and unique answers attributed to their particular experiences could be expressed? One must not forget that this was the only method of data collection being adopted and therefore, it was important that the

replies provided evidence of students' feelings towards particular instances that affected them strongly.

The results indicated that the respondents were capable of understanding the task at hand and offered responses that were unambiguous, pertinent and unique to their own learning experience. However, as with any trial or experiment certain issues arose that needed to be addressed before proceeding with the full study. They were the following:

- The original question, <Figure 13> section 3.6 above proved to be long and cumbersome for the students to go through and they indicated that the points for consideration were many and were confusing at times. As such, the question was rewritten in a manner that was deemed acceptable by the student and is presented below <Figure 14>. A screenshot example can be found in Appendix 1B.

<p>TASK:</p> <p>I would like you to describe, in as much detail as possible, a time during the study of this subject when you felt <u>especially good and/or bad</u> about your studies.</p> <p>Talk about anything you feel is relevant about the event(s) and your feelings at that time, as well as any consequences that ensued.</p> <p>CONSIDERATIONS:</p> <ul style="list-style-type: none">• Consider what happened (the event), how did it happen and how long did it go on for.• Consider how you felt at the time, why you felt like that and how long did the feeling(s) last.• Consider how your feeling(s) affected your studies and how long the effects lasted.• Consider how seriously were your feelings were affected? Indicate which number on the scale below represents how strong you think the good or bad feeling was.
--

<Figure 14> Adapted revised version (English) of Herzberg's question used in research study

The Portuguese version of the question that was made available to the students is presented in <Figure 15>. A screenshot example can be found in Appendix 1B.

TAREFA:

Gostaria que descrevesse, com o maior detalhe possível, um momento durante a frequência desta disciplina em que se tenha sentido particularmente bem e/ou mal a propósito dos seus estudos.

Fale sobre tudo o que considere relevante acerca do(s) evento(s) do que sentiu na altura, bem como sobre quaisquer consequências que daí decorreram.

CONSIDERAÇÕES:

- Considere o que aconteceu (o evento), como aconteceu e por quanto tempo se prolongou.
- Considere como se sentiu na altura, porque se sentiu assim e quanto tempo o(s) sentimento(s) durou/duraram.
- Considere como o(s) seu(s) sentimento(s) afectou/afectaram os seus estudos e por quanto tempo os seus efeitos perduraram.
- Considere quão seriamente foram os seus sentimentos afectados. Indique o número da escala abaixo que representa quão forte o sentimento positivo ou negativo foi.

<Figure 15> Adapted revised version (Portuguese) of Herzberg's question used in research study

- Technical issues: there were some technical issues that arose regarding collection of the data from the questionnaire and presenting it in an eligible format, that is, in a spreadsheet file. There was no real practical solution to this but a keen sense that some technical difficulties may arise.

3.10 Summary

This chapter detailed the methodology and planning process undertaken to develop this enquiry. A discussion regarding the factors influencing the selection of the research method for this study was provided. This chapter also described the piloting phase of the data collection instrument, the data sources, the participant details and the processes followed to collect and plan the treatment and analysis of the data.

The following chapter details, after making the necessary adjustments discussed in this chapter, the main research study undertaken and the results that emerged from the study along with an analyses of the findings.

Chapter 4

Analyses and Results

All science is concerned with the relationship of cause and effect. Each scientific discovery increases man's ability to predict the consequences of his actions and thus his ability to control future events. [Laurence J. Peter]⁸⁶

⁸⁶ Dr. Laurence J. Peter (September 16, 1919 - January 12, 1990) was an educator and "hierarchiologist" best known to the general public for the formulation of the Peter Principle.

4.0 Introduction

The purpose of this study is to explore students' levels of satisfaction or dissatisfaction with the blended learning environment they have experienced while some were studying on a postgraduate course at the Department of Didactics and Educational Technology, the Department of Communication and Arts, and others were studying on a professional course through the *CIFOP*, University of Aveiro, Portugal. The primary purpose was to examine whether through the application of Herzberg's Motivation-Hygiene Theory easily identifiable and important themes that affected student's motivation to learn and perform could be identified. No formal research has been identified that specifically addresses this particular construct that underlies effective b-Learning pedagogy.

This analysis is based on qualitative research conducted over a three year period. The data are derived from an online qualitative questionnaire which was structured around the questionnaire used by Herzberg when carrying out constructive interviews with his sample. In this particular study, the sample involves two distinct cohorts as mentioned in the previous chapter under section 3.4.3; a cohort of students from the Cape Verde archipelago studying on the Masters of Multimedia in Education (MMEdU) programme and students from mainland Portugal studying on the In-service Teacher Education Programme (ITEP) programme at the University of Aveiro in Portugal.

The data was transcribed and then coded. The codes were then placed into categories and the relationship between the categories was explored. A core category was identified which links together a large part of the data. This core category determines how the report is pieced together. Some critics doubt the validity of qualitative research because of the potential for the bias of the researcher or because of concerns about what information is regarded by the researcher as significant. This method uses a rigorous system of analysis which allows the important data to emerge from the accounts of the participants and does not rely on any interpretation on the researcher's part.

As a final point, it should be noted that this study in no shape or form attempts to evaluate the courses or modules in the study and is not proposing a means to do so and the following sections are not representative of this ideology.

4.1 Stages in the analyses

1. Highlight Factors and Issues arising out of stories for each group

The first stage involves an examination of the replies/stories from each distinct cohort in order to discover the issues that affected the students and extract from these issues a list of core factors that encapsulate and are representative of the stories being told.

2. Distinguish between Satisfaction and Dissatisfaction frequency factors

The next stage in the analyses is to distinguish the degree of frequency each of the above factors was mentioned in the learners' stories so as to classify them as being either satisfaction or dissatisfaction related events.

3. Allocate Factors as Motivation and Hygiene

This stage involves the examination of the satisfaction and dissatisfaction frequency factors from each set of students in order to examine the possibility of allocating them as being either Motivation or Hygiene related.

4. Compare and analyse the results from both groups with previous research

This stage will attempt to identify similarities and dissimilarities between the results derived from the previous stage and examine the possibility of formulating a list of motivation and hygiene factors common to both groups, as well as a list of factors that are distinctive of a particular group.

5. Propose a Blended Learning Evaluation Framework

The final stage examines the potential to developing a b-Learning Evaluation Framework that is built upon the factors derived from stage 4 of the analyses.

4.2 Demographics of Participants

Before focusing on the results of the study, it is only right that the reader has some idea of who were the actual participants in the study. As such, what follows is a brief outline of some quantitative results concerning the sample involved.

- As presented in <Table 7>, a total of 18 students were registered on the MMEdu course and a total of 16 responded to the questionnaire that is, 16 offered a reply to the principal question. This equates to an 89% response rate from the sample.

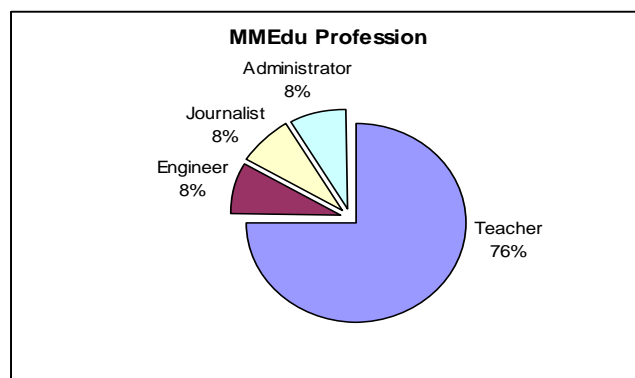
<Table 7> Breakdown of response rate

Cohort	Total registered	Total responses	Percentage
MMEdu	18	16	89%
ITEP	32	28	87.5%

Regarding the ITEP cohort, some 32 were registered and a total of 28 responded to the questionnaire equating to an 87.5% response rate for the sample.

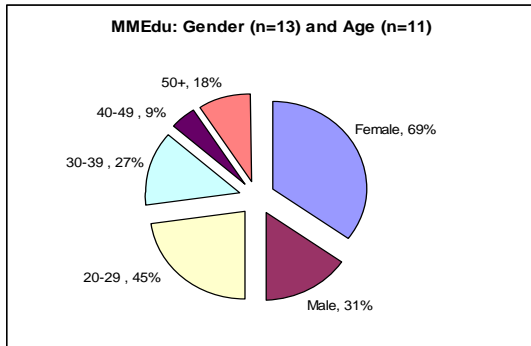
It is important to point out that not all respondents provided answers to all the requested demographic information and as such, the following results equate only to those who were willing to respond to the questions posed and the percentage breakdown is based on the total responses to a particular question rather than to the overall total of respondents.

- All the respondents on the MMEdu course were Cape-Verdean while those on the ITEP course were all Portuguese with the exception of one Brazilian.
- All the ITEP students were practising teachers within primary and secondary education.
- Practically the entire MMEdu sample constituted practising teachers with a few exceptions. See <Figure 16> for the breakdown.

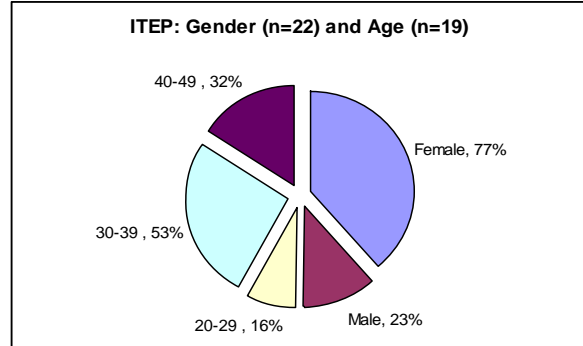


<Figure 16> Professional range of MMEdu sample

- Of those MMEdU students who were willing to reply to the gender and age enquiries sixty-nine percent (69%) were female < Figure 17>. As many of the students were involved in primary and secondary school teaching this might justify the swing towards the female population. Almost half 45% were between the ages of 20-29 with a further 27% between the ages of 30-39.



<Figure 17> Gender and Age of MMEdU sample



<Figure 18> Gender and Age of ITEP sample

- Of those ITEP students who were willing to reply to the gender and age enquiries seventy-seven (77%) percent were female <Figure 18>. A total of 53% were between the ages of 30-39 with 32% falling into the 40-49 age range.

4.3 STAGE 1: Factors and Issues arising out of Stories

Before continuing, it is worthwhile to mention again briefly the process carried out by Herzberg (1966) so that we can associate with his research and also be able to associate with divergences that exist between this process and his own.

Herzberg asked respondents to talk about events that they remembered that had affected them strongly within their working environment. He would then pursue the main reasons for these feelings and classify them according to the level in which they had affected the respondents, that is, how long these feelings lasted within the respondents and what was the result of these feelings. The longer the feeling, the more “motivational” it would be, the shorter to more “hygienic”.

Herzberg (1966) refers to intrinsic factors as satisfiers and to extrinsic factors as dissatisfiers (Kacel, Miller, & Norris, 2005). He notes that dissatisfiers are concerned with the environment in which individuals work. He further characterises dissatisfiers as “having little effect on positive job attitudes and having more effect on the prevention of job dissatisfaction” (Herzberg, 1966:74). Conversely, Herzberg points out that satisfiers are concerned less with the external work environment and more with the relationship man has with his actual job. Specifically, Herzberg theorises that unlike dissatisfiers, satisfiers do not simply prevent dissatisfaction but are capable of increasing satisfaction by causing an increase in man’s internal drive or motivation.

So, for example, if one mentioned that they felt very good when their line manager would compliment them on their performance and this encouraged them to work and enjoy their work for longer periods then Herzberg would regard this “recognition” factor as one that enriched the person’s job and therefore, being that of a motivational purpose. On the other hand, a respondent might have mentioned that they were happy when they received a new chair and desk but this feeling of happiness was short-lived and didn’t really affect their attitude or performance to a great extent. In this case, Herzberg would classify this “work condition” factor as one which did not enrich the person’s job but without it would create a feeling of dissatisfaction and one that would be regarded as hygiene related. In short, motivational factors concerned the job at hand while hygiene factors were concerned with the environment in which the individual works.

Concerning this research case, students were asked to mention events that had affected them while studying on the course and were asked to elaborate on the extent of their feelings and over what period of time were these feelings affected. In contrast to Herzberg who examined events that affected employees’ feelings within their working environment, this research examined events that affected students’ feelings within their study environment.

The first stage involved reading through all the stories or events students wished to mention regardless of whether they were positive or negative and to locate key identifiable events from the stories. In some cases students mentioned only one event while others mention more when telling their stories. A total of eighty-five (85) events were extracted from the responses, thirty-seven (37) related to the MMEdu group and forty-five (45) to the ITEP group. See

Appendix 4A and 5A for the original full replies provided by each group in Portuguese and Appendix 4B and 5B for a list of the full replies translated into English.

Once key events were identified it was then necessary to identify what theme or factor was involved in each event so that a list of common factors could be drawn up. These factors are discussed further in sections 4.3.1 and 4.3.2 below. As the students, in the majority of cases, clearly specified the issue or issues at hand and the effects of their changed attitudes, it was not so cumbersome to allocate them to specific factors. The principal factors and a summary of the related issues identified by each of the groups are presented, in alphabetical order, in <Table 8> and <Table 9> respectively.

4.3.1 MMEdu Factors and Issues

A total of nine (9) core factors were identifiable from the varying stories mentioned by the MMEdu students and these are presented in tabular format in <Table 8> along with a summary of the issues involved with each factor. It is important to point out that these factors were mentioned by some students as having both a positive and negative effect on them while others identified the effect as being either one or the other.

Exemplar comments relating to each of the factors and related issues will be presented in Stage 2 of the analyses in order to identify the clarity with which learners expressed themselves and also to support the overarching aims of this study. The majority of the comments focused on particular modules or periods within a course while some responses were dedicated to the whole course. These factors are explored further in Stage 2 of the analyses.

Some factors received greater mentioning than others, that is, many events or stories were associated with a multiplicity of factors some as primary and others as secondary factors which highlights their importance to the students, as well as providing greater emphasis on their importance as being either that of a motivator or hygiene factor which is discussed further in Stage 3 below.

<Table 8> Summary of factors and related issues identified by MMEdu students

No.	FACTORS (variables)	ISSUES (ingredients)
1	ACHIEVEMENT	Students feeling they had achieved a major milestone after completing a module or assignment regardless of the level of achievement.
2	ASSESSMENT	Concerns the type of assessment, as well as the amount of assessments and timeframe allowed to complete assessments.
3	COURSE CONTENT and STRUCTURE	Primarily covers comments regarding the overall content and delivery of the course.
4	EXTERNAL FACTORS	Relates to family, friendships, health and social issues/commitments.
5	INDUCTION	Referred to the f2f sessions that were used to present each module, that is, induction week.
6	STUDENT PROFESSIONAL DEVELOPMENT (SPD)	Students feeling that their studies either contributed or not to their professional development.
7	TEAMWORK	Involved types of group work and reliability and commitment of group members.
8	TECHNOLOGY	This dealt with skills issues such as students not being aware of the skills required or feeling they were not being prepared sufficiently to deal with the module
9	WORKLOAD	Refers to the quantity of work involved in the course under the constraints and parameters allowed.

4.3.2 ITEP Factors and Issues

A total of eleven (11) factors were highlighted in the ITEP stories <Table 9>. The factors mentioned by the ITEP group incorporate the twelve mentioned by the MMEdu group plus an added two categories and the issues regarding those factors differ in certain cases. As with the MMEdu group, factors were mentioned by some students as having both a positive and negative effect on them while others identified the effect as being either one or the other. All of the comments relate to the module offered in the blended format.

<Table 9> Summary of factors and related issues identified by ITEP students

No.	FACTORS (variables)	ISSUES (ingredients)
1	ACHIEVEMENT	The final grade is what matters.
2	ASSESSMENT	Concerns the lack of tutor participation in an e-assessment process; the inequality of some processes and the timing of assessments.
3	COURSE CONTENT and DELIVERY	Primarily deals with the inflexibility to deal with students who miss out on the f2f sessions.
4	EXTERNAL FACTORS	Relates to family, friendships, health and social issues/commitments.
5	FEEDBACK AND SUPPORT	Regarding level, quality and timeliness of teacher support and feedback.
6	INDUCTION	Referred to the f2f sessions that were used to present each module, that is, induction week.
7	PARTIALITY	This refers to events that concerned the possible existence of favouritism or preferential treatment.
8	STUDENT PROFESSIONAL DEVELOPMENT (SPD)	Students feeling that their studies either contributed or not to their professional development.
9	TEAMWORK	Involved types of group work and reliability and commitment of group members.
10	TECHNOLOGY	This dealt with skills issues such as students not being aware of the skills required or feeling they were not being prepared sufficiently to deal with the module.
11	WORKLOAD	Refers to the quantity of work involved in the course under the constraints and parameters allowed.

Exemplar comments relating to each of the factors and related issues will be presented in Stage 2 of the analyses in order to identify the clarity with which learners expressed themselves and also to support the overarching aims of this study. Also, as with the MMEdu group, some factors received greater mentioning than others, that is, many events or stories were associated with a multiplicity of factors some as primary and others as secondary factors which highlights their importance to the students, as well as providing greater emphasis on their importance as being either that of a motivator or hygiene factor which is discussed further in Stage 3 below.

4.3.3 Summary

This section has presented the first stage involved in analysing the given data. Both sets of students' replies to the questionnaire were collected and coded. As a result, a pattern of prominent factors arose out of the stories/events related by the students and these were presented in <Table 8> for MMEdu and <Table 9> for ITEP group respectively. The next stage is to take the set of factors and attempt to classify them as either satisfiers or dissatisfiers. This process is explored in the following section.

4.4 STAGE 2: Satisfaction and Dissatisfaction Frequency Factors

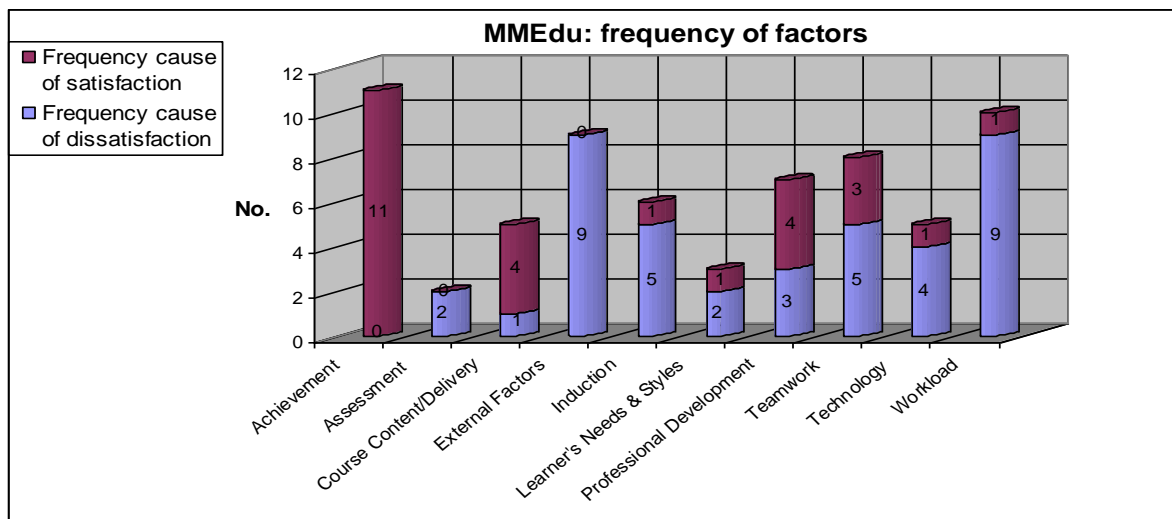
The next stage in the analyses is to measure the degree of frequency each of the above factors occurred in the respondents' stories so as to classify them as either satisfaction or dissatisfaction frequency-related events.

Herzberg (1959) when analysing the content of his respondents' stories separated them into what he described as first-level factors and second-level factors. First-level factors refer to those stories in which the teller was clearly able to identify the source of their feelings. In the case of this study, those key themes or factors identified in stage one above would equate to the same group. Based on the replies offered by the respondents in this study and evidenced in the following sections it was clearly identified by the respondents what in their opinions were the causes of their feelings and in most cases, the respondents freely mentioned the effects it had on them in concrete terms. See Appendices 4A/5A and 4B/5B for the full replies in Portuguese and English respectively. Second-level factors came from the respondents reply to a particular question he put to them, "What did these events mean to you?" This question was not put to the respondents in this study. However, to accommodate this ideology and to further analyse and code the replies, the researcher examined the responses in greater detail to identify linkages between the respondent's stories and other factors which could be classified as being second-level in nature, that is, not directly associated with the key feelings experienced by the learner but as a consequence of the event are identifiable as factors that arise indirectly out of the stories. By adopting this approach, it highlights through the discovery of primary and secondary levels the factors that are regularly embedded into the stories or events being relayed by the learners and will assist in classifying these factors with regard to their importance.

The resulting frequency of each factor associated with each group (MMEdU and ITEP) is discussed briefly in the following sections. Each group is discussed separately under the factors that were identified by each group and discussed previously in Sections 4.3.1 and 4.3.2 respectively. The factors are presented in order of greatest amounts of “hits” per factor, that is, how often identifiable events both primary and secondary were related to a particular factor.

4.4.1 MMEdU: Frequency of Factors

In total, one hundred and thirty-five (135) primary and secondary events were extracted from all the respondents (MMEdU + ITEP) with many supplying multiple factors. A total of sixty-three (63) events were extracted from the MMEdU group. <Figure 19> represents a breakdown of the amount of satisfied and dissatisfied events associated with each factor.



<Figure 19> MMEdU: The level of frequency of factors mentioned by students

The darker columns represent the amount of times students mentioned stories which left them feeling satisfied with their experience and the lighter columns represent stories that left the students feeling dissatisfied.

As can be seen, many of the factors have received mentioning in both sectors, that is, they made some students feel satisfied while others felt dissatisfied with the factor. Also, some have received mentioning in only one sector implying that the majority of those students who

mentioned the factor in their stories all experienced a similar feeling which implies that they either felt really satisfied or really dissatisfied with what they experienced. A brief discussion of each factor with original examples in Portuguese follows. An English translated version of these examples can be located in Appendices 4B and 5B for the MMEdu and ITEP groups respectively.

4.4.1.1 Achievement (11 events) - 0 dissatisfied/11 satisfied

All the events regarding or associated with the sense of achievement were positive in nature. As with all courses, the beginning seems a little confusing but perseverance can produce positive returns and a real sense of achievement.

Para dizer a verdade primeiro dia fiquei um pouco aerie porque parecia ser tudo muito tecnico e ainda mais porque tratava de uma area em que eu me encontra um pouco distante. Mas começando o trabalho com tada a gara comecei a acompanhar muito bem. Já as coisas começaram a ir muito bem. ainda mais foi importante para mim fazer.
[MM09]

Even when students were aggrieved with the amount of work involved in the course, the sense of achievement and reward on having successfully completed a semester was sufficient to encourage them to continue and be successful in the next semester.

Sinceramente, se voltar a ter tanto trabalho como este semestre, penso que reagiria exactamente da mesma forma e conseguiria vencer mais um ano, como o fiz... [MM13]

Admitting that they felt very anxious and nervous throughout the course, students still look back with relative satisfaction.

“Houve muita ansiedade, nervosismo à mistura, mas agora, olhando para trás senti-me relativamente satisfeita.” [MM15]

4.4.1.2 Workload (10 events) - 9 dissatisfied/1 satisfied

The majority of the stories regarding workload were of a dissatisfactory nature. Students reflected on the level of workload expected of them.

“...no entanto a sobrecarga das tarefas constitui um dos aspectos que marcou pela negativa”. [MM06]

“Na minha opinião esta disciplina, bem como todo o curso é bastante trabalhosa, isso acaba por me afectar como é óbvio.” [MM13]

The practical or hands-on element of the course seemed to create a degree of frustration among the students.

“Eu actualmente sinto-me frustrada, porque na parte prática tivemos imenso trabalho, aliás foi a disciplina que mais trabalho nos deu...” [MM14]

The quantity of work that was necessary to be carried out did not allow them time to fully dedicate themselves in a manner they would have wished.

“As disciplinas, inicialmente, foram um pouco exigentes, pois não tinha o tempo que desejava para poder “dedicar-me de corpo inteiro.” [MM15]

The workload played a part in disrupting personal and professional lives and left students feeling annoyed and anxious.

“Os trabalhos que nos foram pedidos requereram muito tempo e em conjunto com outras disciplinas tirou-nos tempo para conseguirmos viver a nossa vida, pessoalmente sobra-me pouco tempo para além das aulas, dos trabalhos, do estudo, isso acaba por criar uma certa revolta...” [MM13]

The amount of workload also raised health issues.

“Por causa da sobrecarga de trabalho e da necessidade de fixar os olhos durante muito tempo no ecrã do computador tive uma tensão ocular que me perturba até hoje.” [MM19]

4.4.1.3 External Factors (9 events) – 9 dissatisfied/0 satisfied

External factors relate to events associated with the environment that surrounded the learners' studies and were not directly related to the course or module. However, the resulting effects of these external factors were conducive, be that positive or negative in nature, to the overall performance and attitude of the learners. In this study all mentioning of “External factors” was of a negative nature, some examples of which are provided below.

Health issues were raised.

“Mas já estava tão atrasada que fiquei doente. Fui ao médico, vinte dias de coalescência.” [MM04]

Professional commitments were not compatible with the requirements of the course/module.

“Sentimentos de frustraço por nao poder estar sempre presente apesar de estar num computador ligado.” [MM03]

The course consumed their personal lives to such an extent that they could not switch off and relax and the long hours affected their personal relationships.

“E, quando estávamos com familiares ou amigos, só falávamos do curso. A tal ponto que meu marido chegou a perguntar se eu não tinha outro assunto com que conversar.” Entretanto devo reassaltar que a minha relação familiar, e com outras pessoas teve que ser sacrificada muitas vezes, pois muitas vezes trabalha até madrugada.” [MM09]

“Sem dúvida que a família ficou de alguma forma afectada, pois poucos foram os momentos em que lhe dediquei verdadeira atenção, o que, quando existem filhos pequenos, é complicado gerir.” [MM10]

We cannot exclude “External Issues” as not being within the realm of the learning and teaching environment and out of the domain of the course providers. In a b-Learning environment where the majority of delivery is offered online providers are taking “traditional classroom” time and disseminating it within the learner’s own timeframe which involves both personal and professional commitments.

If the external factors were deemed to be affecting the students’ feelings towards their course or modules then it could be argued that it is an issue for students to deal with and outside the remit of the institution. However, as it is the learning environment and related issues that are affecting the student’s external origins and the knock-on effect is for students to find it difficult to cope with their studies, then external factors need to be seriously considered as a factor that plays a significant role in the overall performance of the learner.

4.4.1.4 Teamwork (8 events) - 5 dissatisfied/3 satisfied

The satisfied learners found the group work to be worthwhile and important for them.

“O momento que marcou positivamente, foi fazer parte da "equipa" de montagem de um centro de recurso.” [MM06]

The camaraderie that was created among team members was mentioned and how it helped to make the tasks easier to carry out.

“Com o melhor conhecimento do pessoal no grupo e da turma as coisas estão se tornando um pouco mais simples.” [MM03]

From a negative perspective some found it difficult to work in groups and getting the group together either physically or virtually was not easy which naturally affected the outcome of their projects.

“O trabalho final foi o golpe da misericórdia. Pois, o meu grupo nunca conseguia reunir.” [MM04]

In some cases, the work required a great deal of commitment and effort as most groups could only meet either virtually or physically during the evenings and weekends.

“Ao logo do curso no decorrer dos trabalhos práticos, tenbo que fazer esforços extras porque não é possível encontrar com o grupo durante o dia.” [MM19]

Understanding what is meant to work in a group and the fact there are always “laggards” who will do as little as possible when allowed to do so does not help any form of assessed group work.

“O facto de termos de trabalhar em grupo, por vezes dificultou um pouco algumas tarefas, pois houve alturas que estavam apenas duas pessoas a trabalhar para o ‘todo’.” [MM15]

Groups are formed with individuals from various sections of the community and at times different countries. Sometimes groups are better structured than others with regard to the skills and experiences of the members.

“Olhar em volta e ver outros grupos mais conhecedores e mais adiantados que nós, contribuiu, também, para esta sensação de frustração.” [MM10]

As commented by the course leader, the Cape Verde cohort were a particular unique group as the students were scattered across various islands within the archipelago which made it difficult for the groups to meet in one location. Also, the quality of the communication network links was not of the best standards with many cut offs being experienced by the students particularly when the service provider had not been paid on time by the government agency responsible for the course in Cape Verde.

4.4.1.5 Student Professional Development (7 events) - 3 dissatisfied/4 satisfied

There was an expectation that the module was reflective of their working practice.

“Eu senti-me mal no 1º dia de aula quando deparei com aquele conteúdo que não parecia ter nenhuma relação com a disciplina que eu lecciono.” [MM07]

However, others did feel that the subject matter would be beneficial to their working environment.

“Quanto a disciplina gostei bastante e os conteúdos que estudei veio enriquecer/aumentar o meu background.” [MM09]

Although the practical side of the course was considered by some to be relevant to their professional development, the theoretical support was regarded in some cases as irrelevant, as this student indicates.

“Em relação à parte prática da disciplina acho que esteve muito bem estruturada e nos ajudou a desenvolver projectos que se adequam à nossa futura profissão, o que me deixou muito bem. Quanto à parte teórica, acho que nada me irá ajudar quanto à minha futura profissão uma vez que apenas se centra em aspectos muito teóricos.” [MM11]

As can be seen from the above examples professional learners expect to study themes that are beneficial to their working environment and that will compliment that work and their own professional development. Most professionals will begin postgraduate studies because there is an expectation by their employers to attain a particular qualification within their working practice so that they may progress in their careers. Or there may be a new change in legislation that involves the realignment of professional qualifications with career changes, promotions and responsibilities.

4.4.1.6 Induction (6 events) - 5 dissatisfied/1 satisfied

The induction or orientation period plays a fundamental role in any new course and module and many advocate it as the most important element of any course and a thorough process of induction is important in safeguarding the interests of the learners. Induction is important for

both the institution and the learners as it can help in ensuring that the course or module is appropriate to the needs of the learner (Chyung, 2002; UK WEA⁸⁷, 2006).

Five out of six students mentioned the induction period as playing a negative part in their preparation of a module. The induction period seemed problematic for key reasons: not preparing the student sufficiently for the module or being too intensive and fast.

*“Importa também destacar que se antes de iniciar o curso a sua lógica fosse apresentada, não me acharia capaz de fazer o percurso que fizemos, sobretudo em se tratando de uma área de todo nova para nós. Todo a parte inicial da disciplina, presencial, foi muito complicada, excessivamente teórica e num ritmo muito intenso. Senti-me durante, muito tempo, a leste do que se passava, **não acreditando que seria capaz de finalizar a disciplina com um resultado positivo.**” [MM09]*

The induction period left some feeling annoyed and lost.

“Gostaria de destacar, ainda, que ao meu ver, esta ansiedade se deve ao facto do arranque presencial ser muito curto, o que nos coloca em uma situação de garrafa de espumante. Somos agitados e ficamos sob uma pressão absoluta, sem tempo suficiente para colocar o conteúdo para fora.” [MM09]

Missing out on the induction period or a part of it can leave a student feeling alone and distant.

“Cheguei atrasada para a primeira sessão e por isso foi de muito angústia. Eu parecia um extraterrestre. Não entendia nada e perguntava: meu Deus o que estou a fazer neste lugar.” [MM04]

Gaining the confidence and security necessary to be successful on a module at times was only achieved upon completion of the module and not at the beginning.

“Se voltasse a repetir um trabalho deste género, penso que reagiria de forma diferente. Sinto-me agora mais confiante, segura e conhecedora da dinâmica deste tipo de projectos.” [MM10]

However, even though the beginning may not go so well, in some it set the stage for them to react on a positive and determined fashion.

“Para dizer a verdade primeiro dia fiquei um pouco arreia...Mas começando o trabalho com toda a garra comecei a acompanhar muito bem.” [MM09]

⁸⁷ The Workers' Educational Association (WEA) Learner Induction Policy which is available online at <http://www.wea.org.uk/policies/pdf/Learner%20induction.pdf> [Accessed 03-January-2010].

4.4.1.7 Technology (5 events) - 4 dissatisfied/1 satisfied

Technical issues affected group work in different ways. In some instances, students felt they lacked the skills required to work with the technology.

“Domino pouco a informática e ter que desenvolver um projecto nesta área preocupou-me. Houve alturas em que me senti muito angustiada, muito cansada, triste até.” [MM10]

This inequality of technical abilities, as well as the differing levels of knowledge concerning the subject matter impeded some students from performing to their true potentials.

“Certamente se a disciplina começaria agora tudo teria tido outra postura e seria diferente porque já tenho mínima experiência na área e iniciaria numa situação de igualdade com todos os colegas não como aconteceu.” [MM10]

However, the importance of the technology in the future of teaching practice was recognised.

“A disciplina de tecnologia educativa ajudou-me a perceber um pouco mais sobre esta area, endo em conta que algumas tecnologias serao necessarias para algumas actividades na minha futura profissao”. [MM12]

As mentioned previously in section 4.4.1.4 Teamwork, due to the disparity of the islands among the archipelago and the reduced level of technological availability among the islands, it is clear that many different levels of skills and abilities would be brought to the course which would make the educational journey more arduous and challenging for some.

4.4.1.8 Course Content and Delivery (5 events) - 1 dissatisfied/4 satisfied

As discussed in section 2.5.2, Graham (2005) highlights three categories of b-Learning systems: Enabling blends; Enhancing blends and Transforming blends, the latter of the trio as the one considered to be the more representative of the model delivered on the MMEdu. Transforming blends are blends that allow learners to actively construct knowledge through dynamic interactions and are difficult to perform without the use of interactive technology.

The majority of the events related to student satisfaction with the overall content and delivery of the course or module.

“Quanto as disciplinas gostei bastante e os conteúdos que estudei veio enriquecer/ aumentar o meu background.” [MM09]

Learners were appreciative of the usefulness of their courses to modern day society.

“Verifiquei que aprendi muita coisa útil, e verifiquei que é muito importante para o ensino, principalmente nesta época em que vivemos.” [MM07]

The benefits of the practical elements of the course to their profession were highlighted.

*“Em relação à parte prática da disciplina acho que esteve muito **bem estruturada** e nos ajudou a desenvolver projectos que se adequam à nossa futura profissão.” [MM11]*

While the theoretical element was at times found to be of little benefit.

“Quanto à parte teórica, os conteúdos são de fácil retenção e entende-se bem, apesar de haver alguns que considero que não nos são muito úteis.” [MM14]

The structure of the course may not have been suitable for some working professionals.

“O facto de o curso ser muito intensivo, principalmente para as pessoas que trabalham o dia inteiro...” [MM15]

Relationships with families were affected by the amount of work involved in various tasks.

“Nesse dia, e na véspera, as exigências da tarefa fizeram-nos deixar a família de lado.” [MM09]

The period between practical assignments and projects and preparing for final exams affected some students.

“Outro aspecto tem a ver com o curto espaço de tempo que medeia entre o fim dos trabalhos práticos e os exames que proporcionam muito stress e me impede de pregar os olhos durante esse período.” [MM19]

“Fortam alturas de muita pressão para conseguir cumprir os trabalhos nas datas exigidas, de acordo com os parâmetros exigidos.” [MM15]

On the whole it would seem that learners were happy with the overall content and delivery methods of the modules. Most of the dissatisfaction was directed towards the theoretical elements of the modules as some found that they were either at times too easy and not challenging enough, not relevant to the course or to their professional development and not employment related. No issues were raised concerning the presentation of the modules through the VLE or the lack of sufficient resources or materials.

4.4.1.9 Assessment (2 events) - 2 dissatisfied/0 satisfied

Two events were associated with the assessment process. One commented on the exam process and in particular the length of time or the lack of time involved in the process.

“Outro aspecto tem a ver com o curto espaço de tempo que medeia entre o fim dos trabalhos práticos e os exames que proporcionam muito stress e me impede de pregar os olhos durante esse período.” [MM19]

The constraints associated with the assessment process left them feeling very stressed at times.

“Furtam alturas de muita pressão para conseguir cumprir os trabalhos nas datas exigidas, de acordo com os parâmetros exigidos...” [MM15]

Some were disappointed with their grade and expected something better considering the amount of work they had put into a module.

“Eu actualmente sinto-me frustrada, porque na parte prática tivemos imenso trabalho, aliás foi a disciplina que mais trabalho nos deu, pois era responder a fóruns, fazer trabalhos... e sinto que este não foi reconhecido, devido à nota com que terminei a parte prática.” [MM14]

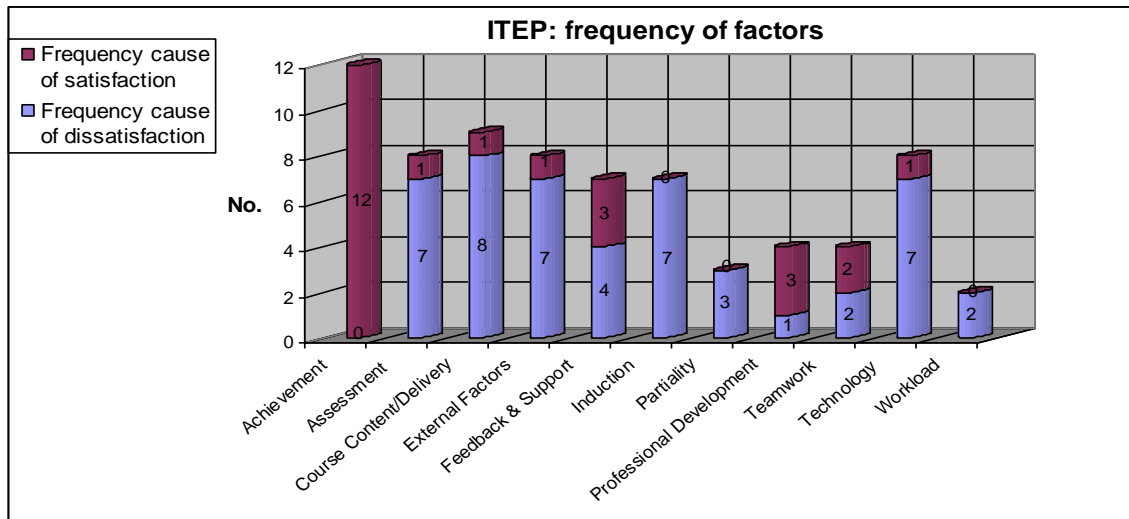
The collaborative projects were regarded as interesting and rewarding, even when it was felt that the work was demanding.

“Ainda mais foi importante para mim fazer o trabalho prático que o meu grupo realizou. Por outro lado foi muito trabalho, mais no fim senti compensada. Os trabalhos colaborativos; estes foram interessantes.” [MM09]

Although any assessment criteria is fundamental in any course or module, judging by the few comments put forward would indicate that on this module and with this cohort the assessment processes did not attract too much attention.

4.4.2 ITEP: Frequency of Factors

Of the total one hundred and thirty-five (135) primary and secondary events identified for both groups, seventy-two (72) were extracted from the ITEP group. <Figure 20> represents a breakdown of the amount of satisfied and dissatisfied events associated with each factor. A brief discussion of each factor with original examples in Portuguese follows and is presented in order of the greater total amount of events per factor.



<Figure 20> ITEP: The level of frequency of factors mentioned by students

4.4.2.1 Achievement (12 events) – 0 dissatisfied/12 satisfied

A high percentage experienced a sense of achievement at having completed a module, that is, once the assessments had been completed and many felt that they had achieved a lot on the course and that their sacrifice and commitment was worth it.

“Mas mesmo assim, consegui separar estes sentimentos da minha "batalha académica" e nunca esqueci nem por um minuto que seja o meu compromisso académico. Esta situação despertou em mim a vontade de aprofundar cada vez mais nesta questão e fazer com que essa disciplina torne ainda mais interessante para a minha carreira futura.” [PROF056]

“O que aconteceu comigo contribuiu para um maior interesse pela disciplina. O sentimento de medo, de impotência, deu lugar ao sentimento de dever cumprido, uma vontade de continuar, enfim uma grande satisfação.” [PROF033]

Achievement is primarily associated with the student’s mindset and can be associated with the introductory period of the course. Many students felt that this period was a contributory factor in their performances and achievements on the course and many felt that if they had had a better understanding of what was expected of them, they would have achieved better results.

“No início senti-me um pouco perdida e até frustrada pois nem eu nem o meu grupo de trabalho conseguíamos entender o que é que era pretendido de nós, mas a partir do momento em que se fez luz nas nossas ideias foi um trabalho muito interessante de se desenvolver e foi pena não termos podido aproveitar mais e melhor esta oportunidade de trabalho. O que não começou muito bem acabou por se revelar muito bom.” [PROF069]

However, it might be construed that this level of achievement was more of a sense of relief at having got through rather than a sense of accomplishment. Students' achievements and accomplishments need to be goal-driven as apposed to being fear-driven. They need to feel that they are achieving their own goals and not being forced through fear of failure to accomplish a pre-set system of assessment.

Grades also play a part in the learner's sense of achievement and satisfaction.

"Nesta disciplina os sentimentos foram muitos e foram mudando ao logo das sessões. Espero que a nota final deixe algum sentimento de satisfação." [PROF088]

4.4.2.2 Course Content and Delivery (9 events) – 8 dissatisfied/1 satisfied

The inflexibility of the module to deal with students who missed the initial f2f session was identified.

"Essa perda [da primeira sessão presencial] veio a ter repercussões no meu exame final." [PROF19]

Even when at the beginning learners were slow to comprehend that which was expected of them, they gradually began coming to terms with the course and to enjoy it immensely.

"Pouco e pouco consegui acompanhar aquilo que o professor foi propondo e acabei por achar muito interessante o trabalho que estava a desenvolver." [PROF016]

Others found the module interesting particularly the necessity to access the course VLE on a daily basis.

"Devo dizer que a disciplina foi muito interessante, sobretudo pela estratégia adoptada pelo professor que obriga o aluno a aprticipar diariamenteno BB [VLE]". [PROF019]

Although, the same learner does highlight the inconvenience of such an activity and the pressures it places on professional commitments.

"Mas torna muito cansativo devido a outros compromissos profissionais." [PROF019]

For one learner it was important to voice that the importance of ICT was made very clear in the module.

"Percebi, definitivamente que nao podemos virar as costas as TIC." [PROF018]

4.4.2.3 Assessment (8 events) – 7 dissatisfied/1 satisfied

A feeling of unfairness in tutor f2f support was highlighted.

“Apercebi-me de que, nas aulas práticas, o docente dava mais atenção ao trabalho de um grupo do que aos dos outros. Na altura, senti que não era uma atitude correcta, mas tentei prosseguir o meu trabalho. Uma vez que a finalidade da disciplina era desenvolver um rojecto e posteriormente obter uma classificação, pensei que se tratava de uma situação que poderia trazer alguma injustiça, porque desse modo as condições não eram iguais para todos.” [PROF072]

It was felt that certain methods of formative assessment were applied in a disproportionate manner among the students.

“Outro aspecto que considero negativo, apesar de os professores terem aberto o “jogo” desde início, foi a avaliação desigual entre alunos. Não considero que tenha sido correcto.....Julgo que seria mais pedagógica uma forma de avaliação igual para todos.” [PROF023]

Some felt disadvantaged by the type of assessment they were obliged to take.

“Um evento que me marcou consideravelmente foi o facto de eu ir ser avaliado numa disciplina (name of module) em que um dos parâmetros seria, ou melhor será, ou ainda, é, a minha participação num Fórum em que todos os meus colegas (e mesmo eu que sou de informática) não tenham experiência, e alguns nem computador.” [PROF088]

The array and amount of assessments were surprising.

“... fiquei surpreendido como é que iria ser avaliado por um teste, um trabalho, um Fórum e um relatório final.” [PROF088]

It was felt that due to a lack of teacher participation in the forum, which was part of their formative assessment, their grades were affected.

“Decorridos alguns dias vim a descobrir que mesmo o professor não respondia a questões no fórum. É pena pois teria muito boa nota neste conteúdo.” [PROF088]

It was mentioned that many of the students were teaching professionals and that their own student's assessment periods within their own schools occurred at similar times to when they had to produce their own assignments and sit their own exams.

“Acho que em termos de profissionalização a estrutura deveria ser diferente relativamente ao número de disciplinas. Talvez no primeiro semestre termos três disciplinas e agora no segundo as duas que tivemos ao princípio em virtude de agora os trabalhos e testes coincidirem com os momentos de avaliação nas escolas.” [PROF085]

Some felt that more time would have helped them achieve a better result.

“O que julguei mais difícil neste exame foi a falta de tempo. Se tivesse mais tempo, daria para reflectir com mais calma de modo a tornar as minhas respostas melhor estruturadas.” [PROF009]

However, one at least did highlight enjoyment at receiving a good mark.

“Os acontecimentos que me animaram e me incentivaram a continuar e com mais vontade foram os resultados que fui obtendo.” [PROF034]

4.4.2.4 External Factors (8 events) – 7 dissatisfied/1 satisfied

Similar to the MMEdU group, it was difficult to find time for all their other commitments, professional and personal.

“Durante a frequência houve muito stress, apesar do trabalho era interessante. Não houve o tempo para quase nada incluíse os compromissos ligado a a nossa profissão. atenção aos filhos e a família em geral teve que ser ajeita para não dizer sacrificada” [PROF056]

“Em termos pessoais, a frequência desta disciplina (e das outras do curso de profissionalização em serviço) afectou a minha vida pessoal.” [PROF081]

However, one decided not to allow the course to affect family commitments

“A tensão aumentava e tornava-me mais facilmente irritável. Tentei não alterar hábitos e rotinas familiares de forma a que a família não fosse afectada.” [PROF034]

Having to participate in the forum on a daily bases created a degree of anxiety.

“Estratégia adoptada pelo professor que obriga o aluno a participar diariamente no BB [VLE Blackboard], mas torna muito cansativo devido a outros compromissos profissionais.” [PROF19]

The potential risk to ones health and the effect the stress of the course had on students was evident.

“Só que para quem não teve nenhuma equivalência e estabeleceu uma fasquia elevada isso custou bastante: o stress, a perda de uns quilinhos, a falta de convivência familiar, foi preciso um grande esforço. A título de exemplo posso referir que há semanas que não durmo mais de 4 horas.” [PROF031]

4.4.2.5 Technology (8 events) – 7 dissatisfied/1 satisfied

The Technology factor in this study refers primarily to the technological skill required to perform aptly and productively on the course. All of the events were related to issues that dissatisfied learners and the majority referred to their inability to cope with the level of skill that was required or then the noticeable difference in the skill levels among participating learners.

“O processo de construção do projecto começou a ficar "empacado" e as estratégias de comunicação propostas para utilização não funcionaram (quer intra-grupo, quer inter-turma). Creio que isto se deve ao facto de os diferentes elementos que compunham o grupo/turma terem diferentes conhecimentos a nível das TIC (o que dificultou a utilização do blackboard, como via de comunicação).” [PROF081]

Direct individual problems with the online tools used were clearly evident and caused a certain degree of frustration.

“A situação que mais me deixou "irritada" foi a dificuldade em inserir dados no didaktos, dificuldades de os gravar e uma constante perda de tempo em casa para tentar fazer algo que aparentemente seria simples.” [PROF041]

It also affected student’s commitment towards dialoguing with their tutors as this new mode of communication felt alien to them.

“Em muitos momentos poderíamos ter recorrido ao Professor-via mail. Fizemo-lo algumas vezes, não as suficientes. Já tarde, nos fomos familiarizando com este novo método de trabalho. Reconheço interesse e uma mais valia neste tipo de comunicação, mas pode dever-se à minha formação profissional e ao hábito diário de comunicar on-line... são coisas que não se ganham de um dia para o outro.” [PROF018]

Not only does the problem relate to the ability of students to use learning technologies but also the fact that students possess different levels of skills and knowledge and this can be disruptive particularly during the group work stage.

“O processo de construção do projecto começou a ficar “empacado”... Creio que isto se deve ao facto de os diferentes elementos que compunham o grupo/turma terem diferentes conhecimentos a nível das TIC (o que dificultou a utilização do blackboard, como via de comunicação).” [PROF081]

The technical terminology was, for some, like the learning of a new language.

“Ouvia e não percebia: tanto estrangeirismo, neologismo, numa linguagem técnica encapuçada e estetizada...” [PROF027]

Sometimes the problem had to do with the resources at home and their capacity to function when required.

“Provavelmente o que aconteceu voltaria a repetir-se uma vez que não houve alteração do operador que me fornece a ligação à net.” [PROF041]

As technology played a fundamental part on the course, it was felt that students were not motivated or encouraged enough to apply ICT tools to their fullest.

“Julgo que esta disciplina deveria permitir e motivar os alunos para a utilização das TIC, mas o que senti é que quem já estava habituado a usar, assim continuo e quem não tinha o hábito, também não ganhou. Se me permitem, julgo que será importante redefinirem-se estratégias para que no próximo ano haja mais alunos a adquirirem esses saberes.” [PROF081]

One found (in her opinion) that even though there was an expected pre-requisite of computing skills necessary in order to be able to functionally work on the course or on a module it was clear that these pre-requisites were not sufficient to cope with the technological demands of the course.

“Pressupunha que tivéssemos pré-requisitos relacionados com a informática. Tínhamos alguns, mas claramente não eram suficientes.” [PROF018]

An interesting point from the previous issue regarding pre-requisites is the fact that according to the course leader, no previous ICT knowledge is required for the course and that all students receive a full week's training in ICT skills and in the use of the VLE during the induction period. This highlights the fact that even though they had had ICT training at the start of their course, it was felt in certain cases that their skills were still not sufficient to cope with the expectations of the course. Regardless of what the students assumed about ICT skills for the course, what is clear is that they still felt they did not have the correct skills or they were not adequately prepared to function competently and successfully on the course.

4.4.2.6 Induction (7 events) – 7 dissatisfied/0 satisfied

It was clear that there was discontent with the induction period.

“Tendo em conta as nossas ambições e propósitos profissionais, é com muita ansiedade que iniciamos a formação sem ter uma ideia clara e concreta do que efectivamente iríamos fazer.” [PROF040]

Improper preparation at the beginning can have calamitous effects on the learner all the way to the final exams as one student exclaims.

“E a perda da primeira sessão presencial (matéria avaliada no exame final), tendo em conta que não tinha me adaptado plenamente, resultou numa crise de confiança e auto-estima e veio a ter repercussões no meu exame final.” [PROF019]

One learner considered leaving the course because of the shock she had received at the beginning.

“A frustração emergia à qual se me deparavam dois caminhos: modificar a percepção da frustração, e tolerá-la, ou a fuga! Devo confessar que na 1ª aula pensei optar pela 2ª via, tal foi o susto.” [PROF027]

It was felt that only after completing the module had less-prepared or less technically-gifted students acquired the skills to work through the module on an equal footing with more experienced colleagues, as this student exclaims:

“Certamente se a disciplina começaria agora tudo teria tido outra postura e seria diferente porque já tenho mínima experiência na área e iniciaria numa situação de igualdade com todos os colegas não como aconteceu.” [PROF019]

However, these initial issues did not persist for long and the students began to acclimatise with the situation at hand.

“Mas esses sentimentos foram passageiros, porque a pouco e pouco consegui acompanhar aquilo que o professor foi propondo e acabei por achar muito interessante o trabalho que estava a desenvolver. Penso que esta situação não se voltaria a repetir, porque neste momento já estou familiarizada com a metodologia de trabalho.” [PROF43]

In fact, for some it was beneficial to have such a wake-up call at the beginning as it made the students realise what was expected of them and motivated them to work towards their objectives. As one student proclaimed;

“Então o sentimento inicial acabou por ser um despertar por algo que era novo para mim, motivou-me para a pesquisa, para a procura, despertou em mim um grande interesse...” [PRO033]

4.4.2.7 Feedback and Support (7 events) – 4 dissatisfied/3 satisfied

Research has shown that written means of communication that is technology-driven, such as email, sms, forum etc. can generate great confusion and misunderstanding leading to hostile

and emotional incidents (Harrison, 2005). How written text is perceived by the reader may not necessarily be the intended outcome by the writer and therefore instructors must be willing to make sure that what they are “saying” in their texts is what is being read by the learner.

It is clear from the stories that misunderstanding or miscommunication was not an issue but that the lack of communication or the lack of timely communication was the major factor.

“Decorridos alguns dias vim a descobrir que mesmo o professor não respondia a questões no fórum. É pena pois teria muito boa nota neste.” [PROF088]

Tutor feedback and support was clearly identifiable as an important factor in the stories provided. Sensitivity in the form of support is important.

“Abordando o professor da disciplina não houve, no momento, disponibilidade para a resolução da dúvida. A forma como fui atendida deixou-me revoltada o que se traduziu na persistência individual para a resolução da tarefa em mãos com alguma mágoa.” [PROF073]

Some students may be shy to ask for support.

“Mas também acho que os docentes podiam ter-se aproximado mais dos formandos, procurando informar-se das suas dificuldades.” [PROF019]

Inconsistency in the feedback provided by tutors on the same module can generate negative thoughts and attitudes which could affect overall performances.

“Ao longo da minha frequência nesta disciplina constatei que muitos aspectos poderiam ter sido melhorados e repensados, nomeadamente ao nível do feedback professor aluno. Reparei em muitas ocasiões que possivelmente a interação entre professores não foi bem aprofundada pois ocorreu comigo e com alguns colegas tirarmos dúvidas com professores diferentes e as informações não coincidiam.” [PROF023]

When feedback and support is seen as positive and productive students are quick to praise those responsible.

“O aspecto positivo foi o facto dos profs serem simpáticos, muito acessíveis, principalmente o [NAME], e dispostos ajudar.” [PROF053]

This support can really help students to overcome important phases of their studies, particularly when they are feeling very anxious and fearful regarding their abilities.

“Valeu a disponibilidade e solícitude apresentada pelo professor, que serviu para minimizar os diversos momentos de angústia que um trabalho deste cariz acarreta.”
[PROF031]

4.4.2.8 Student professional development (SPD) (4 events) – 1 dissatisfied/3 satisfied

As many of the students on this course were working professionals, studying something that is relevant to their professional situation is regarded essential and is an expectation.

“...essa disciplina torne ainda mais interessante para a minha carreira futura.”
[PROF056]

Delight at being able to apply their new knowledge to their professional environment was evident.

“Sentimento final afectou os meus colegas de trabalho de uma forma bastante positive...As pessoas pedem sempre a minha opiniao.” [PROF033]

Once students began to become engrossed with their module they began to realise the fundamental benefits of the module to their professional lives.

“...e fazer com que essa disciplina torne ainda mais interessante para a minha carreira futura.” [PROF056]

However, as is evident, not all can be satisfied as this student expresses:

“Contudo, estava a espera de algo mais motivador e mais relacionado com a infancia.”
[PROF028]

4.4.2.9 Teamwork (4 events) - 2 dissatisfied/2 satisfied

Some felt a lack of skill and ability to contribute to the group's project work.

“Senti-me diversas perdidas, um conjunto de sensacoes tomou conta de mim-sera que poderia dar algum contributo?” [PROF033]

The different levels of skills and abilities affected the performance of the team.

“O processo de construçao do projecto começou a ficar “empacado. Creio que isto se deve ao facto de os diferentes elementos compunham o grupo/turma terem diferentes conhecimentos a nível das TIC”.[PROF081]

However, others were happy with their group work once they were able to link their ideas together and work collectively.

“...mas do momento em que se fez luz nas nossas ideias foi um trabalho muito interessante. O que não começou muito bem acabou por se revelar muito bom.”
[PROF069]

4.4.2.10 Partiality (3 events) – 3 dissatisfied/0 satisfied

Partiality has to do with the expectation of a level playing field for all involved in a course or module which incorporates tutor support for individuals and groups and the assessment processes. It refers primarily but not exclusively to the f2f element of the module where students were able to visually observe the behaviour and mannerisms of others.

“Apercebi-me de que, nas aulas práticas, o docente dava mais atenção ao trabalho de um grupo do que aos dos outros. Na altura, senti que não era uma atitude correcta, mas tentei prosseguir o meu trabalho.[...], pensei que se tratava de uma situação que poderia trazer alguma injustiça, porque desse modo as condições não eram iguais para todos.”
[PROF072]

The appearance of inconsistencies with regard to assessment procedures was mentioned.

“...a avaliação desigual entre alunos. Não considero que tenha sido correcto.”
[PROF023]

“Achei injusto o facto de quem participou no estudo piloto teve muito melhores notas do que quem respondeu aos fóruns.” [PROF053]

4.4.2.11 Workload (2 events) – 2 dissatisfied/0 satisfied

There was certain dissatisfaction with the varying and many forms of assessment which proved to be a lot of work throughout the course on top of other stipulated tasks.

“Ainda neste tema vi que iria ser avaliado por um teste, um trabalho, um Fórum e um relatório final.” [PROF088]

Due to the amount of work involved, it was felt that more time was needed in order to achieve what was expected.

“Faria muito melhor com algum tempo mais para o fazer, porque este tipo de trabalho daria para uma pós-graduação ou mestrado.” [PROF088]

It was felt that some tasks were too long and drawn out.

“Este trabalho foi longo e moroso. O meu grupo passou horas e horas a fazê-lo.”
[PROF018]

Others felt there should have been more f2f classes to explore the projects.

“Como aspecto negativo tem de destacar o reduzido numero de aulas se poder explorar a trabalho.” [PROF031]

4.4.3 Summary

This stage examined the frequency by which the factors highlighted in stage one appeared in the students’ stories. It analysed in detail their occurrences so that they could be classified by their importance as expressed by the students and categorised as either satisfiers or dissatisfiers. In this stage both primary events (those events which were clearly associated with a factor) and secondary events (those which upon a more detailed analysis were associated as forming an interrelationship with other factors) were coded and grouped into their respective factors.

A total of one hundred and thirty-five (135) primary and secondary events were identified for both groups, sixty-three (63) were extracted from the MMEdu group and seventy-two (72) were extracted from the ITEP group. These classifications were further supported by the presentation of exemplar comments from the students’ stories so as to justify their grouping under particular factors.

The next stage (Stage 3) involves categorising these factors into what Herzberg would regard as Motivation or Hygiene by breaking down the results into their respective percentage weightings per group and categorising the results in relation to their relevant importance.

4.5 STAGE 3: Categorising Factors as Motivation and Hygiene (M&H)

4.5.1 Event Analyses

The next stage is to examine what percentage of factors were evident in each event for each set of students. As we know, multiple factors can be evident in any one sequence of events

and as such the total percentage can be less or more than 100% depending on the amount of events involved. As mentioned in phase one of this analyses in section 4.3, the total amount of primary events for both groups was eighty-five (85) and is divided into thirty-seven (37) for the MMEdu group and forty-eight (48) for the ITEP group.

In order to accommodate Herzberg’s logic, the factors have been broken down into their respective satisfaction and dissatisfaction percentages so that a better understanding of which level the factors have a greater representation. The percentages are calculated to two decimal places. Separate results are presented for each group in the following sub-sections.

4.5.1.1 MMEdu

<Table 10> is divided into five columns. The first column represents the key factors involved, the second and third represents the amount of times, in numbers and percentages respectively. These factors were mentioned in the learners’ events (stories) and these are broken down into their respective satisfaction and dissatisfaction percentages in the final two columns.

<Table 10> MMEdu: Percentage of each factor appearing in events [N (events) = 37]

FACTORS	Total Frequency	Total Frequency as Percentage	Percentage Dissatisfier	Percentage Satisfier
ACHIEVEMENT (0:11)	11	29.73%	0	29.73%
WORKLOAD (9:1)	10	27.03%	24.32%	2.71%
EXTERNAL FACTORS (9:0)	9	24.32%	24.32%	0
TEAMWORK (5:3)	8	21.62%	13.51%	8.11%
STUDENT PROFESSIONAL DEVELOPMENT (SPD)(3:4)	7	18.92%	8.11%	10.81%
INDUCTION (5:1)	6	16.22%	13.51%	2.71%
TECHNOLOGY (4:1)	5	13.52%	10.81%	2.71%
COURSE CONTENT and DELIVERY (1:4)	5	13.52%	2.71%	10.81%
ASSESSMENT (2:0)	2	5.40%	5.40%	0

The percentages are calculated by taking into consideration the total frequency of each factor as a percentage of the total amount of events for each group and then these percentages are spilt into their respective satisfaction and dissatisfaction percentages in accordance to their number of events. The following example will help to clarify the process.

Using Teamwork as the example	Percentage frequency	Percentage as Dissatisfier	Percentage as Satisfier
5 dissatisfactions and 3 satisfactions 37 events	$(8/37) \times 100$ = 21.62%	$(5/37) \times 100$ = 13.51%	$(3/37) \times 100$ = 8.11%

Higher positive (satisfaction) figures in comparison to negative (dissatisfaction) ones for a factor is an indication that the factor is functioning well in the module and may not need a great deal of attention. On the other hand, high negative figures to that of positive will be a great cause for concern as it indicates that a particular factor is generating higher negative feelings among the cohort which does not play a part in promoting satisfaction among the student and could lead to demotivated and underperforming students. In fact, any factor that produces a negative figure regardless whether it is higher or lower than its positive counterpart will and should be of concern to those in charge.

As can be seen in <Table 10>, Achievement stands out as the major factor involved in producing learner satisfaction within this group. The factors of Workload and External Factors represent the major job dissatisfiers which play little or no part in affecting learner attitudes in a positive manner and therefore, would warrant further attention by course managers and developers. The ideal scenario would be to have a nought classification for the dissatisfiers and a high plus figure for satisfiers as is the case with the Achievement factor which indicates that the factor is affecting learner attitudes only in very positive manner. As this can never be the case for all factors, one can only hope for a set of factors whereby the end result is a good or high positive balance in the satisfaction column.

Obviously, it should not be assumed that, for example, the Achievement factor does not need to be a focus of attention by course leaders and developers. Maintaining the positive status and trying to increase the percentage would also be a requirement but obviously not as important as dealing with the negative traits of the module or course. By decreasing the negativism or dissatisfied feelings associated with a module or course we should inadvertently increase the positivism or satisfied feelings.

Examining further the results we can see that two factors are relatively common under both headings, these are the Teamwork and SPD factors. In other words, it is difficult to ignore one percentage figure in favour of the other. This implies that both should be regarded as

belonging to both the satisfiers and dissatisfiers. Obviously, the focus for each one will be dependent on the reasons behind both the good and bad feelings generated from the events mentioned by the students and these should be taken into consideration when evaluating the course through these means. This is discussed further in section 4.5.2 below entitled Motivation and Hygiene Factors.

Therefore, based on the analyses of the result provided in <Table 13> a list of key satisfiers and dissatisfiers associated with the MMEdu group is presented in <Table 14>. These are presented in order of the greater percentage frequency and where there are similar percentage values, the opposing value is also taken into consideration.

<Table 11> MMEdu: Satisfiers and Dissatisfiers

Satisfiers	Dissatisfiers
Achievement (29.73%)	External factors (24.32%)
Course Content and Delivery (10.81%)	Workload (21.61%)
Student Professional Development (SPD) (10.81%)	Teamwork (13.51%)
Teamwork (8.11%)	Induction (13.51%)
	Technology (10.81%)
	Student Professional Development (8.11%)
	Assessment (5.40%)

According to Herzberg (1966), stories describing events associated with satisfiers would appear infrequently in stories associated with dissatisfiers. This is not the case here as <Table 13> has indicated with many of the satisfiers being evident as dissatisfiers as well. If we were to look at this from a reverse angle and see how many stories related to dissatisfaction appear in stories associated with job satisfaction we would see that many of the major dissatisfiers appear infrequently in the satisfiers list which supports an opposing perspective to that of Herzberg. In fact out of the nine factors mentioned, seven have higher levels of dissatisfaction than satisfaction and of these seven, a total of six have a very small or no frequency percentage associated with the factor. The only exception is the Teamwork factor.

Another factor distinct to that of Herzberg’s findings is that the most frequent factors in the “high job-attitude” sequences are not all related to high satisfaction levels. Herzberg found that his top five factors were heavily associated with satisfaction whereas here we can see that

this is not the case as the second and third top factors, the Workload and External Factors are related to issues of dissatisfaction.

A further distinction here is the idea of long-ranged and short-ranged factors. Herzberg associated long-ranged factors, that is, those factors which lasted for long periods were primarily satisfaction-related factors whereas here we can see that this is not the case as most of the factors mentioned covered the full-length of a particular module and are equally both satisfaction and dissatisfaction-related.

4.5.1.2 ITEP

As with the MMEdu group the ITEP group's results are distinctive to that of Herzberg's assumptions. However, it needs to be clarified once again that Herzberg's study was carried out in the 1950s/60s and concerned white-collared employees within the engineering and accountancy trades and therefore the results of which should not be comparatively matched to this particular study.

<Table 12> is also divided into six similar columns as the MMEdu equivalent and for the exact same reasons as presented previously.

<Table 12> ITEP: Percentage of each factor appearing in events [N (events) = 48]

FACTORS	Total Frequency	Total Frequency as Percentage	Percentage Dissatisfier	Percentage Satisfier
ACHIEVEMENT (0/12)	12	25%	0	25%
COURSE CONTENT and DELIVERY (8/1)	9	18.75%	16.67%	2.08%
ASSESSMENT (7/1)	8	16.67%	14.58%	2.08%
EXTERNAL FACTORS (7/1)	8	16.67%	14.58%	2.08%
TECHNOLOGY (7/1)	8	16.67%	14.58%	2.08%
INDUCTION (7/0)	7	14.58%	14.58%	0
FEEDBACK AND SUPPORT (4/3)	7	14.58%	8.33%	6.25%
STUDENT PROFESSIONAL DEVELOPMENT (1/3)	4	8.33%	2.08%	6.25%
TEAMWORK (2/2)	4	8.33%	4.16%	4.16%
PARTIALITY (3/0)	3	6.25%	6.25%	0
WORKLOAD (2/0)	2	4.16%	4.16%	0

As can be seen, once again Achievement stands out as the major factor involved in producing learner satisfaction within this group. The factors of Course Content and Delivery, Assessment, External Factors, Technology and Induction represent the major job dissatisfiers which play little or no part in affecting learner attitudes in a positive manner.

As with the MMEdu group, two factors appear relatively common under both headings, SPD and Teamwork and as such, they will be regarded as both satisfiers and dissatisfiers and listed accordingly taking into account both sets of figures associated with each factor. Therefore, based on the analyses of the result provided in <Table 12> a list of satisfiers and dissatisfiers associated with the ITEP group in the order of greater frequency first is presented in <Table 13>.

<Table 13> ITEP: Satisfiers and Dissatisfiers

Satisfiers	Dissatisfiers
Achievement (25%)	Course Content and Delivery (16.67%)
Student Professional Development (6.25%)	Assessment (14.58%)
Feedback and Support (6.25%)	External factors (14.58%)
Teamwork (4.16%)	Technology (14.58%)
	Induction (14.58%)
	Feedback and Support (8.33%)
	Partiality (6.25%)
	Teamwork (4.16%)
	Workload (4.16%)

4.5.2 Motivation and Hygiene Factors

Based on the previous discussion, the researcher has split the factors for each set of students into their respective satisfaction and dissatisfaction percentage levels percentages <Table 14> and <Table 15> respectively.

Having examined the results, the researcher’s view regarding the terms “Motivation” and “Hygiene” has altered to what is felt best reflects the purpose of this study. With regard to the term “Hygiene”, this study is trying to locate factors that will first allow the learner to function efficiently as a student and not feel impeded by their surroundings. In other words, the requirement is that certain key factors allow or enable the learner to carry out their functions

as a student. The researcher feels that the term “Enablers” best exemplifies the purpose of these factors within this educational setting.

<Table 14> MMEdu: Proposed Enrichers and Enablers

ENRICHERS [Motivation]
<p>Achievement (Setting sufficient and evenly-balanced challenges for learners to achieve a sense of accomplishment in completing activities and exams)</p> <p>Content & Delivery (Clear, concise, functional, punctual and interesting)</p> <p>Student Professional Development (SPD) (How the course relates to the learner’s professional position and or professional/career focus)</p> <p>Teamwork (Embed group-related activities and focus on the set-up of the groups, getting a well-balanced group of individuals together)</p>
ENABLERS [Hygiene]
<p>Workload (Tailoring the workload to consider the type of learners on the course)</p> <p>External factors (The necessity to acknowledge and assist learners to overcome issues that affect their ability to study independently)</p> <p>Induction (Clearer understanding of what to expect, what skills are required and proper initial training to function well)</p> <p>Teamwork (Embed group-related activities and focus on the set-up of the groups, getting a well-balanced group of individuals together)</p> <p>Technology (Making sure prerequisite skills are achieved. Continuous guidance on using the TEL resources)</p> <p>Assessment (Involves the existence of a coherent and equitable standard of grading. Timing between assessments to allow preparation. Type of assessments when non-traditional must be explained)</p> <p>Student Professional Development (SPD) (How the course relates to the learner’s professional position and or professional/career focus)</p>

Likewise, regarding to the term “Motivation” as proposed by Herzberg, this study is attempting to locate factors that not necessarily motivate the learner to study as it is felt this is a fact that occurs regardless of the motivation levels but it is attempting to locate factors that make the learner feel enriched by what they are encountering. This enrichment, in its own right should make the learner feel knowledgeable, competent and lead to a more motivated learner. As such, the term “Enrichers” is proposed as a plausible substitution to the term “Motivation”.

<Table 15> ITEP: Proposed Enrichers and Enablers

ENRICHERS [Motivation]
<p>Achievement (Setting sufficient and evenly-balanced challenges for learners to achieve a sense of accomplishment in completing activities and exams)</p> <p>Feedback & Support (The need for committed, constructive and timely feedback and support and when needed pastoral support)</p> <p>Student Professional Development (SPD) (How the course relates to the learner’s professional position and or professional/career focus)</p> <p>Teamwork (Embed group-related activities and focus on the set-up of the groups, getting a well-balanced group of individuals together)</p>
ENABLERS [Hygiene]
<p>Content & Delivery (Clear, concise, functional, punctual and interesting)</p> <p>Assessment (Involves the existence of a coherent and equitable standard of grading. Timing between assessments to allow preparation. Type of assessments when non-traditional must be explained)</p> <p>External factors (The necessity to acknowledge and assist learners to overcome issues that affect their ability to study independently)</p> <p>Technology (Making sure prerequisite skills are achieved. Continuous guidance on using the TEL resources)</p> <p>Induction (Clearer understanding of what to expect, what skills are required and proper initial training to function well)</p> <p>Feedback & Support (The need for committed, constructive and timely feedback and support and when needed pastoral support)</p> <p>Partiality (Apportionment of time and dedication to learners by teachers)</p> <p>Teamwork (Embed group-related activities and focus on the set-up of the groups, getting a well-balanced group of individuals together)</p> <p>Workload (Tailoring the workload to consider the type of learners on the course)</p>

As mentioned previously in section 2.18, Lee and Shih (2001) although not producing a list of motivation and hygiene factors concluded from their research that three factors played a key role in a learner’s performance: the style of instruction referring to teacher-student interaction; content of materials and how well they generate problem solving exercises and encouragement which referred to embedding ways to encourage the learner to participate proactively in online activities.

An interesting part of their findings was that these factors were deemed to be a combination of both motivation and hygiene issues. This reasoning is supported in this study with the factors SPD and Teamwork (MMEdu) and Feedback and Support and Teamwork (ITEP)

being represented as both enrichers and enablers respectively. It is the researcher's view that not only do the above factors belong to both categories but that any enricher can become an enabler and any enabler can become an enricher. This reasoning is discussed further below.

According to Chyung (2002) and supported by Nicholls (2004) discussed previously in Section 2.18, it is the enablers (hygiene factors) that course managers should first direct their attention so as to ensure that dissatisfaction is kept to a minimal and as a consequence this should assist in tailoring motivation factors in such a manner that learner satisfaction is positive. She points out that hygiene factors act as the foundation from which motivation factors can flourish. If they are not the primary focus of course managers then consequently satisfaction levels will be affected.

Examining the results presented in <Table 14> and <Table 15> it could be argued that these results support Chyung's proposal. As we can see, there seems to be a strong inclination towards the enablers (dissatisfiers) and as a result the enrichers (satisfiers) are fewer and less noticeable. As such, it would be suggestive and highly acceptable if managers felt the need to first deal with the large enablers that exist on these courses before focusing their attention on the enrichers. Of course as Chyung highlights, if the enablers are dealt with accordingly, it should lead to more positive results for the enrichers and help students to feel more positive and enriched with their module or course.

Applying Chyung's reasoning to deal initially with Enablers will be the decision of the course leaders and managers and the approach taken will be entirely their decision. With regard to this study, the percentage breakdowns provided in <Table 10> page 151 and <Table 12> page 154 could assist in deciding which enablers should be dealt with as priority cases and which could be dealt with at a later stage. The same would obviously apply to the enrichers.

For example, Achievement has been regarded by both groups as the more important enricher but this does not imply that it is the first enricher that should be targeted in an evaluation process. The same would go for the more important enablers such as External Factors for the MMEd group or Assessment for the ITEP group. Other enrichers and enablers may need to be targeted due to their high levels of dissatisfaction or low levels of satisfaction.

<Table 10> on page 151 representing the MMEdu group shows us that Teamwork and Induction both possess similar levels of dissatisfaction at 13.51% each. However, Teamwork also has a satisfaction level of 8.11% whereas Induction is at 2.71%. From a course manager's viewpoint the Induction factor would require greater attention than the Teamwork due to its very low levels of satisfaction.

<Table 12> on page 154 representing the ITEP group shows us that Achievement and Feedback and Support possess levels of satisfaction at 25% and 6.25% respectively. However, as Achievement possesses nought percentage of dissatisfaction and Feedback and Support has a percentage of 8.33, a course manager may consider the latter as a priority factor with a view to reducing the dissatisfaction levels and increasing the satisfaction levels of this factor and other interrelated factors.

It is the opinion of the researcher that if we deal with enrichers in the first place it should result in a reduction in the amount of enablers listed and an increase in the amount of enrichers. For example, the Technology factor of the ITEP group is regarded as an enabler due to the amount of negative feelings it generates from the group. However, once the issues related to this enabler are addressed it should lead to learner confidence growing and eventually the feelings towards the technology will be those of confidence, capability which for some students will lead to positive attitudes and encouragement to perform well on a course or module. As such, over time this enabler could evolve into an enricher for the students and if dealt with similarly on other modules and courses it should result in achieving lower levels of dissatisfaction than previously incurred. However, this is something that will need to be researched thoroughly in order to substantiate this theory.

4.5.3 Summary

This stage focused on classifying the resulting factors arrived at in stages 2 and 3 into their Motivation and Hygiene categories. This was achieved by categorising satisfiers and dissatisfiers for both sets of students into their respective percentage weightings according to their total primary events. These were then classified as motivation and hygiene in accordance with the greater percentage figure achieved for each factor. However, and in contrast to Herzberg's findings it was discovered that some factors due to their percentage weightings

could not be associated with only one category and needed to be included as both a hygiene and motivation factor.

Regarding the terms Motivation and Hygiene, the researcher concluded that in accordance with the stories told and the issues raised by the students, the terms Enricher and Enabler best suited the results being extracted from the students and were apt substitutes for Herzberg's terms.

Finally, the results arrived at in this stage indicate support for Chyung's (2002) proposal that enablers-hygiene factors should be dealt with firstly as they act as the foundation by which enrichers-motivation factors can thrive successfully. Based on the results, it is evident that there is a large amount of enablers-hygiene to that of enrichers-motivation and it could be argued that it is imperative to initially direct ones attention onto the enablers-hygiene with a view to reducing the percentage figures and this in turn should lead to a greater increase in enricher-motivation percentage figures.

4.6 STAGE 4: Compare and Analyse Research Results

4.6.1 Comparative Analyses of Major Research Findings

The section will now take the research findings that were discussed previously in Chapter 2: section 2.18 and carry out a comparative analysis of those research findings with the results derived from this study. <Table 16> represents a list of the motivation and hygiene factors from Chyung (2002) and Nicholls (2004), as well as the resulting enrichers and enablers from both sets of students from this study. <Table 17> highlights motivation-enrichers and hygiene-enablers that are common among the various research results presented in <Table 16>.

To recap, Chyung (2002) presented her findings of a three year research project which examined learners' attitudes towards their online training programmes. Nicholls, (2004) offered the results of a research debate chaired by the International Forum of Educational Technology and Society (IFETS) on the possibility and plausibility of the application of the Motivation and Hygiene Theory as a method of evaluating e-Learning environments. All results are presented in order of importance as derived from Chyung's research and the

IFETS debate. Although all three research studies are different in their own right: one examining the online induction element of a particular course; another is the result of a research debate, and this PhD case study on b-Learning, there are various relationships evident between the various findings.

<Table 16> Comparison of research findings⁸⁸

Type	Chyung (2002)	Nicholls (2004)	MMEdu	ITEP
ENRICHERS (MOTIVATION)	Learning itself Confidence Instructional materials Social interactions Feedback Flexibility	Achievement Recognition Nature of the work itself Responsibility Advancement Additional factors	Achievement Course Content and Delivery Student Professional Development (SPD) Teamwork	Achievement Student Professional Development Feedback and Support Teamwork
ENABLERS (HYGIENE)	Time Technology Effort Design preferences	Policy and administration Supervision Fees Relationships Study conditions Additional factors	External factors Workload Teamwork Induction Technology Student Professional Development (SPD) Assessment	Course Content and Delivery Assessment External factors Technology Induction Feedback and Support Partiality Teamwork Workload

There is a noticeable difference in the results regarding the ratio between the amount of enrichers and enablers highlighted. Chyung and Nicholls provide more enrichers than the both the MMEdu and ITEP groups and the reversed is witnessed regarding the enablers with the MMEdu and ITEP groups surpassing the other two. This could be indicative of the argument that the greater the enrichers the lesser the enablers and visa versa which again would add weight to Chyung’s argument of dealing with enablers first before moving onto enrichers. If we deal with the enablers we reduce their level of presence and as a consequence,

⁸⁸ Lee & Shih (2001) have been excluded from this analyses as they did not present a list of motivation and hygiene factors.

should increase the amount of enrichers on the list and also, increase the percentage of those existing enrichers.

Nicholls offers an evenly balanced amount of enrichers and enablers but as these were derived out of a research forum/discussion, it is understandable that a more even playing field was sought out. However, it may not be a true representation of what happens in reality as the other results have indicated and the fact that enrichers and enablers are particular to a given course or module and to a particular cohort of students.

4.6.2 Factors Common among Research Findings

Regarding enrichers, there is evidence of some agreement between the different results but no clear factors are common which may as mentioned previously, be conducive to the type of analyses involved <Table 17>.

<Table 17> Comparison of common factors among research findings

COMMON FACTORS				
Type	Chyung (2002)	Nicholls (2004)	MMEdu	ITEP
ENRICHERS	Confidence	Achievement	Achievement	Achievement
	Learning itself	Nature of the work itself	Student Professional Development (SPD)	Student Professional Development (SPD)
	Feedback	Recognition	-----	Feedback and Support
	Instructional materials	-----	Course Content and Delivery	-----
	-----	-----	Teamwork	Teamwork
ENABLERS	Time	Study Conditions	External Factors	External Factors
	-----	-----	Induction	Induction
	-----	Relationships	Teamwork	Teamwork
	Technology	-----	Technology	Technology
	Time	-----	Workload	Workload

Achievement is evident as the major enricher by Nicholls and by both groups within this study and also Confidence (Chyung) could be placed within this group as many of the learners'

responses in this study mentioned the fact that their sense of achievement was due to their gaining of confidence and as such working through the expectations of the course or module.

The Nature of the work itself factor (Nicholls) considers the affect a course or module has on a student's professional development and the Learning itself factor (Chyung) involves the sense of development a student feels they are achieving from their studies. These therefore, can be associated to the SPD factor from the MMEd and ITEP groups within this particular study.

Feedback is supported by Chyung and ITEP and to a lesser degree within Recognition (Nicholls) which they conclude involves greater peer feedback as opposed to tutor feedback. Regardless, feedback in its purest form is involved.

Regarding the enablers, there is no clear linkage with any factors among the various researches with Technology being the only clear link between this study and Chyung. Nicholls list of enablers clearly follow the ideology set down by Herzberg which declares that dissatisfiers are factors which do not affect the actual doing of the job and are related to the surrounding environment that supports the job. However, we can see that Chyung who has examined Herzberg's theory with students within a particular educational setting does not agree with Nicholls forecast and has some alignment with the results from this study.

In some cases there are no clear factors that fully engulf the same understanding or reasoning behind their selection. For example, Chyung mentions the enabler Effort which could be determined by the amount of Workload involved, it could be influenced by External Factors. Design Preferences could be linked with Content and Delivery. Time (Chyung) as was discovered in this study can be associated with a multiplicity of factors both enablers and enrichers. It can be associated to external commitments both professional and personal, the level of workload and timeframes involved to complete it, induction periods and the time involved for a student to come to terms with the expectations of the course or module. Relationships (Nicholls) is also like the factor Time rather a wide-ranged factor involving many combinations but does involve the relationship that groups of individuals develop when working together on activities and as was highlighted in this study, plays a fundamental role in the success of a b-Learning delivered course or module.

It is this researcher's point of view that the factor entitled Additional factors (Nicholls) is irrelevant to the exercise. It is felt that all factors need to be clearly defined otherwise what will happen is that anything else left over is thrown into the melting pot and may or may not be dealt with in a dedicated manner as that of the clearly indicated factors. This approach does not help to assist in pinpointing explicit key areas for development in order to facilitate the learning process. Also, as any institution would prefer to be in a position where they can continuously develop and update quickly and efficiently their modules and courses, possessing a lucky bag of factors would not assist the process. It may also instil a degree of complacency within evaluators should the availability of lugging a number of factors into one pot be viewed as an acceptable way of dealing with what they may believe to be lesser important factors.

If institutions want to focus on learner retention and progression levels then clear enrichers and enablers need to be addressed. It is imperative that these factors are dealt with through continuous evaluation techniques that are geared towards highlighting problematic areas particular to a course or module quickly. It is not viable to try and develop a complete strategy in advance when these factors are highly dependent on the type of student that is participating on the course and the type of course or module itself, as well as any technical issues which are never fully under an individual's control.

Obviously, it is very difficult to deal with all factors in a concise and evenly-balanced dedicated manner but it should be an objective to keep as many learners as happy as possible, as long as it is understood that you can please all the learners some of the time and some of the learners all the time, but you cannot please all the learners all the time.⁸⁹ The strategy should be to get the majority of the learners to feel less dissatisfied with enablers and more satisfied with enrichers than their previous counterparts. If enrichers and enablers are not dealt with in a manner that treats each cohort as separate to other cohorts, this will affect the overall performance of the cohort and the individuals who comprise the group. Students' performances can affect progression and completion rates, as well as classifications that, in some European institutions, play an important role in funding opportunities.

⁸⁹ Adapted from a quote by Abraham Lincoln the 16th President of the United States of America, "You can fool all the people some of the time, and some of the people all the time, but you cannot fool all the people all the time".

These and other related issues are discussed further in the following section which presents the next stage in the process: the development of a potential evaluation framework for blended learning environments.

4.6.3 Summary

This stage compared the results obtained from the previous stages of the study with that of other key research results that considered Herzberg's Motivation and Hygiene factors as possible means of evaluating e-Learning and b-Learning courses; that of Chyung (2002) and Nicholls (2004). As has been indicated little research has been carried out on this subject worldwide and as a result few research examples can be located. The comparative analyses highlighted enrichers and enablers that could be identified as common factors among the results. However, there were no clear factors identifiable as common to all three results. The primary enrichers that stood out in the study were Achievement, SPD and Feedback and Support and the enablers that stood out were External factors, Teamwork and Technology.

The next and final stage in the analyses will examine the possibility of using the information gathered in the previous stages as drivers for the development of a clear framework or set of guidelines that can be considered as important elements in the success of a b-Learning course or module within the DDTE or possibly any other educational institution adopting similar lines of blended delivery.

4.7 STAGE 5: A Proposed Blended Learning Evaluation Framework

4.7.1 Introduction: The STOPP Framework

At this point, a question that could be put forward is the following: why do we need to develop or consider an institutional strategic plan when a more precise evaluation of a particular course or module can be carried out by course managers or researchers which can now focus on the enrichers and enablers highlighted by the learners and discussed in the previous sections?

The factors brought to the fore in this study examine the operational issues involved with the setting up and running of a course or module. They mainly deal with issues at the “coal face” or “front line” and are particular to any distinct course or module. These are factors that can be dealt with quickly during the running of a course or module providing, of course, a process of analysis is embedded within the process.

Institutions, regardless of whatever means of analyses function within particular departments or faculties, and these will vary depending on the types of courses being delivered, are obliged to develop strategic frameworks that can set in place a methodological and pedagogical process which caters for the institution as a complete entity and which then can be tailored to suit the varying departments and faculties that make up the campus environment. These frameworks can then be used as benchmarks for the evaluation of various courses. E-Learning strategies have been gaining notoriety over the past five to ten years as fundamental strategies in their own right or then sub-strategies of a larger teaching and learning strategy and they embed means by which to evaluate e-Learning related developments.

Based on the results of the analyses discussed in the previous sections of this chapter, five key factors have stood out among the two sets of cohorts as fundamental areas for consideration in the development of a framework or set of guidelines for the evaluation and monitoring of the MMEdu course and embedding of the ITEP module. These factors refer to core themes that have arisen out of the students’ responses and encompass information relating to the students themselves, the teachers involved, the induction or orientation periods and the organisational support both from an operational and strategic level.

Based on these factors, the researcher proposes a framework or a set of guidelines bestowed with the acronym “**STOPP**” referring to key factors for consideration; **S**tudents, **T**eachers, **O**rientation, **P**olicies and **P**rocedures each of which is discussed further in the following sections. The components of STOPP are fundamental components found within any educational establishment and could greatly influence a combination of the enrichers and enablers proposed previously. Some institutions, in their own right, might feel that they would prefer to develop an evaluation system based solely on these factors that is structure around their own particular setting. Others may feel that they would prefer to concentrate directly on each of the factors through their own research evaluation processes or just focus on one

particular factor at one particular time. As such, the framework proposed here is not defining and can be used as a guide towards developing or complementing an existing evaluation framework of a particular institution, faculty or department. It is hoped that it will act as a guiding force in assisting to further develop b-Learning courses and modules.

The framework proposed here and discussed below could be regarded as a plausible b-Learning framework from which the DDTE could adopt or consider adopting as a potential means to promote, facilitate and evaluate the strategic embodiment of b-Learning within the department's curriculum. This could assist in ensuring lower dissatisfaction levels and higher satisfaction levels before ever beginning a course or module(s).

4.7.2 Students

It is necessary for teachers and related policy makers to be aware of the type of students they have and be sensitive towards their needs. This involves not only their learning needs which incorporate their learning styles but also their personal needs. Personal needs, particularly for mature students with family and employment commitments, influence students motivation towards their studies and when it is felt by the students that teachers or the institution are not sensitive or interested in their personal issues, they feel let down and unsupported.

Procrastination plays an important role in the motivational attitude of a learner. The classroom has one major advantage in that it provides a degree of compulsion. It is timetabled and learners, once they attend, tend to complete what is required. However, b-Learning has to rely heavily on a more voluntary and independent learning where procrastination can and will prevent action.

Ralph (1998) argued that a primary task for the teacher in any formal educational institution is to influence the students under their authority to learn the subject matter within the course. He suggested, however, "that students' motivation to learn is not always in the teacher's control due to their complex blend of needs, attitudes, emotions, competencies, background experiences and inherited traits" (Ralph, 1998:1). Ralph discussed certain motivational principles for stimulating student learning including the development of positive relationships between students and teachers, attracting the learner's attention, enhancing the subject-matter

relevance, building the learners' confidence and promoting the learners' satisfaction. It is clear that if the teacher, who is the contact person and representative of the institution, is seen as not being fully committed and involved and is distributing their time in an unfair manner, then students will react negatively to this.

Feedback has an important role to play here. Individuals need relevant and valued evaluative feedback as they move towards their goals and objectives. Teachers need to let them know on a regularly basis, just how well or badly, they are doing. Feedback on assignments should be given back within an agreed timeframe and when this is not possible, a timely and clear explanation should be provided. Feedback, where possible, should indicate how students can improve the quality of their work. Although staff are extremely busy, they need to indicate to students what channels of communication are available and accessible. They should always respond to complaints, issues and concerns raised.

Finally, student support for online-learning should focus on how to learn with technology and on transferring existing skills into the learning situation, not just on how to use the technology. New technologies and learning approaches require new skills, both with digital tools and the way in which they are used (Punie & Ala-Mutka, 2008). Although the tools can promote access to learning for new groups, they can at the same time give rise to new digital divides.

The degree of variation in the level of prior knowledge possessed by learners is also extremely important when considering ways to encourage and motivate them to study. If there is a big difference in the level of learners' prior knowledge, providing most of the theory online with diagnostic pre-tests would stop the more knowledgeable learners from feeling dissatisfied. The nature of learning content may need to be different for each group as 'novices' will expect more basic knowledge and worked examples, whereas 'experts' will expect problem solving and simulations. This meaningful sensitivity approach towards our learners, their professional development and needs would be a clear indication that the institution is placing the learner at the heart of its learning and teaching strategy and should make them feel important, motivated and satisfied with their learning experience.

The following section deals with ways in which teachers can develop their own skills in order to deal with their learners' needs and support their transition from f2f to online delivery and vice versa.

4.7.3 Teachers

Research into the education sector has found a strong link between staff motivation and student satisfaction levels (Ssesanga & Garret, 2005; Halliday, 2002; Siu & Wilson, 1998). The results have indicated that job motivation and satisfaction is complex and involves a myriad of intrinsic and extrinsic variables.

As Ssesanga & Garret (2005:34) point out:

Quite clearly the work of academics is affected by major global trends evident in universities notably accountability, massification, managerial controls, and deteriorating financial support. It would seem, therefore, that not only is the academic workplace changing rapidly worldwide, but also the academic profession is finding it increasingly difficult to manage the tensions within which it has to operate.

What students want is to feel that tutors are “bothered”. Transmitting this sentiment can help to dramatically boost satisfaction levels. Halliday (2002) suggests that what is required is attention to the concept of ‘value’. The process of value creation needs to be understood, if it is to be managed and enhanced.

The results of the ITEP study have indicated high levels of dissatisfaction with regard to the issuing of feedback by tutors while with the MMEd group no clear mentioning of this factor either as an enricher or enabler was evidenced which may call into question why this was the case. There are several properties to consider:

- Time delays
- Feedback is helpful when you get it.
- Students need feedback in good time before they sit exams.
- It is not clearly stipulated within what time period they should get feedback.

- Different teachers have different priorities and understanding regarding feedback. It may not be professional but students can understand there are reasons.
- Different students have different priorities and understanding regarding feedback.

Students can become concerned that their performance is affected because they are unable to determine what they are doing right and what requires improvement. Students want to feel that the tutors are bothered and that they are not just numbers in the system. Mature students are particularly exacting in relation to their expectations and some did point out that they needed to be assertive to ensure that they got their full allocation of attention.

Students do want to feel that tutors will return their calls and set up meetings when and where required. Above all, it is crucial in terms of satisfaction that students do not feel they ‘are bums on seats’ and that the need for results does not force a learner to seek assistance outside the realm of the course.

We [**The Group**] opted more for contacting closer friends by phone when we needed help with computer problems.⁹⁰ [PROF18]

Other issues which proliferate around technology-based learning may not best please the educator as most see their jobs as being that of a teacher and researcher not someone who has to also continually develop new skills in using technologies or become experts in educational theory and standards (Weller, 2007). Also, they find that once they have made the effort to acquire these new skills they are forced to continually update them to keep abreast with the changing dynamics of the environment which can lead to some degree of resentment and resistance on the teacher’s part. It is relevant for teachers to be continually developing their skills:

Despite the pressures of the Bologna reforms, in many Portuguese HE institutions initial and longer term staff development is still undervalued. Work is needed to better involve the various stakeholders in this process. (Huet, Costa & Tavares, 2008:162)

⁹⁰ Original statement in Portuguese: *Optámos mais pelo esclarecimento de dúvidas “informáticas” via telefone com pessoas nossas conhecidas.*

However, in order to set in place a system that promotes this form of long-term development, staff need to overcome their own personal preferences and inhibitions towards TEL environments.

There is still a strong traditional preference for f2f meetings. One of the main constraints to overcome is the change of mentality required from faculty staff, most of which is not familiarized with the functionalities of ICT/Internet based technologies to deploy flexible and student-centred learning settings. (Huet et al., 2008:162)

For b-Learning to be successful, effective pedagogy must be combined with reliable, easy-to-use technology. It follows, then, that b-Learning is *dependent* on the pedagogy. If there is little or no pedagogy, the tools will be ineffective. If the technology is unreliable or too complex to use, b-Learning will be an exercise in frustration. <Table 18> summarises this dependence.

<Table 18> Blended learning as a dependent function

	Sound pedagogy	Unsound pedagogy
Reliable, easy-to-use technology	Effective b-Learning	Technocentrism
Unreliable, complex-to-use technology	Frustration	Disaster

If we think of b-Learning this way, we can see that it is as varied as the pedagogies and technologies that facilitate it. *Technocentrism* is a term popularised by Papert (1990) to describe the tendency of some computer enthusiasts to assume that technology is itself educational, in that better technology will bring better education. However, sound pedagogy coupled with unreliable or complex technology results in frustration, and unsound pedagogy that uses such technology is educationally disastrous. Ineffective b-Learning is often the result of naivety or too much enthusiasm on the part of an instructor or decision-maker.

The University of Aveiro through its Professional Training and Research Association (UNAVE)⁹¹ has been running Continuous Professional Development (CPD) courses for its staff since 2005. The objective being to support faculty staff to develop essential skills in the areas of pedagogy and curriculum design, collaborative learning and the adoption of ICT technologies into their teaching environment. The integration of these three dimensions is

⁹¹ www.unave.ua.pt

anchored upon academics developing a reflective stance towards their teaching and learning environments (Huet *et al.*, 2008).

This is an on-going initiative and current informal evaluation indicates that academics feel that the programmes assisted them to develop their methodological and technological skills and their perception concerning the importance of ICT to enhance their teaching and learning environments (Huet *et al.*, 2008). This success of these programmes can be seen in the positive responses towards the course content and delivery, the enormous sense of achievement recognised by the learners and the complimentary statements regarding the accessibility and support of the teachers. However, this was coupled with rumours of dissatisfaction in many areas which is an indication there is still much work to be done to develop a course which reduces these levels of dissatisfaction and increase the levels of satisfaction.

To sum up, staff development should focus not only on how to use the technology but also on how to use it appropriately to enhance the learning experience and be willing to continuously update their knowledge in this dynamic area. There needs to be a more genuine focus on the learners and not just abundance with statistical figures embedded into the course. This stakeholder issue will be discussed further in Section 4.6.4 “Policies and Procedures”.

4.7.4 Orientation

It is fundamental that students are aware of what is involved in the course or module right from the outset and the induction period plays a major role in generating this knowledge and creating confidence in the students and not leaving them with a sense of uncertainty, as well as a misrepresentation of what is expected of them. Compared to f2f settings, online discussions need a longer time frame and more structure and guidance (Wang & Woo, 2007) and there should be ample time provided to the students to get accustomed to the functionalities of the respective tools and to provide support and guidance both in using the tools and complying with the tasks in question (Scantlebury, Brown, & Thorpe, 2008; Divitini, Haugaløkken & Morken, 2005).

It was evident that some problematic areas, mentioned by the students, were overcome eventually and they progressed through the modules/course gaining in confidence and

proactively completing it. Unfortunately, many felt they had not achieved the grade or quality of work they could have had if they had had been aware from the beginning what was involved and what was required of them. This is not to say that they were not informed but it might indicate that they misunderstood and as such, a process of re-emphasis needs to also be in place throughout the orientation phase.

Belief in ones own ability and efforts are complicated by additional factors like external help, ones emotional state and other perceptions but the fact remains that these beliefs do influence the learner's ability to persist in overcoming obstacles. The amount of time and effort that a learner can put into achieving goals is also important in learning. Self doubts can easily creep in when learners hit obstacles, experience frustration and judge themselves as incompetent. All possible effort needs to be made to instil self-belief and self-confidence from the outset.

Behaviours displayed in one environment cannot always be transferred directly to a different information environment. In a study by Franklin & van Harmelen (2007), students were asked about which technology they generally used in their personal lives on a day-to-day basis, as well as in their learning environments. They adopted synchronous technologies in their daily lives which permitted immediate access to family and friends and the focus of learning was on asynchronous use of the Internet and the use of computers as production tools (word processing, imaging, etc.). This implies that learners may view social technologies as those linked with fun and consumption and not necessarily associated with the concept of learning which makes the process of incorporating a blended learning environment that more difficult to achieve.

Literature states that students may benefit from understanding how they learn most effectively by reflecting on their previous learning experiences, understanding learning styles and developing meta-cognitive learning skills (Keeton, Sheckley & Griggs, 2002; Kolb & Kolb, 2005). The development of meta-cognitive learning skills is a personal developmental process and will occur at a different pace for each student. Gaining a personal understanding within the early stages of an academic year of how one learns would be beneficial and can be further enhanced by promoting an understanding of the links between research and teaching and therefore with learning.

4.7.5 Policies and Procedures

A flexible framework needs to be in place to support foreseen and unforeseen events — risk management assessment and performance measures need to be involved. Hill (1995) asserts that in the absence of meaningful performance measures it is necessary to align as closely as possible students' expectations with their perceptions of service performance. Educational institutions should then take appropriate steps to manage such expectations. As a minimum, this would involve informing students of what is and what is not possible and outlining the reasons why.

Management policies that are customer-oriented are not sufficient to guarantee customer satisfaction. Trout and Rivkin (1998) warn against fuzzy customer-oriented thinking of focusing on the complexity of a product or service to impress customers. However, they suggest that simple strategies which focus on customer service as part of a coherent marketing plan can and do succeed. Perhaps more significantly, any marketing programme should make current customers feel justified in making purchases or as is the case in this study, make current students feel justified in enrolling on a course. Therefore, managers should make them feel smart for being a customer. Their philosophy is simple: “You should treat customers so that they No.1 buy more and No. 2 complain less” (Trout and Rivkin, 1998:38).

To apply such a philosophy to this particular research setting, it would be altered to read that teachers need to make students feel smart for taking this course and ***you should treat students so that they No.1 study more and No.2 complain less.*** The resulting commentaries should be something in line with those mentioned by this satisfied student.

Generally speaking, I think that the content explored in this subject area was really rewarding since we are dealing with materials and processes that are highly innovative and possess great potential.⁹² [PROF087]

The key problem in presenting this framework is that HE managers have tended to view quantitative research as “traditional” and have labelled qualitative methods as an accessory to quantitative methods. Cassell and Symon (2004) note that quantitative researchers do not call their research quantitative, they just call it research and qualitative research is viewed as

⁹² Original statement in Portuguese: *De uma maneira geral achei o trabalho desenvolvido nesta disciplina bastante gratificante, uma vez que se tratam de matérias e processos realmente inovadores e com grande potencial.*

something subsidiary. Ruyter and Scholl (1998) noted that qualitative research does not have a good track record amongst managers and academics. Its failure to provide hard data and its reliance on small samples cast doubts on its representation and ultimately its validity. They suggest that qualitative research does not measure but rather it provides insight.

It is flexible, small-scale and exploratory and the results obtained are concrete, real-life like and full of ideas. (Ruyter & Scholl, 1998:8)

The development of the STOPP framework is derived from qualitative data analyses and therefore may be seen as an insufficient means of measuring learner satisfaction. As was depicted by a participant in an online e-Learning forum:

The measure of effectiveness must be quantitative in order to be understood by all stakeholders. Only grades and money can be measured precisely, every thing else is just nice words. (Undisclosed Claimant, 2009)⁹³

Although other participants in the forum viewed the role of certain “stakeholders” as being somewhat disconnected from teaching and learning processes:

For me the word stakeholder creates an image of Peter Cushing holding a pointy stick in cheesy old vampire films. (Undisclosed Claimant, 2009)⁹⁴

This debate regarding the presentation of data and information is a prolonged one and is beyond the scope of this study. However, what is clear is that learners are not identical and new cohorts bring with them new ideas, different expectations and new emotions whereby institutions need to have in place flexible policies and procedures to deal with these new challenges. As one student clearly indicates;

I would like to say that I think it is important to redefine the strategies so that next year there will be more students who will acquire this [ICT] knowledge. ⁹⁵[PROF081]

⁹³ Claimant’s name withheld. UK JISC ALT member’s online forum, Re: [ALT] Evidence e-learning is effective? [20-May-2009].

⁹⁴ Claimant’s name withheld. UK JISC ALT member’s online forum, Re: [ALT] Evidence e-learning is effective? [20-May-2009].

⁹⁵ Original statement in Portuguese: “*Se me permitem, julgo que será importante redefinirem-se estratégias para que no próximo ano haja mais alunos a adquirirem esses saberes.*”

Flexibility is required so that institutions can react immediately and effectively to change processes and are not rooted by policies and procedures that can only be addressed upon completion of a three or five-year cycle. By that time, many learners may have dropped-out affecting retention levels. Many will not have performed to their best abilities which affect their grades and their overall satisfaction levels. This in turn can affect internal and external student surveys which would not be favourable for the institution.

It is vital that policies and procedures although fundamental in their own right for the strategic running of any institution, do not act as restraining chains on the teaching and learning processes. It is imperative that teachers are not forced to function in a manner that is contradictory to their supportive and sensitive role.

All the introductory f2f part of the module was complicated, excessively theoretical and delivered in a very intense tempo. The feeling I had and which prolonged up to the time of setting up the project teams was of total ignorance. I felt for a long time, miles away from what was happening that I didn't believe I would be able to complete the module with a pass grade. Even in the end, despite the effort, I felt I didn't deserve to get the grade I got.⁹⁶ [MMEd08]

We can see from the above comment that when cohorts do get together for their f2f sessions with their teachers and other peers, it needs to be on a relaxed and flexible bases. Teachers must be seen as providing their undivided attention to the students. Being under pressure to achieve certain milestones or trying to do too many things at once can lead students to feel unwanted and unappreciated. The consequences of which can be unfavourable to the learner, the teacher, the course, the department and the institution.

In a recent study carried out by Centre for Educational Research and Innovation (CERI)⁹⁷ (2009) which examined the emergence of new millennium learners in higher education across

⁹⁶ Original statement in Portuguese: *Todo a parte inicial da disciplina, presencial, foi muito complicada, excessivamente teórica e num ritmo muito intenso. O sentimento que tive, e que se prolongou por altura da estruturação do trabalho de grupo foi de burrice total. Mesmo no final, apesar do esforço, não considerei merecer o resultado, em termos de nota, que tive.*

⁹⁷ This document is an excerpt of Chapter 5 in the CERI volume on *Technology in Higher Education* in the *Higher Education to 2030* series, which takes a forward-looking approach to analysing the impact of various contemporary trends on tertiary education systems. It can be located and downloaded at www.oecd.org/edu/ceri [Excerpt retrieved October 2009].

OECD⁹⁸ countries, it concluded that four key messages emerged from the study. These messages emphasise what is being relayed within this study particularly when exploring the potential of the STOPP framework. These messages regard both students and teachers:

- **Students in higher education are heavy users of digital media** but there is a variety of student profiles when it comes to the intensity of attachment to technology or the variety of uses. All of them are already in higher education institutions and it would be discriminatory to develop policies considering just one of the different profiles.
- **Students want technology to improve teaching and learning, not to change it radically.** They value technology adoption in teaching and learning provided that it improves convenience and productivity in academic and course work.
- **Teachers in higher education are far from being digital immigrants.** The adoption of technology has contributed to transform academic work slowly and therefore they require further training and guidance in this area.
- **Teachers often take incorrectly for granted that the familiarity of students with technology makes them automatically savvy in ICT skills.** There may also be an incorrect expectation that learners know how to deal with the technology which is commonly not the case.

To conclude, policies and procedures need to be flexible in their construction so that they are change-upholders rather than change-opposers. Education and training systems need to be aware of the changing living, working and learning patterns of their learners and be willing to adopt innovative change to foster new skills for new jobs and foster lifelong learning. Policy support is needed to enable every learner to benefit from the learning process.

Old and new digital divides privileging the already privileged have to be avoided. Even those accustomed to the technology may lack the essential skills to be digitally competent, such as critical evaluation skills for online information and personal knowledge management skills to benefit from their learning (Punie & Ala-Mutka, 2007).

⁹⁸ The Organisation for Economic Co-operation and Development, Web address is www.oecd.org.

4.7.6 Summary

This stage has taken the enrichers and enablers identified in previous sections, and considering the issues involved in these factors that were identified by the learners in their stories, a framework or set of guidelines were identified. This framework has been allotted with the title and acronym STOPP to indicate firstly, the importance of considering the framework and secondly, to be representative of the core elements that should be considered when developing b-Learning systems of delivery, that is, Students, Teachers, Orientation, Policies and Procedures.

4.8 Conclusion

This chapter has presented the overall findings uncovered from this research study. It has presented a methodological approach through a four-pronged analyses of the data which has led to the development of a fifth stage which focuses on a potential evaluation framework that could be adopted by the DDTE and tailored to suit its specific needs and its specific cohorts and courses.

The results highlight key hygiene factors that the DDTE (Department of Education) need to address before a course or module has begun. This will ensure that a sound operational base is in place to support the learner's in the act of studying and carrying out prescribed activities. Once this is in place, then managers/leaders can begin to consider factors that motivate and encourage learners to perform better and they will need to develop strategies that allow for the continuous enhancement of these motivational factors.

The results also support the fact that the Motivation and Hygiene Theory or an adapted version such as the Enricher and Enabler Theory proposed in this study could be considered as a plausible means of analysis to be incorporated into a department's or institution's b-Learning evaluation process as it can be used to firstly, highlight key areas that encourage or do not encourage the learner and secondly, it can be used to support the development of short to mid-term evaluation frameworks for various curriculum as was presented here through the development of the STOPP framework.

Chapter 5

Summary and Implications

We will not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time

[T. S. Eliot “Little Gidding”]⁹⁹

⁹⁹ Number 4 of ‘Four Quartets’, Verse V written in 1942. Little Gidding is a village in the county of Cambridgeshire in England and visited by Eliot in 1936.

5.1 Introduction

The major goal of this study was to examine the potential of the Motivation-Hygiene theory as a means for evaluating student's satisfaction with their blended learning environment. The objective was to get students to write about good and/or bad feelings that they encountered while studying on their course and then analyse the results with a view to highlighting strong feelings of satisfaction and dissatisfaction that would:

- a) Influence their motivation to study within their learning environments and
- b) Influence their learning environments.

The context in question was the Department of Didactics and Educational Technology and the Department of Communication and Arts of the University of Aveiro in Portugal. The sample involved was made of two distinct groups:

- Professionals from the Cape Verde archipelago studying on a Masters in Multimedia in Education (MMEdU) course delivered in blended learning format where the corresponding modules were offered sequentially to the students. The course was delivered eighty percent online and twenty per cent f2f.
- Professionals from mainland Portugal studying on the In-service Teacher Education Programme (ITEP) where one module or twenty percent of the course was delivered in a similar blended learning format to the MMEdU course.

Due to the blend of the MMEdU course and ITEP module in the study, a learning environment involved both f2f activities in Cape Verde (MMEdU) and on the university campus (ITEP), as well as synchronous and asynchronous activities through the University portal and VLE which at the time was Blackboard™.¹⁰⁰

An online questionnaire was used to collect the students' opinions. The sample was taken over a two-year period (2007 and 2008), first year for the MMEdU group and the second year for the ITEP group. With regard to the MMEdU group, a total of sixteen actively responded to the questionnaire which equates to an eighty-nine percent response rate. Regarding the ITEP group, a total of 28 actively responded to the questionnaire which equates to a response rate of over eighty-seven per cent.

¹⁰⁰ This has now been replaced by the LMS/VLE MOODLE.

All of the respondents from both sets were working professionals and primarily teachers in either primary or secondary schools. The majority was female and the total average age was around thirty-five. All respondents were Portuguese speakers from two main countries, Portugal and Cape-Verde with one individual of Brazilian origin. The Cape-Verde students were based in various islands among the archipelago while the ITEP students were dispersed across mainland Portugal.

The results of the study are presented in the following section and will be examined by revisiting the core research questions presented in Chapter 1:

1. What are the factors responsible for bringing about learning satisfaction with their b-Learning course?
2. What are the factors responsible for bringing about learning dissatisfaction with their b-Learning course?
3. Can these factors be represented as Motivation and Hygiene factors?
4. Will this method of measuring learning satisfaction lead to a set of guidelines that can be considered or adopted in the development of b-Learning courses?

5.2 Summary of Research Questions

Of the four key integral questions proposed in this study and presented above in 5.1, the first three questions play an important role in addressing the validation in considering Herzberg's Motivation and Hygiene Theory as a viaduct for discovering factors which satisfy and dissatisfy learners about their course or modules.

The fourth question is dedicated towards examining whether it is possible, based on the information obtained from the previous questions, to develop an evaluation framework that assists strategic decision making concerned with the development of blended learning courses. These questions are explored in the following sections.

5.2.1 Question 1: What are the factors responsible for bringing about learning satisfaction with their b-Learning course?

When people are satisfied with their learning environment they are more motivated to learn and are more willing to engage in activities that demand prolonged effort, persistence and time. Teachers have an unwritten responsibility to make learning pleasurable and satisfactory. Otherwise why should teaching be valued as inspirational?

Learning should also reflect the way the world works on the basis that we are preparing students to function in a given discipline in the modern world. If this were not the case, we would probably still be working with chalk and blackboards. Therefore, when satisfied, learners should be energised to learn and as such, it is important to be able to highlight which factors play a role in satisfying them in order to make sure these factors are catered for within the teaching and learning processes.

Regarding this particular research study, key satisfying or enriching factors that were highlighted by the students in their stories are presented in <Table 19>.

<Table 19> Enriching/satisfaction factors

MMEdu	Achievement (29.73%)	ITEP	Achievement (25%)
	Course Content and Delivery (10.81%)		Student Professional Development (6.25%)
	Student Professional Development (10.81%)		Feedback and Support (6.25%)
	Teamwork (8.11%)		Teamwork (4.16%)

As discussed in the introduction to this chapter, the online to f2f percentage ratio among the groups is noticeable different with MMEdu possessing a ratio of 80:20 while ITEP possessing a ratio of 20:80 but the actual ITEP module use in the study has a similar ration to the MMEdu course, that is, 80:20. Of the four distinct enrichers that have been associated with each group, three are common in both sets of students: Achievement; Student Professional Development (SPD) and Teamwork

Achievement was noticeably greater in terms of frequency of appearance in both sets of learners' stories than any other factor. It is undoubtedly, within this case study, the most important satisfier within the groups and the one that needs to be maintained and improved in

order to keep the learner's motivated to do well on their course. This idea of achievement was not only driven by personal desire to do well but also by the fear of failing or letting the group down. In most cases this fear was replaced by a sense of joy at having accomplished the prescribed objectives.

SPD refers to the relationship a module had with a learner's professional occupation. Some found the tasks they had to carry out, particularly group activities were related to what they did at their workplace and therefore, felt a sense of worthwhile in carrying out the activities as they could easily relate them to their working environment. They also felt that they were contributing towards the better development of their own professional role.

Teamwork was seen by some as being a delightful experience and helpful in getting them through difficult situations. As teamwork is a common occurrence in the real professional world, it makes sense for its inclusion in learning activities in any module. Some were pleased with the experience they gained from working with others. They enjoyed the work they produced and meeting new people and developing new friendships which carried on beyond the course and into their professional and personal lives.

Course Content and Delivery resulted in a MMEdU enricher and refers to what was presented and available to the learners through the university portal and VLE when working autonomously or in groups without teacher supervision. On this course, it would seem that no real issues were raised concerning this factor with many finding the presentation and functionality of the online resources to be acceptable. Some mentioned that initially it was difficult to come to terms with the functionality but these were generally those who were not necessarily technology-orientated and required more time to adjust which they did.

Feedback and Support resulted in an ITEP enricher. In a b-Learning environment where online learning is fundamental greater emphasis is placed on receiving regular feedback and support from teachers and this support extends to pastoral guidance and understanding. Some were very please with the support they received from their tutors and found it highly motivational.

It is necessary to not forget that the Teamwork and SPD enrichers of the MMEd group and the Teamwork and Feedback and Support enrichers of the ITEP group have also been indicated as being key enablers (dissatisfiers) by the students. This highlights the fact that these factors also possess qualities that lead to similar or greater levels of dissatisfaction than satisfaction and from an evaluation purpose would warrant serious attention.

5.2.2 Question 2: What are the factors responsible for bringing about learning dissatisfaction with their b-Learning course?

In contrast to Question 1 above, unsatisfied learners are less motivated to learn and less willing to engage. This does not imply that they will not engage or are not motivated to study. It implies that they will make an effort but the effort is far less committed and expectations are low as a result of this. In order to avoid this occurrence, it is vital that we as educators are aware of what makes the learners feel this way and have in place strategies to deal with the varying factors.

Regarding this particular research study a total of seven MMEd and nine ITEP enablers (dissatisfying factors) were identified by the students in their stories and these are presented in <Table 20>.

<Table 20> Enabling/dissatisfaction factors

MMEd	External factors (24.32%)	ITEP	Course Content and Delivery (16.67%)
	Workload (21.61%)		Assessment (14.58%)
	Teamwork (13.51%)		External factors (14.58%)
	Induction (13.51%)		Technology (14.58%)
	Technology (10.81%)		Induction (14.58%)
	Student Professional Development (8.11%)		Feedback and Support (8.33%)
	Assessment (5.40%)		Partiality (6.25%)
	Teamwork (4.16%)		
	Workload (4.16%)		

From a MMEd perspective the External Factors and Workload enrichers possess a high percentage of appearance in the learners' stories. Workload is related to the amount of work expected to be achieved in the short period of time required, that is, four weeks per module

which was viewed as being too much and too demanding. Learners felt that with less workload or then more time, they would be able to perform better and the results would be more positive. This also ties in very much with the “External Factors” as all activities that needed to be carried out impinged greatly on the learners’ professional and personal lives which resulted in health problems and family issues.

With regard to the ITEP group no clear enabler stands out as being of greater importance than the others with Course Content and Delivery (CCD) heading the group. In contrast to the MMEd group CCD has caused a high level of dissatisfaction among the learners. This is probably due to the fact that only one module was delivered in a blended fashion and therefore, the affect or the change from the traditional setting they were use to which was used to deliver the other modules on the course was greater.

Four enablers are common in both sets: Induction; Teamwork; Technology and Workload. Many of the factors mentioned by the learners have a strong association with the induction period of the course or module. Both sets of learners felt that they were not prepared enough to handle the demands of the course or module. They felt more could have been done during the introductory period to prepare them. The induction period was felt to be too short and too intense to be able to come to grips with all that was being presented.

Teamwork is fundamental in both groups both as an enabler and as an enricher which makes it a very important factor and worth focusing on particularly taking into consideration the type and delivery of learning involved. As is a reasonable argument, Teamwork is seen as carrying a greater deal of importance within the MMEd group as opposed to the ITEP group which again could be relative to the amount of online team tasks involved within the respective groups and might increase relative to the amount of online activities involved in a particular course.

Technology plays a fundamental part in b-Learning and learner expectations regarding the use of TEL was not compatible to that of the teachers. Learners possessed a diverse range of technological skills which did not help the successful completion of some activities performed in groups. Learners felt that they were not prepared sufficiently to deal with the demand of the

course and even more so when a fundamental outcome of a module involved the use of technology in teaching practice.

Workload is similar to that of Teamwork with a low percentage with the ITTEP group but a relatively high percentage with the MMEDu group. The relative increase in workload dissatisfaction could be an indication that maybe too much emphasis is placed on student participation and input during the online stage and less emphasis is placed on teacher input which would not be the case in a f2f setting. It may also be an indication that students may not or are not prepared sufficiently to develop a teamwork presence or create teamwork attitude without the teacher being present as they would be in a f2f setting.

Assessment involves the type of activities that were used for assessment purposes. Many did not like the use of participation in a Forum as an assessment criterion. However, it is understandable, the necessity to get learners communicating when working autonomously through a VLE. Again, the timeframe involved did not assist learners to develop what they regarded as worthwhile activities/assignments and the preparatory time between the completion of assignment and the final exams was limited and many felt insufficient.

Partiality refers to the idea of preferential treatment of one group or individual over another. Some found they were not offered the same dedicated time and effort by a teacher during the f2f sessions. Others found that the online feedback and support from tutors was not representational and proportionate to all groups and individuals.

Feedback and Support: When distance is regarded as irrelevant in terms of seeking teacher support, greater emphasis needs to be placed on this new online supporting role and teachers may need to be made aware of the expectations it carries with it and may need further guidance in the process.

5.2.3 Question 3: Can these factors be represented as Motivation and Hygiene factors?

The fundamental test in this study was whether Herzberg's discovery of motivational and hygienic reasons regarding what individuals liked and disliked about their working environments could be associated with and applied to learners and their blended learning

environment. Based on the results presented in Chapter 4, there is a strong case to argue that Herzberg's Motivation and Hygiene factors or Enrichers and Enablers, as this researcher would like to regard them can be associated to learning environments.

Herzberg regarded events that demonstrated high levels of satisfaction and had greater frequency in the stories to be associated with motivational factors, that is, factors that enriched the job while factors that demonstrated low levels of satisfaction and had lesser frequency of appearance in the learners' stories were associated with hygiene factors, that is, factors that enabled the job:

All the basic satisfiers [...] appeared with significantly greater frequencies in the highs than they did in the low sequences of events. However, some of these factors also appear with some frequency in the low stories. [...] the satisfiers are much more likely to increase job satisfaction than decrease job satisfaction. (Herzberg, 1959:80)

Concerning this study, the factors that have been considered which can be categorised as "Motivators" or "Enrichers" do relate to factors of high frequency of appearance in the learners' stories and are a combination of high level satisfiers. However, these factors do not represent those which had had greater frequency in the learners' stories as many of the dissatisfactory stories were of a high frequency nature, as <Table 10> and <Table 12> in Chapter 4, Sections 4.5.1.1 and 4.5.1.2 highlight.

In fact, the percentage of unsatisfied stories to that of satisfied is considerably higher which would suggest that these dissatisfiers need to be dealt with urgently and in advance of the motivators. This interpretation is similar to the view taken by Chyung (2002) who proposes that hygiene factors (enablers) should be dealt with first so that dissatisfaction is kept to a minimal and by doing so opens up a means by which motivators (enrichers) can be strategically dealt with. This seems plausible when considering the results of this study as the hygiene factors (enablers) deal with factors that need to be considered or dealt with before learners can actually commence working on their course or modules. Once these dissatisfiers have been dealt with there is a strong foundation in place to support the strategic development of the motivators (enrichers).

Another issue is the fact that the enrichers and enablers will vary from course to course or cohort to cohort. Although there was little difference in the list of enrichers extracted from the MMEdu and ITEP groups there was a noticeable difference in the enablers with the ITEP group amassing a greater amount. This could be because the ITEP group were experiencing a greater change in the delivery process which was 80% traditionally-driven and as a consequence, the effect of a different approach to their expected delivery and assessment processes triggered greater discontentment than that of the MMEdu group who were more attuned to the delivery method.

Although a clear list of enrichers and enablers was derived from the results of the analyses and categorised in order of their importance does not imply that this is the order in which a course manager may choose to deal with the enrichers and enablers. When, for example, a high-level enricher indicates no or very little percentage levels as an enabler then this will not carry president over, for example, a medium-level enabler with a percentage level as an enabler higher than that of the high level enricher. A similar system would also be applied in the case of high and medium enablers with high and low percentage indicators as enrichers.

5.2.4 Question 4: Will this method of measuring learning satisfaction lead to a set of guidelines that can be considered or adopted in the development of b-Learning courses?

What has evolved from this study is not one potential framework but the possibility of two or more frameworks. An operational framework involving both sets of factors which depending on a particular institution's reasons for carrying out an evaluation, can be tweaked to suit that reason. In principle, course managers and academics should focus on locating motivational enrichers and hygienic enablers simultaneously.

Until the framework is actually tested out, it is difficult to emphasise its functionality. It might lead to guidelines or the development of questions that should be included in the standard modular/course evaluation form or it may be evident that the question itself should be included. The question that needs to be addressed here is: Would the inclusion of such a question within the modular evaluation process adopted by each institution be beneficial to the learning process?

Based on the evidence produced in this study, it would be advisable to introduce the question as it can lead to a better understanding of the type of student, their learning preferences and highlight issues that are particular to the cohort in question which will allow the course leader or manager the opportunity to discover what important enrichers and enablers need to be addressed in order to reduce dissatisfaction and increase satisfaction. Hence, offering the learner an environment that encourages them to perform to their true potential and reducing the amount of times they feel unsatisfied with their experience.

With the onslaught of Web 2.0 technology this process of introducing the question to the learners may be easily embedded into the new tools that are currently being advocated in the educational sphere (iCAMP Project (2009)¹⁰¹; Redecker, 2009). New technologies support or even facilitate constructivist learning, assisting the learner to be reflective, to collaborate, to offer peer-to-peer advice and participate in online communities (Grodecka, Pata, & Våljataga, 2008). Examples of ways to embed the question might be through the use of reflective weblogs and blogs that may constitute part of the individual learning plan of a student or may be part of an assessment process involving e-portfolio development within a continuous professional development plan.

Once the question has been administered in whatever form chosen by the respective parties involved it should inadvertently provide indicators that could be considered and introduced into the development of an overall strategic evaluation framework such as the STOPP framework introduced in this study.

By considering the STOPP framework institutions can:

- Make explicit in learning, teaching and assessment strategies and in e-Learning policies the benefits of using technology within the curriculum.
- Embrace technologies that students bring with them rather than exclude them.
- Facilitate the development of meta-cognitive learning skills at the beginning of or prior to the start of the academic year, through workshops and hands-on seminars.

¹⁰¹ The iCamp Project offers examples of various case studies from across Europe that examine the use of social software in higher education. A digital version of the project handbook can be downloaded freely at <http://www.icamp.eu>. [Accessed 07-April-2011]

- Clearly articulate to their students the reasons why they have chosen to adopt a blended learning mode of instruction and emphasise the expectations involved on the part of the learner and the academics.
- Accommodate different styles and needs by carefully considering this imbalance when designing learning materials.
- Consider how their teaching encourages both autonomous and participatory learning and responds to lurking, laggardness and introversion.

5.3 Implications of this study

As this and other previous studies have demonstrated, educators need to carefully consider the course elements they use and take steps to understand what student reactions and perceptions may be towards the use of those elements. In the words of Diana Laurillard, “using technology to improve education is not rocket science...it is much, much harder than that” (Laurillard, 2008: 320).

Before addressing the questions posed by this study, it is worth looking very briefly at some of the principal general implications of using a blended learning approach so as to remind ourselves of just what is involved or what implications can be involved when taking on this form of educational delivery.

- **Blended learning lends itself to a twenty-four hour, seven-day week ideology.** However, it does not consider employed professionals and those with family responsibilities as well. In these cases “open house” accessibility becomes rather limited to only a few hours.
- **It eradicates timetabling and scheduling issues that full-time f2f students have to deal with.** However, students need to possess good time management skills and be self controlled enough to visibly work independently. Therefore, they need to be able to hone their time management skills and very importantly be supported by faculty to engage in ways of doing so.
- **It can facilitate class interaction for those people who are shy or apprehensive about committing on a f2f platform.** Asynchronous and synchronous platforms can

allow an introvert to communicate freely. However, the students must be willing to get involved otherwise their peers will complain about a lack of collaboration and commitment on the introvert's part.

- **With the use of a VLE or other similar resources, new material and links can be added and/or adapted quickly.** However, from the non-online faculty perspective, some may assume that no traditional in-class time implies more free time for the instructor, which can lead to workload issues for faculty.

The above-mentioned implications and assumptions are rooted in the whole online process of education and they need to always be at the forefront of a developer's mind when considering embedding blended learning delivery into the curriculum.

The implications associated with this study lie within the methodologies and approaches that were adopted in order to successfully address the core research questions. These approaches and methodologies generate a set of inherent questions which are addressed in the following sections:

- Is one question sufficient?
- Is the data collection system adequate?
- Is one method of analyses sufficient?

5.3.1 Is one question sufficient?

Some will find it hard to believe that a questionnaire can constitute one direct question. However, if that question offers the respondent the opportunity to anonymously reflect and comment on their actual feelings about anything they feel is relevant to them regarding a particular topic then it surely must be worth the effort to try and see whether it is of value.

This study has proven that learners will offer constructive comments about their experiences and the majority will do so in a manner that is clear to understand and reflects pertinent factors that should be addressed. However, as with all research, not everyone wants to participate and this study was no exception.

Initially, the researcher in this study was willing to meet with a focus group made up of a handful of respondents but this was not a viable option due to the professional and personal constraints of the learners. Also, the option of a one-to-one chat was suggested in the questionnaire but only five individuals replied and their timeframes were distinctly disparate over a three month period. However, as has been presented in various sections throughout this thesis, a fundamental reason for using one method of data collection and one method of analysis was in view of trying to develop a process for evaluating a course or module in a quick and productive manner so that results could be relayed quickly to course managers to consider implementing strategies to deal with the results.

If the application of a one-question questionnaire produces results that are clear and concise and these results are reflective of the majority of the respondents then it is only a question of time before it will be taken on board as a potential means for continuously evaluating courses and modules throughout their life time.

5.3.2 Is one data collection system adequate?

The system of collection used in this study was the use of an unstructured online questionnaire. Structured questionnaires are based predominantly on closed questions that produce data that can be analysed quantitatively for patterns and trends. The agenda is entirely predetermined by the evaluator and provides little flexibility for respondents to qualify their answers. Unstructured questionnaires, whilst still having a structured sequence and focus predetermined by the evaluator, are based on open questions allowing respondents the freedom to answer in their own words and therefore to provide greater qualification in their response (Cohen *et al.*, 2000).

The unstructured questionnaire in this study consists of one pertinent question structured from that used in Herzberg's (1959) study. This questionnaire does possess other minor questions that the respondent could use as a means to guide their reasoning when replying to the question. They have the option of using these questions or ignoring them and answering in a manner suited to them.

The use of structured questionnaires and structured emails in online interviews have been proposed as reliable ways forward in qualitative research (Al-Saggaf & Williamson, 2004; Bampton & Cowton, 2002) but regarding this study, the idea of developing a one-question unstructured questionnaire as the only means of data collection has not been evidenced yet. This approach worked well, with the majority of respondents replying in a manner suitable to them and very few chose the option of adopting the suggestive additional questions provided. Some answers with very short annotated replies, others with a couple of lines of text and others with an abundance of stories which would easily fill a whole standard A4 sheet.

The unstructured system was used as it was the more viable way of obtaining feedback from such a dispersed group of learners. It also allowed the learners to provide anonymous feedback on their experiences which would involve explanations of what happened, their opinions, attitudes and perceptions. Above all, they would provide evidence from a learner perspective of issues that might not otherwise be evident to the teacher, researcher or evaluator (Cohen *et al.*, 2000).

As has been mentioned previously, an objective of this study, taking into consideration the current and future economic climate, is to find adaptable quick solutions to events indicated by particular cohorts within particular courses and modules. As time is of the essence, involving a multiple data-collecting system that is dependent on what happens during the running of a course or module will not benefit the cohort in question and at times, due to the amount of data collected, may not be analysed in time to benefit the next cohort. This “analysis” issue is discussed further in the following section.

5.3.3 Is one method of analysis sufficient?

In the field of natural science most findings tend to be validated through the laborious work of repeated replication. Usually, second investigators are required to replicate and then if necessary, challenge the original findings. In principle, if there is no-one available to replicate the findings they are rejected as flawed and invalid.

There are some problems associated with this ideology. There is no real concrete evidence available to say that this is the way to carry out procedures in order to ensure research and

analysis produce the right answers which to a certain degree opens the gate for other formats and procedures to be followed. Second, in qualitative research, replication is seldom possible and in most cases may not be necessary or sensible to do so as many respondents, depending on the timing, the situation, their frame of mind, will more than likely not relay or do exactly the same things.

In many areas of the social sciences, the idea that analysis should be valid, reliable and generalisable tends to prevail. Validity refers to the idea that what is being relayed is representative of what actually happened. Reliability refers to the idea that similar results from the analysis would also be obtained if different researchers repeated the research on another occasion. The participants involved may be different from those in the original research though they will be similar and be doing similar things. Generalisability means that the results of the research and analysis apply to a wider group of people, social situations and settings than just the ones investigated in the original study.

A problem with the above claims and in line with a wide range of post-modernists and constructivists' views, it is difficult to assume that there is just one, single, fundamental social reality against which results can be checked to see if they are valid. Rather, what is clear is that there are many different social realities and views about our world and there is no way we can give any single one a privileged position as the reality.

Regarding this particular study, there has to be a degree of trust in what the learners are relaying in their stories otherwise, why invent such events. Regarding reliability, as was evidenced, learners viewed similar events differently, some finding an event positive and rewarding while others appeared to have experienced a negative feeling with the same event which lead to varying levels of satisfaction and dissatisfaction associated with the same factor.

Obviously, the next stage in strengthening the view that this simplistic approach is worthwhile would be in analysing the same cohorts on the same course over a number of years as mentioned in Section 5.5 below. This way, we can then compare the satisfaction and dissatisfaction levels over time to see whether they have improved after embedding strategies based on the results of the analyses. Generalisability cannot be proven at this stage but is another factor mentioned in Section 5.5 below.

5.4 Limitations to this Study

As with any study there are factors that limit its success and this study is no exception to the rule. Some of the limitations mentioned are apparent as they have been mentioned in previous discussions throughout this thesis.

- **Small sample size.** This enquiry was hampered by the lack of responses received to requests for participation. Although this is in itself a particular case study, the researcher would have preferred a much larger sample so that a more even range of responses could be applied.
- **Restricted to a particular virtual learning environment.** The VLE Blackboard was the only learning environment considered and others should be studied as well to confirm the results thrown in this investigation.
- **Potential unreliability in the research question(s).** To accommodate the many forms of online learning as possible in higher education, the research question(s) was posed rather broadly. This may have limited the potential of this enquiry to derive particular findings that could guide and inform others.
- **Potential bias in the sample.** Due to the self-selecting nature of the sample and the lack of any stratification in the sample, it is difficult to know precisely how much the sample does in fact represent blended learners in higher education.
- **Lack of psychoanalytical views.** As Herzberg was a psychologist, some psychological (positive psychology) or psychoanalytic view embedded into the research might be beneficial to the study.
- **Sequentially driven modules.** The modules were offered to the students sequentially, that is, each module was taken separately over a four week period and successfully completed before beginning another module. This may not be representational of current trends within other higher education institutions.
- **Other learning variables.** While this study has looked closely at the impact of blended learning on how learners feel and perceive their educational environment and how these feelings and perceptions might be enhanced, it has not addressed the impact of what they learn or where learning takes place.

5.5 Future Research

Considering the limitations discussed previously, as well as the overall purpose of this study, the potential to carry out further significant research is evident. These potentialities are discussed in the following sections.

- **Application to the wider sector**

Examine whether the results can be applied to the wider sector. Can we use it in other institutions and other educational settings?

- **Focus on course/module tutors**

Trial it out on the academics involved with the course at the University of Aveiro to examine their range of satisfiers and dissatisfiers. This would offer a more robust picture of the blended learning experience from different perspectives and it may be an opportunity to clarify and understand some of the student's reasons behind their sentiments and feelings expressed in their stories.

- **Larger sample including undergraduates scale investigation**

Trial it out on a larger scale at different institutions to see whether there exist variations among teachers and students (compare institution results) and to see whether it is possible to associate particular variations with particular types of educational settings. For example, salary: what level of increase and what degree of occurrence suits staff? Or for example, feedback: what type of feedback do students require, how often and by whom?

- **Comparative analyses**

Compare the results of this study with those of similar research which uses different modes of data collection with a view to examining the similarities and dissimilarities among the findings. This would, for example, help clarify any legitimacy in the use of a simpler, quicker online one-question approach as opposed to a lengthier f2f constructive interview approach.

- **Other virtual learning environments (VLE)**

Consider other VLEs within the study so as to compare whether there is a difference in learner's attitudes that could be related to the overall functionality of the VLE. Also, the use of VLE forums and wikis could encourage more learners to participate fully in expressing their feelings about their learning experiences.

- **The application of Web 2.0 technologies**

Consider using Web 2.0 technologies to embed the question rather than a standard e-questionnaire approach. The benefits of embedding the question into reflective practices through, for example, the development of e-portfolios, weblogs and blogs may result in obtaining a better and quicker understanding of the learners' feelings towards their learning experiences.

- **Triangulate research**

Some would say yes? Do we have the time, effort and resources to do it, to obtain results quickly and in time to make a difference to the educational process for example, on a yearly or semester basis? As many institutions carry out internal surveys at the end of each module or semester, it may be worth investigating whether the introduction of the Herzberg question in such a survey would aid the evaluation process.

Even if two views do seem to contradict one another, then the difference can be used as a reason for deeper and repeated analysis of the data in order to try to explain and resolve the differences.

5.6 Conclusion

The fortunes of online learning have fluctuated over the last ten to fifteen years. Touted in the 1990s as the vehicle of the future, it was seen as the key to overcoming the limitations of traditional class-based learning. Proponents argued that “virtual classrooms” would ultimately replace the school classroom and university lecture hall but, in the years following the millennium, enthusiasm for online learning waned. The problem was the reality rarely lived up to the promise – many early programmes were badly designed and delivered, suffered from technical faults and often did not meet the needs of students.¹⁰²

Due to the over exuberant claims and beliefs that underlined the quotation above, many learners became disillusioned with online learning and caused them to drop out at an early stage in their learning process. However, despite the fact that many programmes were poorly designed and delivered, online learning be that fully or blended, is still evident and to no lesser

¹⁰² “A new era for digital learning” by Morgen Witzel which was published 06-October-2005 in the Financial Times newspaper and is available online at: <http://www.ft.com/cms/s/2/0bb99646-3651-11da-bedc-00000e2511c8.html#axzz1KiiKZtGE> [Accessed 10-February-2010].

degree thriving in today's educational settings due to the fact that major changes have been made in the design and content of these programmes.

One major factor to be taken into consideration was the fact that the styles of online learners were not the same as those within a traditional setting. Students will react differently to a changing paradigm and therefore, online programmes need to be developed in a fashion that takes on board these reactionary styles (O'Neill, Singh & O'Donoghue, 2004).

Another factor that needs to be considered is the motivation of learners to learn. Motivation is largely an internal cognitive issue and to ignore its role in learning is to a certain degree dehumanising the learner and preventing the development of a learning culture. In a UK National Adult Learning Survey (NALS) (2005), it was revealed that 38% of adults had not participated in any formal learning in the past three years, 66% who had done no learning in the last ten years said that nothing would encourage them to learn and 34% of non-learners would like to undertake some form of learning.

This awareness has been accompanied by an increase in learning support for the online learner and more importantly an increasing focus on the emotional side of the online learner's experience where learners are asked about how they feel towards working online and their integration with their learning groups (Salmon, 2004). Working online creates a wide range of feelings in participants and ones that are not evidenced in a traditional learning environment (Salmon, 2002; Wilson, 2002).

Frustration with the technology is a common occurrence but this is usually short lived. The experience of not "physically" being with others can be one of the principal reactors and even more so within a blended environment in which learners do meet physically at varying times throughout the course.

In order to become aware of the emotional state of the learners with regard to their learning experience, they need to be asked about it. As was proven in this study, we need to involve the learner's voice in the whole process while at the same time make the process as least taxing as possible for all participants. Embedding the learner voice is as much about our attitudes to listening to learners as it is about improving processes.

Involving learners in meaningful ways can be difficult. Learners can be reluctant to participate and may find the language of course documentation and quality assurance inaccessible. It is important that we do not consume too much of their time to find the information necessary to inform the tutor, department or researcher of issues that can be addressed both in the short and long term for the benefit of the learners and the module(s)/course(s).

Although research into the learner's experience of b-Learning has shed light on many aspects of that experience, the challenge is to bridge the gaps between this experience and current course provision. This research has shown that it is important to avoid generalising about blended or digital learners. However, course teams should design flexible and responsive learning experiences which focus on developing digital literacy within the course. Technologies and learners are diverse and changing rapidly, so it is an ongoing commitment to respond to learners' experiences with technology.

Online tutors or moderators wear many "hats" (Bonk, 2000). These include:

- The Technological Hat – Using the available technology to enhance student learning is not easy.

Educators must understand the application software and also the implications of technology for adopting different strategies in teaching.

- The Pedagogical Hat – Creativity is needed to design a course that brings students "nearer" or at least make the students feel "nearer" in an online learning environment.

In the invisible classroom, the tools/applications used to monitor or raise the intellectual skills of students require the tutor to adopt the right tools and not simply use the tools that are available.

- The Social Hat – The educator has to establish rapport with students. In the online environment, the technological communication tools should be used to establish a friendly, cohesive and comfortable learning environment and should be used regularly and the tutor must be in the position to encourage communication when it is waning at times. This is not easy, since non-verbal messages cannot be detected through this medium.

Tutors seem to wear this hat least because of the task-oriented setting of the online syllabus. However, this hat is important to increase student learning and ensure that student motivation levels remain high:

If a teacher today is not technologically literate - and is unwilling to make the effort to learn more – it's equivalent to a teacher 30 years ago who didn't know how to read and write. (Fisch, 2007, winner 'Most Influential Blog Post, EduBlog Awards 2007')¹⁰³

The focus should be on enhancing learning rather than improving it. Using learning technologies and different media can increase the diversity of delivering learning and therefore cater better for the wide range of different individual learning styles of students. Inspiring and motivating teaching should involve a variety of teaching methods and modes which are supported by (embed) learning technologies and media.

As was experienced in this study, b-Learning can be seen as antisocial, lonely and alienating and learner support plays a sustainable role in motivating learners who are encountering these types of feelings. This can mean regular external feedback and coaching. The learner must also be encouraged to reflect on their work, self test and self regulate their own performance. Whether it be external or internal, feedback throughout the learning process does matter and not just end point testing and examining but a combination of formative and summative assessment. It is clear that b-Learning is not a new dimension but what could be considered as new is the immense range of possible ingredients that can be used to harmonise the blend. B-Learning course creators must decide, through selected criteria, how the ingredients should be blended to produce satisfied, motivational and productive learners.

As humans we tend to be content with the norm and this is sometimes what draws us towards b-Learning. Vendors of e-Learning have been at fault in presenting dream models based on large catalogues of content and a VLE/LMS. Attention to learners, their needs, abilities, cultures and styles was rarely embedded in the pitch. On the other hand, cultural inertia, the reactive, protective attitude that resists change is also common and can play just as destructive a part as any other factor.

¹⁰³ Karl Fisch's Blog: THE FISCHBOWL - "*Is It Okay To Be A Technologically Illiterate Teacher?*" Available online at <http://thefischbowl.blogspot.com/2007/09/is-it-okay-to-be-technologically.html> [Accessed 10-February-2010].

Blended learning attempts to rise above these crude positions. In designing, developing and delivering different types of blends it is imperative that the learning outcomes, learners and learning resources are at the forefront of every proposed solution. However, as with all attempts to perfect the blend, increasing the choice is not an end in itself. Good cocktails are not normally made by including as many different drinks as you can muster. They are carefully crafted blends of complementary tastes, where the sum is greater than the parts.

A similar approach needs to be taken when blending a learning cocktail; one which is learner-centred and flexible enough to modify the ingredients when required. In order to do this, institutions will require a flexible and quick means of assessing their blended solution and it is the researcher's hope that this study has expanded the research into this critical area of knowledge and has offered a means by which b-Learning solutions can be promptly and effectively assessed in a manner which does not require an immense amount of time and recording and can be applied at varying stages of the learning process.

A more systematic approach should be taken on board by educational institutions which provide students and academics the opportunity to acquire new skills and competencies needed to function constructively in this dynamic and progressive learning and teaching environment which is not only knowledge-driven but also technology-driven. One of these strategies is the dissemination of good practices, that is, practices which have been achieved successfully.

Another strategy consists in the creation of dedicated Units or Centres to support and promote excellence in teaching and learning in HE which are not yet clearly evident within Portuguese institutions. The visibility and recognition of teaching and learning can effectively engage the academia to develop more consistent and continuous strategies and to give visibility of the work carried out in institutions.

To conclude, attention has been directed towards the importance of a learner-centred idealism throughout this study, highlighting the importance of the human dimension of TEL over the technological aspect. A fundamental element within the human dimension is the teacher and it is fundamental that the teacher is not seen to be overshadowed by the learner and even more so by the technology. Teachers may often underestimate their role or have

their roles underestimated in directing learning and no-one should ever assume that knowledge is embedded within the technology and that it will in some form or manner replace their importance. Teachers are the gateway to a vast array of knowledge.

Learning is a complex activity and good teaching which takes many years to craft is fundamental in nurturing this complexity. The skill of any good teacher is in knowing what the more suitable approach is in order to allow a learner to progress onto the next stage of understanding a specific kind of learning task. Therefore, teachers need to be involved in the design stage of b-Learning and TEL content and be an integrate member of the development team.

Teachers and learners together are the pace-makers for the learning future and can address challenges and articulate concise visions about evolving educational scenarios and therefore, policymakers must consult with these important contributors in order for it to function effectively.

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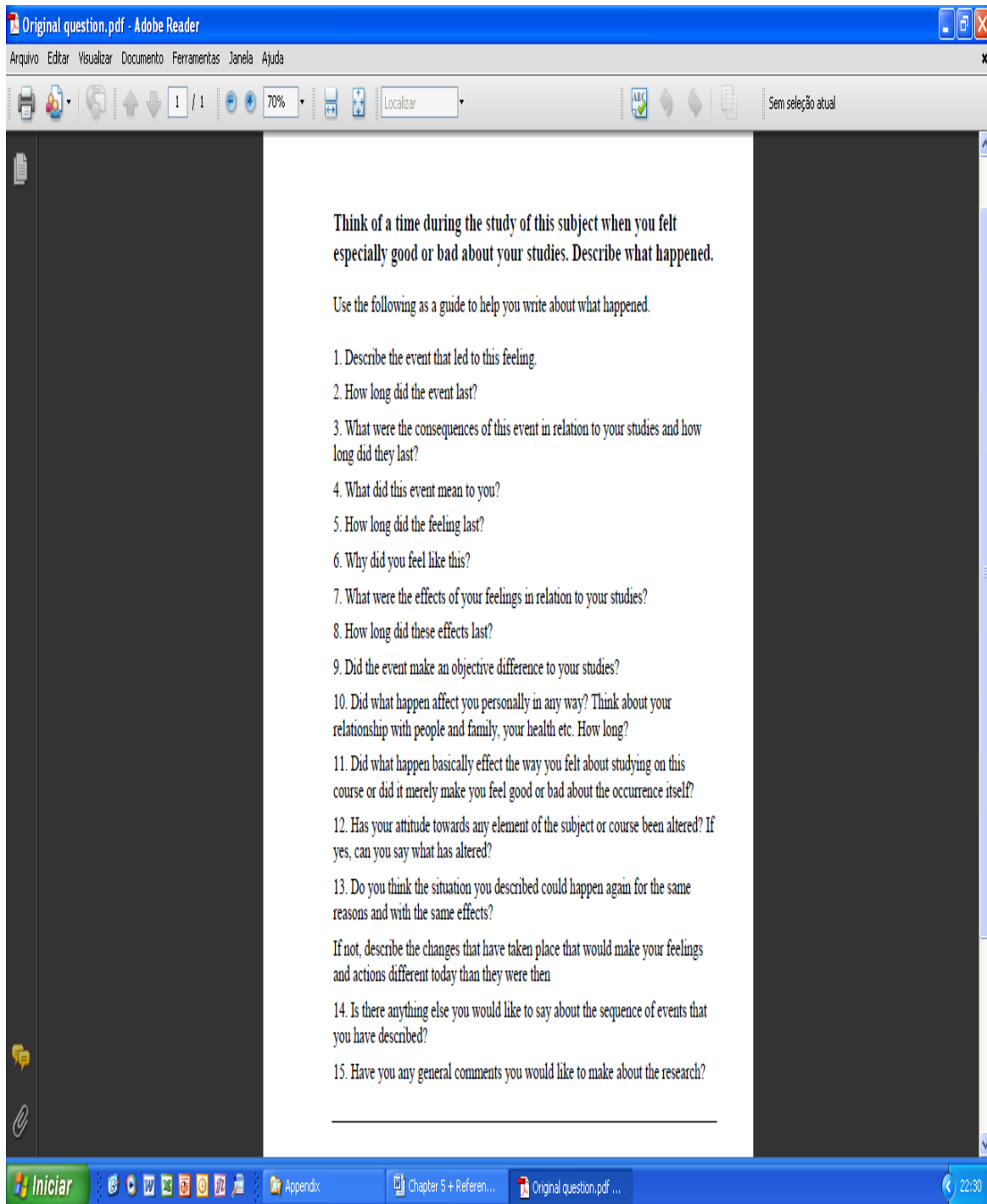
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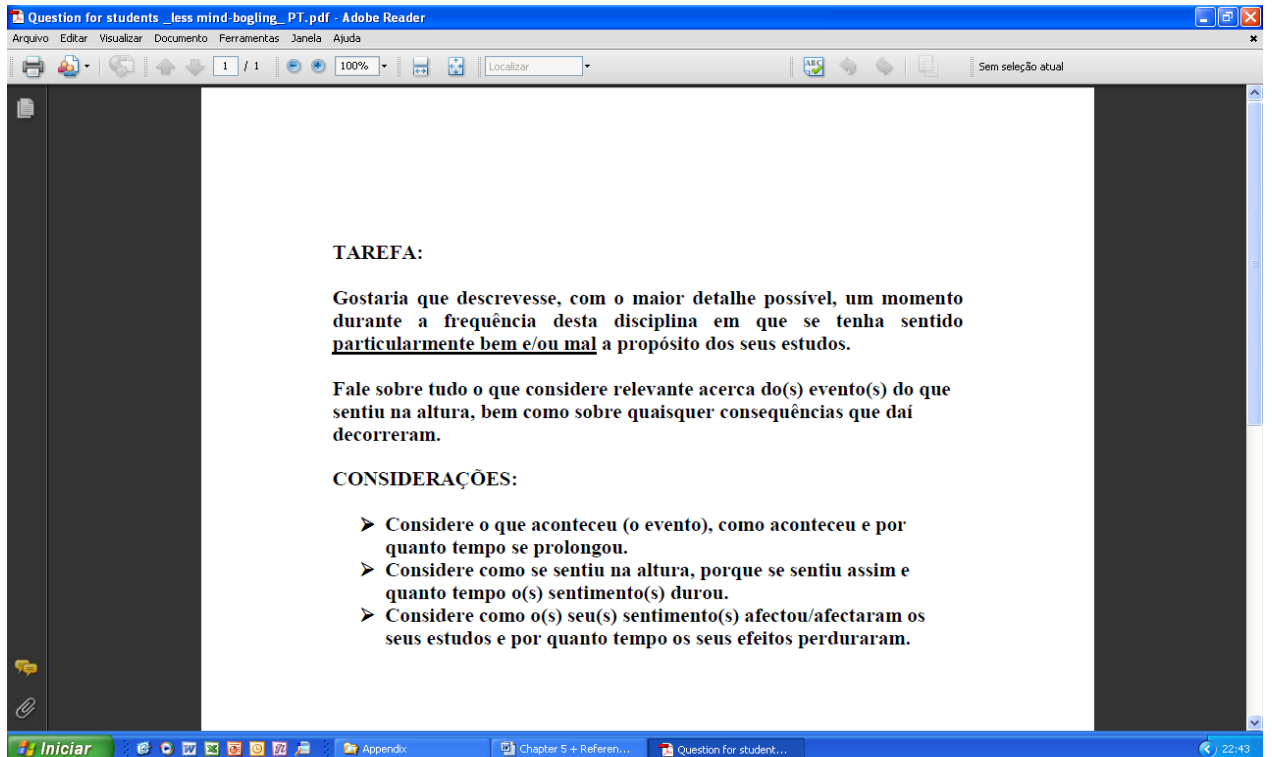
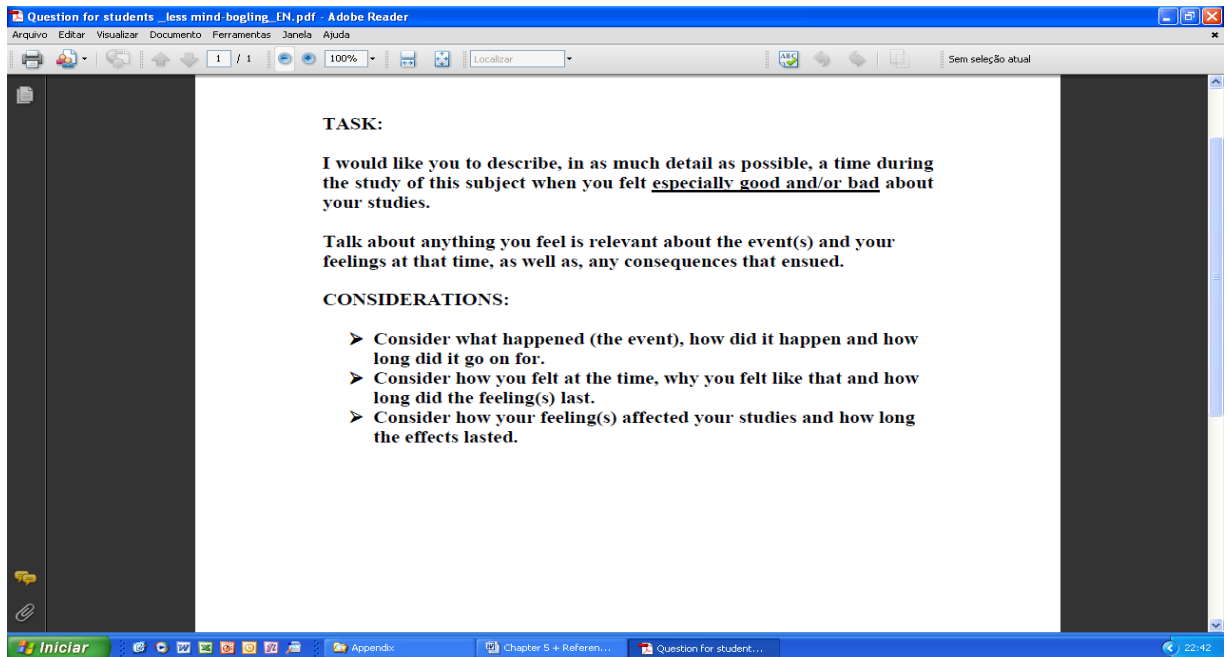
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Appendices

Appendix 1A: Questionnaire - Initial Proposal



Appendix 1B: Questionnaire - Less Mind-boggling (English and Portuguese Versions)




Appendix 2: Questionnaire – Screenshot of Final Online Version

Mestrado Multimédia em Educação - Windows Internet Explorer

http://wsl2.cemed.ua.pt/tarefa/tarefa.asp

Mestrado Multimédia em Educação

AVG explore with YAHOO! SEARCH Total Protection AVG Info Get More

 Universidade de Aveiro
Departamento de Didáctica e Tecnologia Educativa
Mestrado Multimédia em Educação
Desenvolvimento de Materiais Multimédia para Educação

TAREFA:

Gostaria que descrevesse, com o maior detalhe possível, um momento durante a frequência desta disciplina em que se tenha sentido particularmente bem e/ou mal a propósito dos seus estudos. Pode escrever acerca de tantos sentimentos quantos queira mas certifique-se de que os separa claramente.

Fale sobre tudo o que considere relevante acerca do(s) evento(s) que viveu na altura, bem como sobre quaisquer consequências que daí tenham decorrido. Antes de iniciar a sua resposta, tenha em linha de conta todas as considerações que se apresentam seguidamente.

CONSIDERAÇÕES:

- Considere o que aconteceu (o evento), como aconteceu e por quanto tempo se prolongou.
- Considere como se sentiu na altura, porque se sentiu assim e quanto tempo o(s) sentimento(s) durou/duraram.
- Considere como o(s) seu(s) sentimento(s) afectou/afectaram os seus estudos e por quanto tempo os seus efeitos perduraram.
- O que aconteceu afectou-o(a) de algum modo a nível pessoal? Reflecta sobre as suas relações com outras pessoas, com a sua família, com a sua saúde, etc. Por quanto tempo perdeu o seu efeito?
- O que aconteceu afectou o modo como se sentiu acerca de estudar para esta disciplina, ou fê-lo(a) simplesmente sentir-se bem ou mal acerca da própria ocorrência?
- A sua atitude relativamente a algum aspecto da disciplina ou do curso alterou-se? Se sim, pode explicitar o que mudou?
- Pensa que a situação que descreveu poderia acontecer de novo, pelas mesmas razões, e com os mesmos efeitos? Se não, descreva as mudanças que tiveram lugar e que tornaram os seus sentimentos e acções diferentes daqueles que assumiu nessa altura.

Utilize o espaço abaixo para a sua resposta.

Se desejar dizer mais alguma coisa acerca da sequência de eventos que descreveu, utilize o espaço abaixo.

Windows taskbar: Iniciar, Chapters, Chapter 5..., Chapter 4..., Whittle Coll..., Microsoft..., Mestrado..., Vodafone..., 17:17

Appendix 3: Screenshot of Responses Delivered in Excel

	A	B	I	J	K	L	M	N	O	P	Q	R	S
1	Mest Multimédia educação Cabo Verde	mmedu03	1. Dado ser o único do ISECMAR, SV, torna um pouco difícil pertencer a grupos que na maioria estão na cidade de Praia e isto afecta um										
2	Mest Multimédia educação Cabo Verde	mmedu04	Cheguei atrasada para a "Sohr, mas, com a ajuda do professor, venci. IlO professor está de parabéns.										
3	Mest Multimédia educação Cabo Verde	mmedu05	o aspecto que me marcou positivamente durante a frequência do curso foi a experiência de participar num curso enquanto professor, no entanto										
4	Mest Multimédia educação Cabo Verde	mmedu06	o momento que marcou positivamente, foi fazer parte da "equipa" de montagem de um centro de recurso em C. Verde. Mudou a minha atti										
5	Mest Multimédia educação Cabo Verde	mmedu07	Eu sentí-me mal no 1º dia de aula quando deparei com aquele conteúdo que não parecia ter nenhuma relação com a disciplina que eu leic										
6	Mest Multimédia educação Cabo Verde	mmedu08	O momento mais intenso que acredito ter vivido durante o desenvolvimento desta disciplina tem a ver com a disponibilização do curso do I										
7	Mest Multimédia educação Cabo Verde	mmedu08	Todo a parte inicial da disciplina, presencial, foi muito complicada, excessivamente teórica e num ritmo muito intenso. O sentimento que tive										
8	Mest Multimédia educação Cabo Verde	mmedu08	Com uma detalhe em relação às disciplinas anteriores, está já gerou expectativa e ansiedade antes mesmo das sessões presenciais inici										
9	Mest Multimédia educação Cabo Verde	mmedu09	Para dizer a verdade primeiro dia fiquei um pouco aérea porque parecia ser tudo muito tecnico e ainda mais porque tratava de uma área, e										
10	Mest Multimédia educação Cabo Verde	mmedu09	A disciplina em si era algo novo, assim como os conteúdos abordados as estratégias e as metodologias utilizadas ao longo da sua occurri										
11	Mest Multimédia educação Cabo Verde	mmedu10	Durante a frequência desta "Houveram outros momentos positivos ao longo do semestre, mas também houveram momentos menos bons.										
12	Mest Multimédia educação Cabo Verde	mmedu11	Em relação à parte prática da disciplina acho que es teve muito bem estruturada e nos ajudou a desenvolver projectos que se adequam à										
13	Mest Multimédia educação Cabo Verde	mmedu12	A disciplina de tecnologia educativa, ajudou-me a perceber um pouco mais sobre esta área, tendo em conta que algumas tecnologias ser										
14	Mest Multimédia educação Cabo Verde	mmedu13	Na minha opinião esta disciplina, bem como todo o curso é bastante trabalhosa, isso acaba por me afectar como é obvio. IlOs trabalhos q										
15	Mest Multimédia educação Cabo Verde	mmedu14	Eu actualmente sinto-me frustrada, porque na parte prática tivemos imenso trabalho, aliás foi a disciplina que mais trabalho nos deu, pois e										
16	Mest Multimédia educação Cabo Verde	mmedu15	As disciplinas, inicialmente, foram um pouco exigentes, pois não tinha o tempo que desejava para poder "dedicar-me de corpo inteiro". Poi										
17	Mest Multimédia educação Cabo Verde	mmedu15	Salvo o facto de o curso ser muito intensivo, principalmente para as pessoas que trabalham, odia inteiro, penso que ao-aço tem mais nada e										
18	Mest Multimédia educação Cabo Verde	mmedu15	De uma maneira geral sentí-me relaxadamente bem ao longo do tempo em que decorreu a disciplina. IlAs dificuldades hevdas foram por										
19	Mest Multimédia educação Cabo Verde	mmedu16	Lançamento do curso "Mlllho na Cultura Caboverdeana". Este evento foi muito marcante para mim, porque achando que tudo estava a funci										
20	Mest Multimédia educação Cabo Verde	mmedu17	O evento que mais me marcou, foi sair no mercado nacional e procurar os serviços existentes em Cabo Verde assim como os preços. O m										
21	Mest Multimédia educação Cabo Verde	mmedu18	A rigor, não houve um acort Para agravar a situação, falhou-me espírito de iniciativa, para unir-me a alguém e estudar 15 ou 20 minutos que										
22	Mest Multimédia educação Cabo Verde	mmedu19	O momento que me senti pe O momento menos feliz que me deixou mesmo triste, foi quando vi a nota de participação que no meu caso e d										
23	Mest Multimédia educação Cabo Verde	mmedu19	Ao longo do curso no decorrer dos trabalhos práticos, tenho que fazer esforços extras porque não é possível encontrar com o grupo durante										
24	Profissionalização A	proferv009	O que julguei mais difícil neste exame foi a falta de tempo. Se tivesse mais tempo, daria para reflectir com mais calma de modo a tornar as										
25	Profissionalização A	proferv012	Nos primeiros momentos da apresentação da disciplina, surgiram uma panoplia de sentimentos: ansiedade/espectativa pela disciplina m										
26	Profissionalização A	proferv014	Durante o período de tempo em que decorreu esta disciplina considero que não me ocorreu nenhum facto negativo que me afectasse psic										
27	Profissionalização A	proferv016	O facto que mais me preocupou ocorreu sensivelmente em fins de Março, quando comecei a ver o tempo a passar e sem ter dado início, j										
28	Profissionalização A	proferv018	Este trabalho foi, particularmente, difícil por vários motivos. Il-foi longo e moroso. O meu grupo passou horas e horas e horas a fazê-lo. Il-pi										
29	Profissionalização B	proferv019	O início desse curso não foi nada bem para mim, tendo em conta que contrariamente dos colegas foi o meu primeiro módulo. Para além de										
30	Profissionalização B	proferv023	Ao longo da minha frequência nesta disciplina constatei que muitos aspectos poderiam ter sido melhorados e repensados, nomeadament										
31	Profissionalização B	proferv027	A frustração emergiu à qual se me deparavam dois caminhos: modificar a percepção da frustração, e tolerá-la, ou a fugir Devo confessar,										
32	Profissionalização B	proferv028	não existiu momento algum que me provocasse um sentimento de negação face à disciplina, contudo, estava à espera de algo mais motiv										
33	Profissionalização B	proferv031	Penso foi muito importante ter este momento formativo, especialmente nos domínios da tecnologia educativa, cujo desenvolvimento é extr										
34	Profissionalização B	proferv032	no início sentí-me confusa e perdida porque não conseguia entrar no espírito do programa. IlNo fim o sentimento foi de grande satisfação p										
35	Profissionalização B	proferv033	Um momento marcante par: O que aconteceu comigo contribuiu para um maior interesse pela disciplina. O sentimento de medo, de impotê										
36	Profissionalização B	proferv034	Durante o tempo em que decorreu esta disciplina, aliás, durante todo o curso, não ocorreu nenhum evento negativo que me afectasse diret										

Appendix 4A: Original Full Replies from MMEdu Group

Mest. Multimédia educação Cabo Verde	mmedu03	
<p>1 . Dado ser o único do ISECMAR SV, torna um pouco difícil pertencer a grupos que na maioria estão na cidade de Praia e isto afecta um pouco o meu rendimento</p> <p>2. Sentimento de frustração por não poder estar sempre presente apesar de estar num computador ligado</p> <p>3. Afecta por que torna a pessoa nervosa muitas vezes sem poder dormir a noite e as vezes dando resposta em casa sem necessidade</p> <p>4. Acaba tudo por passar quando gente termina o trabalho e que o grupo volta a reunir-se</p> <p>5. Sim antes era muito reticente a construção de conhecimento no Internet hoje sou um grande defensor de formação a distância. Costumo dizer aos colegas no ISECMAR que perderam uma boa oportunidade de construir mos junto conhecimento</p> <p>6. Poderão voltar a acontecer mais dado a experiência e as repetições e com o melhor conhecimento do pessoal no grupo e da turma as coisas estão se tornando um pouco mais simples</p> <p>Obrigado</p>		
Mest. Multimédia educação Cabo Verde	mmedu04	
<p>Cheguei atrasada para a primeira sessão e por isso esta foi de muita angustia. Eu parecia um extraterrestre. Não entendia nada e perguntava: meu Deus o que estou a fazer neste lugar. Parecia que o professor falava chinês. Sentia cada vez mais atrapalhada a medida que nós aproximávamos do fim.</p> <p>O trabalho final foi o golpe da misericórdia. Pois, o meu grupo nunca conseguia reunir. Aí, pensei: Elvira toma jeito e pensa em trabalhar a sério. Mas já estava tão atrasada que fiquei doente. Fui ao médico.Vinte dias de convalescência. Nessa altura disse: é o fim. Quando acordei do susto e comecei a ler os textos vi que, afinal, não era nada de outro mundo, pois eu é que tinha visto monstro onde realmente não existia. Mentalizei-me de que era possível fazer um bom trabalho. Arregacei as mangas e fui a luta.</p> <p>Sofri, mas , com a ajuda do professor, venci.</p> <p>O professor está de parabens.</p>		
Mest. Multimédia educação Cabo Verde	mmedu05	
<p>o aspecto que marcou positivamente durante a frequencia do curso foi a experiencia de participar num curso enquanto professor. no entanto a sobrecarga das tarefas constitui um dos aspectos que marcou pela negativa.</p>		
Mest. Multimédia educação Cabo Verde	mmedu08	
<p>O momento mais intenso que acredito ter vivido durante o desenvolvimento desta disciplina tem a ver com a disponibilização do curso do nosso grupo no Blackboard. Sob pressão dos prazos, e com pouco à vontade com a plataforma na lógica do professor, parecia na altura que todo o tempo do mundo não nos chegava, e por mais que trabalhávamos não chegávamos ao fim. Nesse dia, e na véspera, as exigências da tarefa fizeram-nos deixar a família de lado. E, quando estávamos com familiares ou amigos, só falávamos do curso. A tal ponto que meu marido chegou a perguntar se eu não tinha outro assunto com que conversar.</p>		

Entretanto, e com o objectivo atingido, o percurso mostrou que estivéssemos metidos de cabeça na lógica do aprender a fazer fazendo. O the day after, mais do que a satisfação pelo trabalho cumprido, mostrou, também, que estávamos a reviver, um pouco, os tempos da universidade

Importa também destacar que, se antes de iniciar o curso a sua lógica fosse apresentada, não me acharia capaz de fazer o percurso que fizemos, sobretudo em se tratando de uma área de todo nova para nós.

Mest. Multimédia educação Cabo Verde	mmedu08	
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Todo a parte inicial da disciplina, presencial, foi muito complicada, excessivamente teórica e num ritmo muito intenso. O sentimento que tive, e que se prolongou por altura da estruturação do trabalho de grupo foi de burrice total. Senti-me durante, muito tempo, a leste do que se passava, não acreditando que seria capaz de finalizar a disciplina com um resultado positivo. Mesmo no final, apesar do esforço, não considerei merecer o resultado, em termos de nota, que tive. Ao contrário das outras disciplinas, DMME, AGA e esta que está a decorrer, não fiquei com a sensação de que os conteúdos tenham ficado sedimentados. Entretanto, fazendo às contas do desenvolvimento do curso, acredito que nós mesmos estamos a exigir demais de nós, como se tivéssemos que sair de cada disciplina como um expert.

Acho que a situação está a se repetir. No meu caso, diante de tanto material disponibilizado no blackboard, e da consciência que há um mundo de informações a nível da internet, deixou-me ansiosa a tal ponto que perder o sono às vésperas do arranque da disciplina, tendo que me levantar as quatro da manhã para poder estudar, com sudorese, sinal da ansiedade. Algo, entretanto, que se vai esvaindo com o desenvolvimento da disciplina.

Gostaria de destacar, ainda, que ao meu ver, esta ansiedade se deve ao facto do arranque presencial ser muito curto, o que nos coloca em uma situação de garrafa de espumante. Somos agitados e ficamos sob uma pressão absoluta, sem tempo suficiente para colocar o conteúdo para fora.

Com uma detalhe em relação as disciplinas anteriores, esta já gerou expectativa e ansiedade antes mesmo das sessões presenciais iniciarem. Isto devido a quantidade de materiais disponibilizados como Conteúdos. Também houve confusão com a calendarização, o que fez aumentar a ansiedade. Entretanto, as aulas presenciais, ao meu ver, e contrariamente as expectativas, foram as mais suaves, com o tempo sendo suficiente para se avançar com o que estava planeado neste primeiro momento e com as bases para o trabalho à distância devidamente amarradas. Algo que, é meu sentimento, é facilitado pelo trabalho feito nas disciplinas anteriores, que deixaram muitas bases para a prossecução desta disciplina.

Mest. Multimédia educação Cabo Verde	mmedu09	
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Para dizer a verdade primeiro dia fiquei um pouco aerie porque parecia ser tudo muito tecnico e ainda mais porque tratava de uma area em que eu me encontra um pouco distante. mas começando o trabalho com toda a gara comecei a acompanhar muito bem. já as coisas começaram a ir muito bem. ainda mais foi importante para mim fazer. o trabalho pratico que o meu grupo realizou. por outro lado foi muito trabalho, mais no fim senti compensada

A disciplina em si era algo novo, assim como os conteúdos abordados as estratégias e as metodologias utilizado ao longo da sua ocorrência. Durante este período de tempo foi muito trabalho, mais não deixa de ser interessante o que veio respondeu as minhas expectativas. Eu acho que quando traçamos os nossos objectivos temos que ajusta-los as diferentes situações que possa surgir ao longo do percurso, até porque já tinha uma noção mais ou menos do meu esforço e ajuste que eu tinha que fazer. Entretanto devo ressaltar que a minha relação familiar, e com as outras pessoas teve que ser sacrificada muitas vezes, pois muitas vezes trabalha ate a madrugada. Quanto a disciplina gostei bastante e os conteúdos que estudei veio enriquecer/aumentar o meu background . os trabalhos colaborativos estes foram interessantes.

Mest. Multimédia educação Cabo Verde	mmedu10	
<p>Durante a frequência desta disciplina, um dos momentos que mais me marcou pela positiva foi o facto de poder trabalhar com conteúdos e instrumentos de trabalho vocacionados para o ensino e a aprendizagem do inglês no 1º ciclo do ensino básico, utilizando as tecnologias nesta área de especialização. Foi um trabalho para o qual não estava à espera nem estava preparado, mas onde aprendi bastante. Foi importante para a minha formação enquanto futuro professor de uma língua estrangeira, apesar da minha licenciatura não me fornecer formação vocacionada para o 1º ciclo. Foi, no entanto, uma descoberta positiva e uma forma de me preparar para a eventual situação de ter que lidar com alunos deste grau de ensino. Além disso, acredito que esta disciplina é necessária no plano de formação de professores, porque hoje, mais do que nunca, é urgente acompanhar as mudanças que ocorrem na sociedade, e a escola não pode deixar de as acompanhar. Esta disciplina alerta para estes e outros aspectos a ter em mente. Os professores devem servir os alunos, as tecnologias devem servir a comunidade escolar, e todos devem aproveitar estes instrumentos da melhor e mais adequada forma possível.</p> <p>Houveram outros momentos positivos ao longo do semestre, mas também houveram momentos menos bons, que gostava de partilhar. Um dos aspectos menos positivos que queria realçar foi a distância que parece existir entre a componente prática e teórica desta disciplina. Parece não existir muito diálogo entre aquilo que os alunos vão desenvolvendo ao longo das aulas práticas com aquilo que é explorado nas aulas teóricas. Apesar da temática ser a mesma, as estratégias e a forma como a disciplina é conduzida parece não ser adequada, porque deixou-me um pouco estranho e desorientado. A certa altura, e o facto de existirem vários professores a cada componente, pensei que eram disciplinas diferentes. Gostava de não ter sentido isto, porque de certa forma prejudicou o meu desempenho.</p> <p>Outro momento menos agradável foi a forma como as aulas práticas foram conduzidas. A maneira como a sala de aula estava disposta não possibilitava um bom trabalho de grupo, porque não havia espaço suficiente e a disposição das mesas e computadores não me ajudava a concentrar no trabalho. Além disso, a pressão do professor a certas alturas foi constrangedora, e fez-me sentir mal comigo mesmo, pensando que não estava a fazer um bom trabalho, quando sentia que estava no bom caminho. Gostava de ter sido mais motivado para os trabalhos práticos e mais valorizado pelos mesmos. Fiquei desiludido com o resultado final, mas gostava muito que esta disciplina continuasse a fazer parte da formação de professores, porque é mesmo muito importante colocar os futuros professores a par das tecnologias.</p>		
Mest. Multimédia educação Cabo Verde	mmedu11	
<p>Em relação à parte prática da disciplina acho que es´teve muito bem estruturada e nos ajudou a desenvolver projectos que se adequam à nossa futura profissão, o que me deixou muito bem.</p> <p>Quanto à parte teórica, acho que nada me irá ajudar quanto à minha futura profissão uma vez que apenas se centra em aspectos muito teóricos.</p>		
Mest. Multimédia educação Cabo Verde	mmedu12	
<p>A disciplina de tecnologia educativa, ajudou-me a perceber um pouco mais sobre esta área, tendo em conta que algumas tecnologias serão necessárias para algumas actividades na minha futura profissão.</p>		
Mest. Multimédia educação Cabo Verde	mmedu13	
<p>Na minha opinião esta disciplina, bem como todo o curso é bastante trabalhosa, isso acaba por me afectar como é obvio.</p> <p>Os trabalhos que nos foram pedidos requeriram muito tempo e em conjunto com outras disciplinas tirou-nos tempo para conseguirmos viver a nossa vida, pessoalmente sobra-me pouco tempo para além das aulas, dos trabalhos, do estudo, isso acaba por criar uma certa revolta, pois nem sempre faço tudo o que planeio, nem sempre consigo estar com os meus amigos, família, etc. O que</p>		

<p>acaba por influenciar bastante todo o meu desempenho, acabo por andar mais irritada, mais ansiosa...</p> <p>Estava com outra expectativa desta disciplina, pensei que fosse um pouco mais didáctica, aprendi como seleccionar um material didáctico em detrimento de outro que penso ser bastante importante, mas além disso pouco mais, podíamos ter aprendido algumas técnicas para ensinar as crianças a trabalhar com o word, ou PowerPoint, ou outro programa qualquer.</p> <p>Sinceramente, se voltar a ter tanto trabalho como este semestre, penso que reagiria exactamente da mesma forma e conseguiria vencer mais um ano, como o fiz...</p>		
Mest. Multimédia educação Cabo Verde	mmedu14	
<p>Eu actualmente sinto-me frustrada, porque na parte prática tivemos imenso trabalho, aliás foi a disciplina que mais trabalho nos deu, pois era responder a fóruns, fazer trabalhos... e sinto que este não foi reconhecido, devido à nota com que terminei a parte prática. quanto à parte teórica os conteúdos são de fácil retenção e entende-se bem, apesar de haver alguns que considero que não nos são muito úteis.</p>		
Mest. Multimédia educação Cabo Verde	mmedu15	
<p>As disciplinas, inicialmente, foram um pouco exigentes, pois não tinha o tempo que desejava para poder "dedicar-me de corpo inteiro". Por outrop lado, o facto de termos de trabalhar em grupo, por vezes dificultou um pouco algumas tarefas, pois houve alturas que estavam apenas duas pessoas a trabalhar para o "todo". Fortam alturas de muita pressão para conseguir cumprir os trabalhos nas datas exigidas, de acordo com os parâmetros exigidos... Houve muita ansiedade, nervosismo à mistura, mas agora, olhando para trás senti-me relativamente satisfeita. Houve, no entanto, em relação à primeira disciplina uma situação que até hoje me agustia que foi o facto de o colega ter enviado o relatório final errado, prejudicando assim a nota.</p> <p>Salvo o facto de o curso ser muito intensivo, principalmento para as pessoas que trabalham odia inteiro, penso que an-ao tem mais nada que tem perturbado o curso.</p> <p>De uma maneira geral senti-me reactivamente bem ao longo do tempo em que decorreu a disciplina.</p> <p>As dificuldades havidas foram prontamente resolvidas pelo professor. penso que disciplina contribuiu altamente para melhorar o meu desempenho profissional.</p>		
Mest. Multimédia educação Cabo Verde	mmedu16	
<p>Lançamento do curso "Milho na Cultura Caboverdeana". Este evento foi muito marcante para mim, porque achando que tudo estava a funcionar bem, foi um choque quando od colegas telefonaram a dizer-nos que o nosso curso não estava diponível. Este evento durou praticamente 1 dia. Nesse dia entrei em pânico, mas felizmente com a ajuda do Professor e dos colegas, tudo foi ultrapassado, não tendo afectado muito os estudos. As mudanças nas minhas atitudes, claro que mudaram porque, penso que neste momento posso ultrapassar os constrangimentos com a aquisição de novos conhecimentos.</p>		
Mest. Multimédia educação Cabo Verde	mmedu17	
<p>O evento que mais me marcou, foi sair no mercado nacional e procurar os serviços existentes em Cabo Verde assim como os preços. O meu espanto foi saber que em Cabo Verde sai muito caro uma formação on-line, e ainda por cima com os salários que temos.</p>		
Mest. Multimédia educação Cabo Verde	mmedu18	
<p>A rigor, não houve um acontecimento isolado, ao qual eu classificasse como particularmente negativo. O que ocorreu, sim, é que a disciplina é - sob meu ponto de vista - altamente tecnológica; isto é, exigia do apreendente profundos conhecimentos de informática - o que não era</p>		

o meu caso. Ademais, estava matriculada em Didtáctica de Línguas - especialidade português - de maneira que não imaginava deparar-me com aquela situação. Detalhe angustiante: alguns elementos do grupo que eu integrei demonstravam possuir um muito à vontade com o "manuseio" do computador. Sentí-me verdadeiramente aterrorizada, naquela ocasião. Mas, bem, já passou. Agora, num olhar rápido ao passado, vejo que foi muito interessante, apesar de tudo, e teria sido muitíssimo proveitoso, não fosse a minha limitação em matéria de conhecimentos informáticos.

Para agravar a situação, faltou-me espírito de iniciativa, para unir-me a alguém e estudar 15 ou 20 minutos que fossem na véspera da avaliação, e não teria ganho a nota mais baixa de toda a turma, coisa que jamais me havia acontecido. Nesta altura da minha vida, aquilo caiu-me muitíssimo mal. Porém, a culpa é somente minha, reconheço. Fiz a segunda avaliação e consegui a aprovação. Felizmente.

Mest. Multimédia educação Cabo Verde	mmedu19
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O momento que me senti particularmente bem nesta disciplina foi quando consegui introduzir fotografias no formato pretendido, assim como as hiperligações na Didaktos. Foi um sentimento de alegria, porque foi com muito esforço individual e de grupo, que conseguimos obter fotografias antigas da nossa cidade.

O momento menos feliz que me deixou mesmo triste, foi quando vi a nota de participação que no meu caso e de um outro colega foi extremamente injusto, porque o grupo trabalhou sempre em conjunto, enviando mensagens que era o consenso do grupo todo e, no fim verificar que dois elementos foram prejudicados por falta de informação. Isto é, como trabalhávamos sempre em dois computadores as mensagens seguiam com os nomes das 2 colegas e não o nosso.

Ao logo do curso no decorrer dos trabalhos práticos, tenho que fazer esforços extras porque não é possível encontrar com o grupo durante o dia. Por causa da sobrecarga de trabalho e da necessidade de fixar os olhos durante muito tempo no ecrã do computador tive uma tensão ocular que me pertrba até hoje.

Outro aspecto tem a ver com o curto espaço de tempo que medeia entre o fim dos trabalhos práticos e os exames que proporcionam muito stress e me impede de pregar os olhos durante esse período.

Contudo devo agradecer os bons momentos de troca de experiência e de construção de conhecimento que tem ocorrido durante as sessões quer com professores quer com colegas e boas relações de amizade que estabeleci.

Appendix 4B: Translated Full Replies from MMEdu Group

Masters Multimedia in Education (Cape Verde)	mmedu03
<p>1. As I was the only one from my company (ISECMAR SV) and area, it was a little difficult to integrate into any group where the majority were from the city of Praia and this affected my performance a little.</p> <p>2. Feelings of frustration because I could not always be present even though I had the computer switched on.</p> <p>3. Affected me because I became very nervous and spent nights without sleeping and at times I became on edge without any need for it.</p> <p>4. Everything will begin to go well once we finish the work and the group meets up again.</p> <p>5. Yes, before I was very reticent about learning online but now I am a staunch defender of distance learning. I often say to my work colleagues that we missed a good opportunity to actively learn together.</p> <p>6. It might happen again but with the experience, the repetitions, and knowing better the group and class things are turning out to be a little simpler.</p> <p>Thanks</p>	
Masters Multimedia in Education (Cape Verde)	Mmedu04
<p>I arrived late for the first session and because of this I felt a lot of anguish. I felt like an extraterrestrial. I understood nothing and I asked myself: "O God what am I doing in this place?" It seemed as if the Professor was taking in Chinese. I felt more and more bewildered as we approached the end.</p> <p>The final assignment was a total misery. Obviously, my group could never meet. I thought to myself: "take stock of yourself and think seriously about the assignment" but the work had fallen so far behind that I became unwell. I went to the doctor, 20 days convalescing. At this stage I thought to myself "It's the end". When I awoke from the fright and begun to read the text I realised it wasn't something from another world. In fact it was I who had seen a monster that wasn't really there. I gathered my thoughts and convinced myself it was possible to do a good job. I rolled up my sleeves and got stuck in.</p> <p>I suffered but with the help of the Professor, I won.</p> <p>A big thank you to the Professor.</p>	
Masters Multimedia in Education (Cape Verde)	Mmedu05
<p>A positive aspect during the course was the experience of participating in a course while being a teacher. However, the workload was a negative aspect of the course.</p>	
Masters Multimedia in Education (Cape Verde)	Mmedu08
<p>The most intense moment I believe I went through while working through the module had to do with the availability of the course for our group on Blackboard. Under the pressure of timeframes, and not feeling comfortable with the platform as presented by the professor, it seemed at the time that no matter how much we worked all the time in the world would not be enough for us to reach the end.</p> <p>On this particular day, because of the amount of work we had to do we were forced to leave our</p>	

families to one side. And when we were with our families and friends the only thing we would talk about was the course. At one point my husband turned and asked me if I hadn't anything else to take about except the course.

Nevertheless, and having reached our objective, the journey showed that we had given our all in the logic of learning by doing. The day after; besides the satisfaction of having completed the work, it showed also that we were in a small way reliving university life.

It's important also to state that if before the beginning of the course we were presented with the overall logic/structure behind the course, I don't think we would have taken the route we did considering also that this was a totally new area of study for us.

Masters Multimedia in Education (Cape Verde)	Mmedu08
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All the introductory f2f part of the module was complicated, excessively theoretical and delivered in a very intense tempo. The feeling I had and which prolonged up to the time of setting up the project teams was of total ignorance. I felt for a long time, miles away from what was happening that I didn't believe I would be able to complete the module with a pass grade. Even in the end, despite the effort, I felt I didn't deserve to get the grade I got. Contrary to other subjects and those currently running I didn't feel that all the contents were taken on board. Meanwhile, summing up the development of the course, I believe that they really asked too much of us as if we had to come away from module as an expert.

I think the situation is repeating itself. In my case, besides the wealth of information made available on Blackboard and knowing there is a world of information available through the internet, I am so anxious to the point of not being able to sleep during the nights leading up to the start of the module. Having to get up at 4am so that I can study, while sweating; a sign of anxiety.

I would like to point out, that from my perspective this anxiety was due to the fact that the induction period was very short. We were agitated and remain under total pressure without enough time for coming to terms with the content.

In relation to previous modules, this one generated expectations and anxiety even before the induction period due to the amount of materials handed out as contents.

There was also confusion over the timetabling which increased the anxiety.

Nevertheless, the f2f classes in my view, and contrary to the expectations, went very smoothly with enough time to carry on with what was planned from the outset and with the foundation for working at a distance properly set up. It is my feeling that the work done in previous modules provided us with a good basis to be able to work through this module.

Masters Multimedia in Education (Cape Verde)	Mmedu09
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To tell the truth, the first day I felt a bit lost because it all seemed very technical and even more so because it is an area that I am not familiar with. However, by beginning the work full speed ahead I began to follow things quite well. Already things are starting to go very well. It was really important for me to do the practical group work even though it was a lot of work but in the end I felt it was worth it.

The module itself was pretty new such as the content surrounding the strategies and the methodologies used. There was a lot of work during this period of time but this doesn't mean it wasn't interesting and matched my expectations. I think that when we trace our objectives we have to adjust them to different situations that arise throughout the stages and because I already have an idea of my strengths and I adjust accordingly.

Nevertheless. I have to point out that my relationship with my family and others had to be sacrificed many times because on many occasions I had to work until the crack of dawn.

I really enjoyed the module and the content that I studied enriched/increased my own background. The group work was very interesting.

Masters Multimedia in Education (Cape Verde) mmedu10

During my attendance on this module, one of the noticeable positive moments for me was the fact that I could work with content and tools dedicated to the teaching and learning of English in primary school, using the technologies specific to this area of education. It was work that I wasn't expecting and wasn't prepared for but I learnt a lot. It was important for my training as a future teacher of a foreign language as my undergrad studies did not provide vocational training for the primary sector. It was however, a positive discovery and a way of preparing me for the eventual situation of having to deal with students at that level of education. Besides this, I believe that this module is necessary in the teacher training programme because today, more than ever, it is imperative to be up-to-date with the changes in our society and schools cannot fail to follow suit. This module draws our attention to these and other aspects that we should bare in mind. Teachers should serve the students, technologies should serve the educational community and all should avail of these tools in the best possible manner.

There were other positive moments throughout this semester but also there were not so good instances that I would like to share. One of the less positive aspects that I would like to highlight was the perceived distance between the practical and theoretical elements of this module. There didn't seem to be a lot of dialogue between what students developed in the practical classes and that which they explored theoretically. Despite the theme being the same, the strategies and the way the subject was delivered didn't seem adequate because it left me feeling a bit out of sorts and disoriented. At one point, and the fact there were various teachers for each component, I thought they were different subjects. I didn't like feeling this way because to a certain extent it affected my own performance.

Other less agreeable moments had to do with the way the practicals were delivered. The way the classroom was laid out did not support good group work because there wasn't enough space available and the positioning of the tables and computers did not help my concentration. Besides that, the pressure imposed on us by the teacher at certain times was suffocating and left me feeling bad with my actual self; thinking that I was not doing a good job when I thought I was on the right track. I would have like to have been more motivated for the practicals and at least better appreciated. I felt disillusioned with the final result but I would like very much for this module to continue being part of the teacher training programme because it is really important that future teachers are made aware of the technologies.

Masters Multimedia in Education (Cape Verde) mmedu11

Regarding the practical part of the module, I think this was well structured and helped us to develop our projects which suit our future profession and left me feeling very good.

Regarding the theoretical part, I think it will not assist in my future profession especially as it focuses on very theoretical aspects.

Masters Multimedia in Education (Cape Verde) mmedu12

The "educational technology" module helped me to understand more about this area of study taking into consideration that some technologies will be necessary for some activities in my future profession.

Masters Multimedia in Education (Cape Verde) mmedu13

In my opinion, this subject as well as the whole course was very laborious which, as is obvious, ultimately affected me.

The assignments required a lot of time to get done and in conjunction with other modules took time from us to live our lives. Personally, besides the classes, the assignments and the studying I had

little time for myself and this ultimately created bad feelings; no time to do what I had planned, no time to be with my family and friends etc. That which ultimately influenced my performance a lot, ultimately made me more irritated, more anxious....

I had a different perspective of this module. I thought that it was a little more didactic. I learnt by selecting didactic resources that I thought were important and did so to the detriment of other resources. Beside this, we could have learnt some techniques to teach children how to work with Word, PowerPoint or another programme.

To be honest, if I ever have as much work as in this semester, I think I will react exactly the same way and successfully complete another year as I have done.

Masters Multimedia in Education (Cape Verde)	mmedu14
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I actually feel frustrated because the practicals required a lot of work, in fact it was the module that gave us the most work to do; reply to the forums, do the work... and I feel this was not recognised considering the final grade. Regarding the theory part, the content was easy to learn and I understood well despite the fact there were some who thought the content wasn't of much use to us.

Masters Multimedia in Education (Cape Verde)	mmedu15
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Initially, the modules were demanding with not the required time to dedicate myself completely. At times, the fact that we had to work in groups made tasks more difficult to achieve. In fact, there were times when only two people were working for "all". These were times of immense pressure trying to get the assignments done within the stipulated dates, in agreement within the required parameters. There was a great deal of anxiety, mixed emotion but now, looking back I feel relatively satisfied. However, in relation to the first module, there was a situation that still today causes me anguish and that was the fact that a colleague had handed-in the wrong final report which affected the grade.

Besides the fact the course was very intensive mainly for those who work full time I don't think there was anything else that caused problems.

In a general way, I felt relatively well throughout.

Any difficulties were dealt with in a prompt manner by the Professor. I think that the module highly contributed towards improving my professional performance.

Masters Multimedia in Education (Cape Verde)	mmedu16
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The launch of the "Milho na Cultura Caboverdeana" [Maize in Cape-Verdean Culture] course was very significant for me. I thought everything was working fine when I was shocked to hear from my colleagues that the course was not running. I felt really bad all day. On that day I started to panic but with the help of the Professor and colleagues I overcame my fears and this didn't affect my studies that much. Naturally, I changed my attitude and I thought to myself, at that moment, that I can overcome these constraints through the acquisition of new knowledge.

Masters Multimedia in Education (Cape Verde)	mmedu17
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The thing that affected me the most was finding out that existing online training services in Cape Verde were more expensive to sign up for than those offered through the national market. This shocked me very much and even more so when considering the salary ranges we have here.

Masters Multimedia in Education (Cape Verde)	mmedu18
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Strictly speaking there wasn't any one isolated incident that I would classify as being particularly negative. One thing from my point of view is that the module was highly technical; that is, there was an expectation that the learner possessed strong computing knowledge which was not my case. Moreover, I was enrolled in Didactics of Languages – specialising in Portuguese – so I couldn't

have imagined being in such a situation.

Detailing the distress: some members of the group showed they were very much at ease with “handling” the computer. I felt truly terrified on that occasion. Well, now it is behind me. Looking back I see, besides everything, it was very interesting and it would have been very beneficial if it wasn't for my limited computing knowledge.

To make things worse, I lacked the initiative to get together and study with someone for 15 or 20 minutes on the eve of the test and not have got the lowest grade in the class. Something that's never happened before. At that moment in time I was left feeling really very bad. Nevertheless, I recognise that the blame is solely mine. I sat the resit and passed. Thankfully.

Masters Multimedia in Education (Cape Verde)	mmedu19
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The time I felt particularly well with this module was when I was able to upload photos in the prescribed format along with the relevant hyperlinks. It was a feeling of happiness because it was due to a lot of individual and group effort that we were able to get hold of photos from our city.

A moment less pleasing which left me feeling really sad was when I saw my grade for participation that in my case and in another colleague's case was extremely unfair. The group always worked together, sent messages that were the consensus of the entire group. In the end, it was verified that two members were penalised due to a lack of information [participatory evidence]. This was because we always worked from two different computers and messages were registered with the names of two colleagues and our names were omitted.

Throughout the course's practical assignments and exercises I had to make extra effort because it wasn't possible for the group to meet during the day. Because of the work overload and the necessity to stare for long periods at the screen I suffered from eyestrain that still affects me to this day.

Another issues was the short space of time between the end of the practical assignments/exercises and the final exams which caused a lot of stress and I got very little shut eye during that period.

However, I have to be thankful for the experiences shared and the construction of knowledge that happened throughout the sessions with the teachers and with colleagues and the nice friendships that were established.

Appendix 5A: Original Full Replies from ITEP Group

Profissionalização A	profserv009	
<p>O que julguei mais difícil neste exame foi a falta de tempo. Se tivesse mais tempo, daria para reflectir com mais calma de modo a tornar as minhas respostas melhor estruturadas.</p>		
Profissionalização A	profserv012	
<p>Nos primeiros momentos da apresentação da disciplina, surgiram uma panóplia de sentimentos: ansiedade/espectativa pela disciplina misturaram-se com a ignorância para com o solicitado, medo de falhar. Estes sentimentos só desapareceram mais tarde em que as relações de amizade que se criaram ajudaram bastante a superar as minhas dúvidas e receios. Apesar de partir de bases inseguras, reaprendo todos os dias com os passos que me foram dados nesta disciplina, tais como trabalhar fontes informáticas, e novas metodologias de aprendizagem. Foi muito positiva. Hoje, perante iguais factos, as reacções emocionais seriam certamente diferentes, contudo, novas vivências surgirão, novas expectativas e receios levarão a emoções semelhantes como as que agora partilhei.</p>		
Profissionalização A	profserv014	
<p>Durante o período de tempo em que decorreu esta disciplina considero que não me ocorreu nenhum facto negativo que me afectasse psicologicamente ou alterasse a minha forma de ser, estar ou de agir. Claro que não é de se excluir a primeira fase do início da mesma em que a incerteza, o receio e porque não dizê-lo a insegurança de trabalhar em algo para mim tão inovador e diferente, foi aumentando a tenção de conseguir ultrapassar esse receio. Não posso esquecer que essa tenção foi aumentando à medida que o tempo progredia, pois o trabalho tornou-se aliciante, mas o factor tempo era um adversário um pouco cruel, já que o trabalhar numa escola como docente implica disponibilidade e sobrecarga de tarefas e ao mesmo tempo ter que desenvolver as tarefas propostas para a profissionalização em serviço, implica um carga horária muitas vezes difícil de conciliar. Não é só o tempo passado na escola, na faculdade é também o tempo passado nas viagens e na preparação das actividades lectivas.</p> <p>Concluindo, o que à partida parecia o "gigante Adamastor" foi - se revelando algo de viciante e revelador de uma outra forma de trabalhar e de ensinar.</p>		
Profissionalização A	profserv016	
<p>O facto que mais me preocupou ocorreu sensivelmente em fins de Março, quando comecei a ver o tempo a passar e sem ter dado início, juntamente com o meu grupo, a nenhum trabalho em concreto, uma vez que o acesso ao sistema informático da UA foi muito demorado; outra coisa que me perturbou foi o facto de estar a trabalhar com algo completamente diferente do habitual; mas esses sentimentos foram passageiros, porque a pouco e pouco consegui acompanhar aquilo que o professor foi propondo e acabei por achar muito interessante o trabalho que estava a desenvolver.</p> <p>Penso que esta situação não se voltaria a repetir, porque neste momento já estou familiarizada com a metodologia de trabalho.</p>		
Profissionalização A	profserv018	
<p>Este trabalho foi, particularmente, difícil por vários motivos:</p> <ul style="list-style-type: none"> - foi longo e moroso. O meu grupo passou horas e horas e horas a fazê-lo. - pressupunha que tivéssemos pré-requisitos relacionados com a informática. Tínhamos alguns, mas, claramente não eram suficientes. - o facto de não ser o único trabalho que estávamos a realizar. - a questão de "termos" que comunicar através do blackboard. A forma tradicional (encontro pessoal) para nós foi mais produtiva. 		

Sentimentos:

Foram muitos! De frustração quando não conseguíamos, por exemplo, colocar os recursos que escolhíamos/fazíamos. Tentávamos adicionar e ia para a "página de erro" (não sei se é assim que se diz) ainda não conseguimos entender se foi falha nossa... e frustração maior foi o facto de percebermos na apresentação final dos trabalhos, muito podia ter sido feito e o que nós não conseguimos, outros conseguiram!

A dada altura achámos que não íamos conseguir terminar o trabalho, parecia que não tinha fim. Descobríamos sempre alguma coisa para fazer.

Em muitos momentos poderíamos ter recorrido ao Professor-via mail. Fizémo-lo algumas vezes, não as suficientes. Já tarde, nos fomos familiarizando com este novo método de trabalho. Optámos mais pelo esclarecimento de dúvidas "informáticas" via telefone com pessoas nossas conhecidas.

As aulas....as aulas...tinham muita gente, muito grupos...pouco tempo.

Pensa que a situação poderia acontecer de novo, pelas mesmas razões, e com os mesmos efeitos?

Seria, naturalmente, diferente. Se houve muitos aspectos negativos, também positivos. Aprendi! Isso eu sei. Aprendi pequenos/grandes pormenores informáticos. Passei a ver mais utilidade na comunicação via mail. Percebi, definitivamente, que não podemos virar as costas às TIC neste difícil processo de ensino-aprendizagem.

Profissionalização B

profserv019

O início desse curso não foi nada bem para mim, tendo em conta que contrariamente dos colegas foi o meu primeiro módulo. Para além de estreante no curso, confundi o horário de modo que provocou a perda da primeira sessão presencial que era fundamental para a minha integração, o que tornou para mim muito extressante. Deaparei com enorme dificuldade em se adaptar à turma como também encontrei os grupos já formados em que fiquei à espera de alguém para me acolher.

Essa perda veio a ter repercussões no meu exame final, tendo em conta que não tinha-me adaptado plenamente e a perda da primeira sessão presencial (matéria avaliada no exame final), que resultou numa crise de confiança e auto-estima. Essa crise veio a ser superada com enorme esforço, dedicação e a colaboração dos colegas do grupo. E isso veio a ser consolidado com o resultado positivo no exame, que não à espera.

Devo dizer que a disciplina foi muito interessante, sobretudo pela estratégia adoptada pelo professor que obriga o aluno a participar diariamente no BB, mas torna muito cansativo devido a outros compromissos profissionais.

Certamente se a disciplina começaria agora tudo teria tido outra postura e seria diferente porque já tenho mínima experiência na área e iniciaria numa situação de iguadade com todos os colegas não como aconteceu.

Profissionalização B

profserv023

Ao longo da minha frequência nesta disciplina constatei que muitos aspectos poderiam ter sido melhorados e repensados, nomeadamente ao nível do feed-back professor aluno. Reparei em muitas ocasiões que possivelmente a interacção entre professores não foi bem aprofundada pois ocorreu comigo e com alguns colegas tirarmos dúvidas com professores diferentes e as informações não coincidiam. Isso baralhou-nos.

Outro aspecto que considero negativo, apesar de os professores terem aberto o "jogo" desde o início, foi a avaliação desigual entre alunos. Não considero que tenha sido correcto, e mais uma

vez sublinho que os professores foram abertos quanto a esse aspecto, alguns alunos frequentarem um estudo piloto e não serem avaliados nos fóruns e outros não frequentarem esse estudo e terem que ser avaliados pelos fóruns. Julgo que seria mais pedagógico uma forma de avaliação igual para todos.

Profissionalização B**profserv027**

A frustração emergia à qual se me deparavam dois caminhos: modificar a percepção da frustração, e tolerá-la, ou a fuga! Devo confessar que na 1ª aula pensei optar pela 2ª via, tal foi o susto. Ouvia e não percebia: tanto estrangeirismo, neologismo, numa linguagem técnica encapuçada e estetizada... O mesmo com a T.F.C.! Parecia literatura surrealista.. No entanto, a "maçada"de um documento de lógica subjacente a um dado raciocínio, que julguei não poder inserir nos meus esquemas mentais, veio a tornar-se aliciante (quanto mais não seja pelos serões diferentes e com auxílio do meu marido informático),cedi ao limite da elasticidade mental e compreendi a ditosa teoria e as vantagens da construção de um hiperdocumento, tendo em conta o corpus teórico emanado da T.F.C.e sua efectiva materealização.

Profissionalização B**profserv028**

Não existiu momento algum que me provocasse um sentimento de negação face à disciplina, contudo, estava à espera de algo mais motivador e mais relacionado com a Infância.

Profissionalização B**profserv031**

Penso foi muito importante ter este momento formativo, especialmente nos domínios da tecnologia educativa, cujo desenvolvimento é extraordinário. O final da frequência desta disciplina provoca alguma tristeza, porque sabemos que estas metodologias vão estar em constante mutação e aperfeiçoamento, mas nós já não vamos acompanhar esses momentos. O final das aulas causa alguma frustração pelo facto de sabermos que a formação que é oferecida aos professores fora das universidades não é na sua grande maioria uma mais valia. Também sentimos que a construção do trabalho é um processo que deveria continuar, à medida que consolidássemos os princípios da flexibilidade cognitiva. Mas sejamos sinceros, isso só seria possível em concertação com o professor António Moreira.

Como aspecto negativo tenho a destacar o reduzido número de aulas para se poder explorar o trabalho; valeu a disponibilidade e solicitude apresentada pelo professor, que serviu para minimizar os diversos momentos de angústia que um trabalho deste cariz acarreta.

Também inicialmente senti alguma frustração por não me ter sido atribuída equivalência a esta disciplina, apesar de concordar por inteiro com as razões apresentadas. Só que para quem não teve nenhuma equivalência e estabeleceu uma fasquia elevada isso custou bastante: o stress, a perda de uns quilinhos, a falta de convivência familiar, foi preciso um grande esforço. A título de exemplo posso referir que há semanas que não durmo mais de 4 horas. E o trabalho na escola e a boa disposição para trabalhar com miúdos tem que estar sempre presente. Mas como tudo, depois de passar por isto, sinto alguma frustração por sentir que o que aprendi durante um ano não terá continuidade.

Profissionalização B**profserv032**

No início senti-me confusa e perdida porque não conseguia entrar no espírito do programa. No fim o sentimento foi de grande satisfação pelo trabalho desenvolvido, que envolveu muita dedicação e empenho. De uma forma global foi muito positivo e enriquecedor.

Profissionalização B**profserv033**

Um momento marcante para mim durante a frequência do curso, foi quando o professor pediu que cada grupo escolhesse um tema entre os 6 ou sete propostos para a realização do nosso trabalho. Ao meu grupo coube a tarefa de "infraestruturação da rede" para um suposto centro denominado de "CEADCV". O centro que comportava dois pisos teria uma rede cablada no 1º

andar e uma sem fios no rés do chão. Senti-me diveras perdida, um conjunto de sensações tomou conta de mim - será que poderei dar algum contributo? como fazer isso? Isso não seria uma tarefa para técnicos de rede , alguém com formação na área?

Acreditem que essa sensação foi por pouco tempo, até posso dizer que foi durante uma tarde. Na manhã seguinte quando o grupo se reuniu, quando distribuimos as tarefas, eu estava toda empolgada em correr para as casas comerciais para fazer o levantamento dos materiais, saber dos preços, comparar os preços, contactar alguns técnicos de rede etc. Então o sentimento inicial acabou por ser um despertar por algo que era novo para mim, motivou-me para a pesquisa , para a procura, despertou em mim um grande interesse, eu tinha de contactar outras pessoas entrar em outras áreas (sou de língua portuguesa) para poder construir o meu conhecimento. Em pouco tempo pude distinguir um cabo de uma ficha, palavras como "RJ45 ", "categoria 5e", Switch, patch panel, Wirelles, bastidor de comunicação, bridje já me eram comuns - tive de fazer demonstraç~es em grupo de como é que cada material se relacionava ou melhor se interligava com o outro, enfim por duas semanas já me sentia uma técnica de rede. O sentimento final afectou a minha família e os meus colegas de trabalho de uma forma bastante positiva, pois até hoje quando se fala em materiais para cablagem, ou apresentação de propostas para possível financiamento de centros de EAD, as pessoas pedem sempre a minha opinião.

O que aconteceu comigo contribuiu para um maior interesse pela disciplina. O sentimento de medo, de impotência, deu lugar ao sentimento de dever cumprido, uma vontade de continuar, enfim uma grande satisfação. O sentimento inicial durou pouco tempo, para dar lugar a alegria a vontade de continuar sempre.

Profissionalização B

profserv034

Durante o tempo em que decorreu esta disciplina, aliás, durante todo o curso, não ocorreu nenhum evento negativo que me afectasse directamente e alterasse a minha maneira de ser ou de agir. No entanto, quando se aproximava a época de avaliação/apresentações de trabalhos, a tensão aumentava e tornava-me mais facilmente irritável. Tentei não alterar hábitos e rotinas familiares de forma a que a família não fosse afectada, já basta o facto de estar colocada longe de casa, a uma hora de caminho (a minha contabilização da distância é feita em horas, pois os quilómetros, muitas vezes não traduzem a distância efectiva) para não lhes dar a atenção devida e merecida.

Os acontecimentos que me animaram e me incentivaram a continuar e com mais vontade foram os resultados que fui obtendo.

Profissionalização C

profserv039

Durante a frequência desta disciplina, foram alguns os momentos em que me senti menos bem. Domino pouco a informática e ter que desenvolver um projecto nesta área preocupou-me. Houve alturas em que me senti muito angustiada, muito cansada, triste até. O meu grupo dedicou muitas horas (fins de semana completos) a este projecto e ficamos com a sensação de que não conseguimos atingir totalmente o nosso objectivo. Sem dúvida que a família ficou de alguma forma afectada, pois poucos foram os momentos em que lhe dediquei verdadeira atenção, o que, quando existem filhos pequenos, é complicado gerir.

Olhar em volta e ver outros grupos mais conhecedores e mais adiantados que nós, contribuiu, também, para esta sensação de frustração. Tenho, também, a consciência de que, em boa parte, a culpa foi minha, pois poucas foram as vezes em que solicitei a ajuda dos professores, quer em presença, quer por mail. Mas também acho que os docentes podiam ter-se aproximado mais dos formandos, procurando informar-se das suas dificuldades. Não quero, com isto, dizer que não gostei de trabalhar neste projecto. Pelo contrário, achei bastante interessante e, apesar das dificuldades que já referi, penso que todos conseguimos fazer trabalhos válidos e que correspondem àquilo que nos foi solicitado.

Se voltasse a repetir um trabalho deste género, penso que reagiria de forma diferente. Sinto-me,

agora, mais confiante, segura e conhecedora da dinâmica deste tipo de projectos, embora considere que ainda tenho muito a aprender.

Profissionalização C

profserv040

Durante algum tempo, muito se falou nessa formação pedagógica para os professores das áreas técnicas, sem no entanto se fazer realizar. Tendo em conta as nossas ambições e propósitos profissionais, é com muita ansiedade que iniciamos a formação sem ter uma ideia clara e concreta do que efectivamente iríamos fazer.

Já no arranque, com a disciplina de Teorias da educação, pudemos constatar, que de uma certa forma, as experiências nossas acumuladas ao longo desses anos, eram factos constatados e que poderiam ser traduzidas em teorias bastante interessantes.

O curso foi fantástico em quase todos os momentos, tendo por destacar dois momentos, um pela positiva e outro pela negativa. Sem querer destacar nenhum professor em particular, pelo magnífico acompanhamento que nos fizeram, aprendi muito com a atitude Professora Carlota Thomaz, pelo acompanhamento intensivo do curso, fazendo-me pensar muito acerca do acompanhamento que fazemos aos nossos alunos, pela forma como o fazemos e pelo apoio que deveremos prestar.

Porque não se pode separar o eu do meu dever, algumas vezes a condição pessoal acaba por interferir na condição profissional e o segundo momento tem haver exactamente com essa particularidade, impedindo-me de cumprir com a calendarização dos trabalhos na disciplina de Organização e Gestão Escolar, momento esse que só pode ser ultrapassado, graças à compreensão e colaboração do Professor António Neto.

Não poderia deixar de referenciar que o apoio dos professores, da forma como foi feita, foi fundamental para o sucesso desta formação.

Profissionalização C

profserv041

A situação que mais me deixou "irritada" foi a dificuldade em inserir dados no didaktos, dificuldades de os gravar e uma constante perda de tempo em casa para tentar fazer algo que aparentemente seria simples. A dada altura começamos a sentir o tempo a passar e o trabalho a não se desenvolver como gostaríamos o que nos torna mais nervosos e menos pacientes para os nossos filhos. Esta situação não alterou a ideia que eu tinha do curso ou da disciplina e foi apenas mais um contratempo mas que acabou por se resolver sem graves consequências pessoais e/ou familiares. Provavelmente o que aconteceu voltaria a repetir-se uma vez que não houve alteração do operador que me fornece a ligação à net.

Profissionalização C

profserv043

Acho que, em média, a formação foi marcada, no geral, por sentimentos positivos, expectativa, por exemplo, visto que, depois de ter deixado a Universidade, passaram-se pouco mais de 10 anos até que retornasse aos estudos de uma maneira formal. Portanto, em linhas gerais os sentimentos são positivos. Entretanto, como não há bela sem senão, em termos negativos é bom destacar a discrepância nos níveis de formação dos colegas de cursos o que, se de um lado é bom, são formações diferentes, de outros cria expectativas frustradas, e o facto de estar muito longe, em termos de à vontade com a informática, daquilo que a disciplina exige. Mas a experiência quotidiana mostrou que o próprio trabalho no blackboard foi deitando abaixo certos bloqueios na utilização das TIC. Enfim, gostaria de dizer que, tendo em conta a disciplina, este é o mestrado que sempre procurei, já que junta duas áreas nas quais estou integrada, a informação e a educação.

Profissionalização C

profserv046

No dia da apresentação do trabalho, e, porque estava-mos com dificuldade em perceber comse construía as sequências na matriz conceptual, depois de ver-mos dois ou tr~es colegas a

apresentar, surgiu, como que uma ideia luminosa, que originou a construção de uma nova matriz, em vez da que tinha-mos e a alteração do relatório.

Atá á apresentação que nos correu muito bem, havia aquela angustia, mas depois no final, senti-me muito aliviado e tranquilo

Profissionalização C

profserv051

No início foi difícil de compreender o objectivo das plataformas e do modo como iria colocar o trabalho. Quando me foi possível realmente perceber o objectivo do trabalho e o modo de funcionamento das plataformas, adorei realizar o trabalho.

Profissionalização C

profserv053

achei injusto o facto de quem participou no estudo piloto teve muito melhores notas do que quem respondeu aos foruns. Contudo eu não me pude inscrever no estudo piloto, uma vez que já tinha participado, voluntariamente, anteriormente. quer dizer eu já tinha perdido aquelas mesmas horas que elas perderam, feito as mesmas coisas que elas fizeram, mas elas foram beneficiadas. tudo bem que eu gostei muito de ter ajudado as professoras que fizeram o estudo, porém aquilo que eu me queixo é da diferenças de notas, por que razão é que elas têm mais? afinal, participar nos foruns é muito mais difícil e muito menos recompensador.

mas depois de reflectir cheguei à conclusão que mesmo tendo sido "prejudicada", não tem mal, gostei do participar no estudo piloto, só pela alegria de ter ajudado as duas professoras que foram um amor. porém decidi falar sobre este assunto, porque muitas vezes estamos a ser injustos sem o sabermos.

o aspecto positivo foi o facto dos profs serem simpáticos, muito acessíveis, principalmente o prof Moreira, e dispostos a ajudar.

Profissionalização C

profserv056

Durante a frequência houve muito stress, apesar do trabalho era interessante. Não houve o tempo para quase nada incluíam os compromissos ligados a a nossa profissão. atenção aos filhos e a família em geral teve que ser ajustada para não ser sacrificada. Houve até perda de ente-queridos mais infelizmente a vida continua tive que adaptar a nova realidade e ao contexto em que me encontro. Mas mesmo assim, consegui separar estes sentimentos da minha "batalha académica" e nunca esqueci nem por um minuto que seja o meu compromisso académico. Esta situação despertou em mim a vontade de aprofundar cada vez mais nesta questão e fazer com que essa disciplina torne ainda mais interessante para a minha carreira futura.

Profissionalização C

profserv069

Como em tudo na nossa vida tudo o que é novidade provoca estranheza e esta disciplina não foi excepção. No início senti-me um pouco perdida e até frustrada pois nem eu nem o meu grupo de trabalho conseguíamos entender o que é que era pretendido de nós, mas a partir do momento em que se fez luz nas nossas ideias foi um trabalho muito interessante de se desenvolver e foi pena não termos podido aproveitar mais e melhor esta oportunidade de trabalho.

O que não começou muito bem acabou por se revelar muito bom.

Profissionalização C

profserv071

tal como, em quase tudo na vida, tudo o que é novo causa estranheza, esta disciplina não foi excepção à regra e de início trouxe alguns problemas uma vez que nem eu nem o meu grupo de trabalho conseguíamos chegar à conclusão do que é que era pretendido nesta disciplina, mas a partir do momento em que o objectivo da disciplina se tornou claro foi pena termos tão pouco tempo para desenvolver o trabalho. Parece-me um projecto bastante interessante e aquilo que começou mal acabou muito bem.

Profissionalização C	profserv072	
<p>Apercebi-me de que, nas aulas práticas, o docente dava mais atenção ao trabalho de um grupo do que aos dos outros.</p> <p>Na altura, senti que não era uma atitude correcta, mas tentei prosseguir o meu trabalho.</p> <p>Uma vez que a finalidade da disciplina era desenvolver um projecto e posteriormente obter uma classificação, pensei que se tratava de uma situação que poderia trazer alguma injustiça, porque desse modo as condições não eram iguais para todos.</p> <p>A minha atitude não se terá alterado. Uma vez que não foi a primeira instituição de ensino superior público por mim frequentada em Portugal, já estou habituado a situações destas e por isso tentei continuar o meu trabalho, realizando-o da melhor forma possível.</p> <p>Na minha opinião, esta situação repetir-se-á sempre, de uma forma mais ou menos marcada.</p> <p>Ao contrário do que provavelmente se poderá inferir do que descrevi anteriormente, não é minha intenção colocar em causa a atitude do docente. Infelizmente, Portugal é um país onde o mérito não costuma ser o factor primeiro quando se tenta avaliar um indivíduo, a nível profissional. Por isso, não me é difícil concluir que será difícil a um docente furtar-se às atitudes de alguns alunos.</p>		
Profissionalização C	profserv073	
<p>Abordando o professor da disciplina não houve, no momento, disponibilidade para a resolução da dúvida.</p> <p>a forma como fui atendida deixou-me revoltada o que se traduziu na persistência individual para a resolução da tarefa em mãos com alguma mágoa.</p>		
Profissionalização C	profserv081	
<p>No início da disciplina quando nos foi solicitado que pensássemos num projecto a ser desenvolvido segundo a TFC e construído no Didaktos On-line, o meu grupo lançou uma proposta que senti/sente relevante ser tratada - "A escola Inclusiva". Senti-me extremamente motivada, pois é um assunto que me é muito caro. Procurei informação teórica, dividimos tarefas, fizemos reuniões de grupo... mas os resultados não ganhavam forma. A desmotivação chegou. O processo de construção do projecto começou a ficar "empacado" e as estratégias de comunicação propostas para utilização não funcionaram (quer intra-grupo, quer inter-turma). Creio que isto se deve ao facto de os diferentes elementos que compunham o grupo/turma terem diferentes conhecimentos a nível das TIC (o que dificultou a utilização do blackboard, como via de comunicação).</p> <p>Após uma leitura e estudo sério da TFC, a motivação e o interesse reapareceram, levando o grupo a redefinir tarefas, dividir pesquisas e trabalhos, no fundo a dedicar-se e a realizar o projecto.</p> <p>Julgo que esta disciplina deveria permitir e motivar os alunos para a utilização das TIC, mas o que senti é que quem já estava habituado a usar, assim continuou e quem não tinha o hábito, também não ganhou.</p> <p>Se me permitem, julgo que será importante redefinirem-se estratégias para que no próximo ano haja mais alunos a adquirirem esses saberes.</p> <p>Outro problema relacionado com a utilização do blackboard é que nem toda a gente tem acesso à internet diariamente... o que leva ao desinteresse e à pouca participação, como podemos observar, por exemplo, no fórum discussão da turma. É pena...</p>		

Também acho que essa pouca utilização se deve ao facto de a maioria dos alunos não se conhecerem e terem uma vida cheia de outras responsabilidades.

Reconheço interesse e uma mais valia neste tipo de comunicação, mas pode dever-se à minha formação profissional e ao hábito diário de comunicar on-line... são coisas que não se ganham de um dia para o outro.

Quanto ao trabalho que nos foi proposto, creio que será muito útil para aplicar e contexto de sala de aula. Mas também conheço a realidade da maioria das nossas escolas básicas e secundárias e o acesso à internet (apesar do que o governo diz) ainda é limitado, o que me leva a supor (e espero estar errada) que muitos projectos ficarão fechados e sem utilização. É de lamentar se isso acontecer, pois os nossos alunos gostam de trabalhar com os computadores.

Pessoalmente acredito neste tipo de recurso como uma outra estratégia de motivação dos meus alunos!

Fazendo uma reflexão crítica, creio que o meu grupo teve algumas dificuldades, umas alheias a nós mas outras devido ao facto de termos dado início ao projecto sem o conhecimento teórico sistematizado. Mas apesar do percurso, considero o balanço positivo.

Em termos pessoais, a frequência desta disciplina (e das outras do curso de profissionalização em serviço) afectou a minha vida pessoal, pois encontro-me a leccionar a 90km de casa e visto o blackboard não ter funcionado como ferramenta de comunicação, eu e os meus colegas do grupo tivemos que ocupar fim-de-semanas completos a trabalhar. Foi um desgaste grande, mas já passou!!

Há momentos na vida assim...

Profissionalização D	profserv085	
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O evento durou 6 semanas.

Sentimo-nos um pouco à deriva pois não conhecíamos o programa com o qual íamos trabalhar.

Uma profissionalização afecta-nos sempre pois é o nosso futuro que está em jogo.

O tempo não era muito e teve que se fazer opções. Ao princípio foi um pouco desmotivante mas depois até se consegui chegar a bom porto.

O que mudou foi o de que conhecemos uma outra ferramenta de trabalho que no futuro pode ser útil no trabalho que desempenhamos.

Agora seria diferente pois já estaríamos mais à vontade e talvez o trabalho seria completamente diferente pois no início desperdiçámos algumas energias.

Acho que em termos de profissionalização a estrutura deveria ser diferente relativamente ao número de disciplinas. Talvez no primeiro semestre termos três disciplinas e agora no segundo as duas que tivemos ao princípio em virtude de agora os trabalhos e testes coincidirem com os momentos de avaliação nas escolas.

Profissionalização D	profserv087	
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De uma maneira geral achei o trabalho desenvolvido nesta disciplina bastante gratificante, uma vez que se tratam de matérias e processos realmente inovadores e com grande potencial.

Profissionalização D	profserv088	
<p>Um evento que me marcou consideravelmente foi o facto de eu ir ser avaliado numa disciplina (Tecnologias da Educação) em que um dos parâmetros seria, ou melhor será, ou ainda, é, a minha participação num Forum em que todos os meus colegas (e mesmo eu que sou de informática) não tenham experiência, e alguns nem computador. Isso mexeu comigo, mas pensei, se for mau para mim pior será para os outros.</p> <p>Decorridos alguns dias vim a descobrir que mesmo o professor não respondia a questões no forum. É pena pois teria muito boa nota neste conteúdo.</p> <p>Um segundo momento que temporalmente foi primeiro, fiquei surpreendido como é que três professores a dar a mesma disciplina o faziam de modo tão diferente. Ainda neste tema vi que iria ser avaliado por um teste, um trabalho, um Fórum e um relatório final.</p> <p>Questionado o referido professor sobre tão apertado modo de avaliação este pensou no assunto e numa das aulas seguintes disse que iria prescindir do teste o que eu achei muito bem. Digo isto porque estando eu numa profissionalização em serviço e os meu colegas e concorrente na vida real que estão a fazer profissionalização em serviço em outras universidades só fazem trabalhos e muito menos exigentes. A nota final, esta vai-se reflectir no final a favor deles.</p> <p>Ainda não fui avaliado nesta disciplina. Gostei do trabalho que fiz, mas faria muito melhor com algum tempo mais para o fazer, porque este tipo de trabalho daria para uma pós-graduação ou mestrado.</p> <p>Nesta disciplina os sentimentos foram muitos e foram mudando ao logo das sessões. Espero que a nota final deixe algum sentimento de satisfação.</p>		

Appendix 5B: Translated Full Replies from ITEP Group

Professional A	profserv009	
<p>What I judged to be difficult with this exam was the lack of time. If I had had more time it would have allowed me to calmly reflect better in such a way that my replies would have been better structured.</p>		
Professional A	profserv012	
<p>The initial moments of the induction period generated an array of emotions: anxiety/expectation of the module was mixed with an ignorance of not knowing what was being asked of me, fear of failure. These feelings only went away much later once I had made friends and this really helped me overcome my doubts and fears. Besides starting off from an insecure base, I re-learnt every day with the steps that were provided in this module such as working with computer resources and new learning methodologies. It was very positive. Today, all things being equal, my emotional reactions would certainly be different. Nevertheless, new instances will arise and new expectations and fears will raise similar emotions as those I have now shared with you.</p>		
Professional A	profserv014	
<p>Throughout this module I would say that I experienced nothing that affected me psychologically in a negative manner or changed my way of being or behaving. Of course this is not forgetting the first phase at the beginning in which the uncertainty, the challenge and not to mention the insecurity of working with something which for me was so innovative and different that it was making the ability to overcome the challenge a lot more stressful.</p> <p>I cannot forget that this stress was heightened as time went on. Yes, the work was appealing but the time factor was slightly cruel. Working in a school as a teacher implies availability and an overload of duties while at the same time I have to complete the tasks expected of me on this course. This implies the existence of a timetable that is very often difficult for me to reconcile. It's not just the time spent at the school or the faculty but also the time spent travelling and the time spent preparing the class materials.</p> <p>To sum up, that which initially appeared to be a "giant Adamastor [hideous sea phantom]" revealed itself as something enticing and appealing as another way to work and teach.</p>		
Professional A	profserv016	
<p>Something that worried me the most occurred around the end of March when I noticed the time was passing by and my group and I had not even begun to start getting any work done once access to the University's network system became very slow. Another thing that worried me was the fact that I was working [studying] with something that was completely new to me. However, these feelings were fleeting because bit by bit I was able to keep up with what the Professor was proposing and ended up thinking that the work I was producing was really interesting.</p> <p>I think that this situation will not happen again because now I am familiar with the required methodology.</p>		
Professional A	profserv018	
<p>This group work was particularly difficult for various reasons:</p> <ul style="list-style-type: none"> - It was long and morose. My group took hours and hours to do it. - It was presumed that we had prior knowledge of computing. We had some but it was clear this was not enough. - It wasn't the only group work we were doing. - The fact that we had to communicate via the VLE Blackboard; the traditional way (f2f) for us was much more productive. 		

Feelings:

There were many! Frustration when we couldn't for example upload the resources we had chosen/developed. We tried and it always went to an "Error" page and we are still unable to understand whether the fault was ours or not... and a greater frustration was the fact that at the final presentations of the group work we understood that much more could have been done and that which we weren't able to do, others could!

At this time we thought that we wouldn't be able to finish the work; it felt as if there was no end to it. We always discovered something else that needed to be done.

On many occasions we could have contacted the Professor via email. We did this sometimes but not enough. Too late, coming to terms with this new methodology. We opted more for contacting closer friends by phone when we needed help with computer problems.

The classes...the classes....they had a lot of people, a lot of groups...little time.

I think that this situation could happen again, for the same reasons, and with the same effects. It would naturally be different.

If there were negative aspects there were also positive ones. I learnt! That I know. I learnt minor/major computing details. I saw a greater use for communicating via email. I understood, once and for all, that we cannot turn our backs on ICT in this difficult teaching-learning process.

Professional B

profserv019

The beginning of this course was very difficult for me taking in to consideration it was my first module which wasn't the case for some of my colleagues. Besides this, I mixed up the timetable in such a way I missed the first induction session which was fundamental for my integration onto the course and which turned out to be very stressful for me. Integrating into the class was really difficult as well as finding out that groups had already been set up and which I waited for someone to assign me to one.

This mishap had repercussions for my final exam taking into consideration that I hadn't fully adapted and missing the induction period had resulted in a confidence and self-esteem crisis. I had to overcome these with a great deal of effort, dedication and collaboration with the people in my group and this effort was consolidated with a favourable grade in the exam which I wasn't expecting.

I have to say that the subject was very interesting above all the approach adopted by the Professor that obliged students to participate through the VLE on a daily basis. However, this turned out to be very tiring taking into consideration other professional commitments.

Of course if the subject was to commence now everything would be done with a different attitude and it would be so because I now have minimal experience in the area and things would be on a more equal footing with other colleagues and not as it was initially.

Professional B

profserv023

Throughout this subject I found that many aspects could have been improved and better thought out, mainly the level of teacher-student feedback. I noticed on many occasions, that possibly teacher interaction could have been more profound as happened with me and some colleagues when we ask different teachers for advice and received conflicting information. This confused us.

Something else I consider negative, even though the teachers allowed this "game" to happen right from the beginning, was the imbalanced way students were assessed. I think this wasn't acceptable and once again I have to underline that the teachers were aware this was happening. Some students attended a pilot study class and they weren't assessed on the forums and others didn't attend this study and were assessed on the forums. I think that it would be more pedagogic

to have one form of assessment that is the same for everybody.		
Professional B	profserv027	
<p>Becoming frustrated, I was suddenly faced with two options: change my perception of the frustration and tolerate it or run! I must confess that in the 1st class I thought of opting for the 2nd choice. I listen but didn't understand: so many alienisms, neologisms, an enshrouded and aesthetic technical language The same with the CFT [Cognitive Flexibility Theory]! It seemed like surreal literature. However, the "boringness" of a document with the underlying logic of a given rationality that I thought incapable of being embedded in my mental schemata turned out to be enticing (if not for those long evenings and the help of my computer science husband). I extended the limits of my mental capacity and understood the famous theory and the advantages of constructing a hyper-document, taking into account the theoretical framework put forth by CFT and its effective application.</p>		
Professional B	profserv028	
<p>There didn't exist any moment that provoked a negative feeling about the subject although I was hoping for something more motivational and relative to childhood education.</p>		
Professional B	profserv031	
<p>I think it was very important to have this formative time especially in the domain of educational technology in which development is extraordinary. At the end of this module I felt some sadness because we know that these methodologies undergo constant change and improvement but we will not be able to be a part of this. At the end there was some frustration due to the fact that we realised the training being offered to teachers outside of the University was in most cases of no real value. Also, we felt that the construction of work is a process that should be continued in a way that we consolidate the principles of cognitive flexibility. But to be honest, this would only be possible with the support of Professor Moreira.</p> <p>From a negative aspect, I have to point out the reduced number of classes available to explore the work; thanks to the availability and support of the Professor which served to minimise the diverse moments of anxiety that this type of work caused.</p> <p>Also at the beginning I felt some frustration for not having received accreditation for prior learning (ACR) besides fulfilling all the requirements completely. Just for those who didn't receive any ACR and set their sights high, this was very costly: the stress, the loss of some kilos, and the lack of family life - a tremendous effort was required. To give you an example, there were weeks when I only slept 4 hours a night, and I have to work at a school where I have to be in a good humour all the time in order to work with the children. Besides everything, after getting over this, I feel some frustration because I feel that what I have learnt over the past year will not continue.</p>		
Professional B	profserv032	
<p>At the beginning, I felt confused and lost because I could not get into the spirit of the programme. At the end, I felt really satisfied with the work I had done which involved a lot of dedication and effort.</p> <p>In a global sense, it was very positive and enriching.</p>		
Professional B	profserv033	
<p>A significant moment for me while attending this course was when the Professor asked each group to choose a topic from the 6 or seven proposed. My group were landed with the theme "network infrastructure" for a hypothetical centre "CEADCV". The centre had two floors and the 1st floor had a cable network system and wireless network on the ground floor. I felt many times lost; a series of sensations took hold of me – Will I be able to contribute anything? How will I do this? Isn't this a job for network technicians, someone who is trained in this area?</p> <p>Believe it, this sensation didn't last long, in fact I can say it only lasted for an afternoon. The</p>		

following morning when our group met up and when we divided up the tasks, I was really enthusiastic to get to the business centres to get the relevant information about materials, the prices, compare the prices, contact some network technicians etc. So, the initial feeling ended up being a wake-up call for something that was new to me, it motivated me to search, to look, it awoke in me a real interest, I had to contact other people, get involved in other research areas (I am from the Portuguese language area) so that I could build up my knowledge. In a short while, I was able to distinguish a wire in a document, words such as “RJ45”, “Category 5e”, Switch, Patch Panel, Wireless, Communication Rack and Bridge were all familiar to me. – I had to demonstrate to the group how each material was related and how they better interconnected with each other. In the end, by two weeks I felt like a network technician. My end feeling affected my work colleagues and my family in a very positive manner, even to this day when wiring materials are discussed or the presentation of proposals for possible financing of R&D centres are being considered, people always ask my opinion.

What happened to me generated, in me, a great interest in this subject area. The feeling of fear, of impotency gave way to the feeling of duty, a willingness to continue, in the end, real satisfaction. My feeling at the beginning lasted for a short while and gave way to happiness and a willingness to continue always.

Professional B	profserv034	
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Throughout the running of this module, in fact, throughout the whole course there was no event that affected me directly or altered my way of being or behaviour. However, when it got closer to the assessment period/project presentations the tension increased and I became easily irritable. I tried not to change my habits and family routines in such a way that my family would not be affected. It was enough that I was situated a long way from home, one hour journey (my calculations of the distance is gauged in hours as I find when using kilometres I often do not get a true figure) not to give them the attention they deserved and warranted.

The results that I was achieving were the events that inspired and encouraged me to continue, and to do so with greater determination.

Professional C	profserv039	
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While attending this module there were times when I didn't feel so good. I have slight computing skills and to have to develop a project in this area worried me. There were times when I felt very distressed, very tired even sad. My group dedicated a lot of hours (full weekends) to this project and we were left with the feeling that we would not be able to totally reach our objective. Without doubt, the family was in some way affected because there were few moments to really give them any attention which, when children are involved, was difficult to manage.

Looking around, and seeing other groups that were more knowledgeable and more advanced than us also contributed to this sense of frustration. Also, I am conscious that to a greater extent I am to blame because only on a few occasion did I requested any help from the teachers either in class or by email. However, I also think that the teachers could have made themselves more available to us; trying to find out what problems we may have had. I am not saying that I didn't like to work on this project. On the contrary, I thought it was really interesting and despite the problems mentioned previously, I think that we were all able to do a worthwhile job in line with the stipulated parameters.

If I have to do a similar project again, I think I will react differently. I feel more confident now, secure and knowledgeable in the dynamics of these types of projects even though I still feel that I have a lot to learn.

Professional C	Profserv040	
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For some time a lot has been said about this pedagogic training of teachers in the technical areas but without anything yet being achieved. Taking into account our ambitions and professional intentions it was with a lot of trepidation that we begun our training without having a clear and concrete idea of just what exactly we were going to do.

Already at the beginning of the module “Theories of Education” we were able to see that, in a certain way, the experiences we gained over these years were recorded facts and that they could have been translated into very interesting theories.

The course was fantastic almost all of the time but I have to talk about two moments, one positive and one negative. Without wanting to highlight any teacher in particular on the wonderful support they gave us, I learnt a lot from the attitude of Professor Carlota Thomaz on the dedicated monitoring of the course which got me thinking a lot about the way we monitor our students; about the way we do it and the support we should be providing.

As you can't separate “the me” from my duties, at times my personal life interferes with my professional life and this particularity has exactly to do with the negative moment mentioned previously. This negative moment stopped me from fulfilling the work schedules for the module School Organisation and Management. I was only able to overcome this moment thanks to the understanding and collaboration of Professor Antonio Neto.

I cannot fail to mention that the manner in which the teachers supported us was fundamental to the success of this training.

Professional C

Profserv041

The situation that left me the most “irritated” was the difficulty of inputting data into the database; the difficulties of recording and the constant loss of time at home trying to do things that apparently should be simple. At one point we began to feel time passing and work-wise we weren't achieving what we wanted which caused us to be even more nervous and less patient with our children. This situation didn't change my idea of the course or the subject and it was just another setback but one that was resolved without serious consequences for me or my family. Probably what happened will repeat itself while I continue using the same Network supplier.

Professional C

Profserv043

I think, on average, the training instilled, generally speaking, positive feelings; an expectation, for example, because after leaving University, a little over 10 years had passed before I returned to formal studies. Therefore, in general terms feelings are positive. However, as perfection isn't without flaws, in negative terms, it is good to highlight the discrepancies in the level of qualifications of the participants on the course which is good as they are different qualifications but in relation to the level of computing skills required on the course, and my skills are not so good, this for others creates frustrated expectations. However, this everyday experience showed that the actual work on Blackboard was breaking down certain barriers in the use of ICT.

Finally, I would like to say that this is a course I have always looked for as it involves two areas which I work in; dynamic information and education.

Professional C

profserv046

It was difficult for us to understand how to construct the sequences of a conceptual matrix but on the day of our presentation, and after having seen one or two colleagues make their presentations, we had a brainwave which led to us constructing a new matrix instead of the one we had and altering the report.

Before the presentation there was the usual stress but afterwards when everything went very well for us I felt very relieved and calm.

Professional C

profserv051

In the beginning it was difficult to understand the objective of the platforms and the way we were going to upload our work. When I was really able to understand the objective of the work and the way the platforms worked, I enjoyed the work.

Professional C	profserv053	
<p>I think it unfair that those who participated in the pilot study had far better grades than those who responded to the forums. However, I could not enrol on the pilot study once I had voluntarily taken part previously. I want to say that I had lost the same amount of hours as the others, done the same things as they had but they have benefited. It's good that I enjoyed very much to help the teachers who carried out the study but that which I am complaining about is the difference in the grades; for what reason did they get higher grades? In the end, participating in the forums is much more difficult and far less rewarded.</p> <p>However, upon reflection, I arrived at the conclusion that even though I had been "unfairly treated" it was fine. I enjoyed taking part in the pilot study if only for the joy of helping the two teachers who were a delight. However, I decided to talk about this issue because many times people can be acting unfairly without realising it.</p> <p>A positive aspect was the kindness of the Professors, they were easily accessible, especially Prof Moreira, and ready to help.</p>		
Professional C	profserv056	
<p>There was a lot of stress throughout the course even though the work was interesting. There wasn't time for almost anything inclusive of our professional commitments. Attention to our children or the family in general had to be fitted-in rather than saying sacrificed. There was also the loss of a close relative but unfortunately life goes on and I had to adapt myself to the new reality and the situation I found myself faced with. But even so, I was able to separate these feelings from my "academic struggle" and I never forgot not for one moment that they were my academic commitments. This situation arose in me the desire to increasingly ask questions and to do so in a way that this subject turned out to be even more interesting for my future career.</p>		
Professional C	profserv069	
<p>As in all of our lives, all that is new provokes a sense of strangeness and this module was no exception. At the beginning, I felt a little lost and even frustrated because neither I nor my work group were able to understand what was expected of us. However, from the moment we saw the light, it was a very interesting project to do and it was a pity we weren't able to make better use of this opportunity to work.</p> <p>That which begun not so well ended up being very good.</p>		
Professional C	profserv071	
<p>As in almost all of our lives, all which is new provokes a sense of strangeness and this subject was no exception to the rule and at the beginning it caused some problems once neither I nor my work group were able to reach a conclusion as to what was expected of us. However, from the moment the objective of the subject became clear to us, it was a pity we had so little time to get the work done. It seemed to me a very interesting project and that which started out badly finished up well.</p>		
Professional C	profserv072	
<p>I realised that in the practical classes the lecturer paid more attention to the work of a particular group than that of other groups.</p> <p>At the time I felt that it wasn't the right attitude but I tried to continue with my work.</p> <p>Once the module had ended with the development of a project and its corresponding grade, I thought that it [lecturer's attitude] could be regarded as something that could create a degree of unfairness because in this way the conditions were not the same for everyone.</p> <p>My attitude has not been altered. As this wasn't the first public institute for higher education that I have attended in Portugal I am already used to these kinds of occurrences and that's why I tried to continue my work at the time, getting it done in the best way possible.</p>		

In my opinion, this occurrence repeats itself always in one way or another

Contrary to what might be inferred by what I have previously written, it's not my intention to call in question the behaviour of the lecturer. Unfortunately, Portugal is a country where merit is not usually the primary factor when assessing an individual at a professional level. That's why it's not difficult for me to conclude that it would be difficult for a lecturer to intentionally focus his attention on particular students.

Professional C

profserv073

I asked the subject teacher to help me with some problems I was having but at the time he was too busy. However, the manner in which I was treated left me feeling disgusted and I had to be individually persistent in order to resolve these issues while feeling hurt.

Professional C

profserv081

At the beginning of the subject we were told that we had to think about a possible project to do which involved CFT [Cognitive Flexibility Theory] and developing an online database. My group made a proposal which I felt was/feel worth doing – “The Inclusive School”. I felt highly motivated as it is a subject very dear to me. I researched theoretical information, we divided up tasks, we had group meetings...but the results did take shape. Apathy set in. The project began to stall and the proposed methods of communication didn't work (be that inter-group or inter-class). I believe that this had to do with the fact that group and class members had different levels of ICT skills (which made it difficult to use Blackboard as a means of communication).

After seriously reading and studying about CFT, motivation and interest reappeared lifting the group to redefine tasks, divide searches and jobs, ultimately, to focus on and complete the project.

I think this module should allow and motivate students to use ICT but I felt that those who were used to ICT tools did so but those who were not used to them did not gain anything.

I would like to say that I think it is important to redefine the strategies so that next year there will be more students who will acquire this knowledge.

Another problem regarding the use of Blackboard and that is not everyone has access to the internet on a daily basis...and this fuelled disinterest and a lack of participation as we can see, for example, with the class discussion forum. It's a pity...

I also think that this lack of use had to do with the fact that the majority of the students didn't know how to use it and they had lives full of other responsibilities.

I recognise that interest itself is an important factor with this type of communication and this recognition is due to my professional training and my daily routine of communicating online... these are things that you don't pick up one day from the next.

Regarding the project we proposed to do, I believe that it was very useful to apply and contextualise it in the classroom. However, I do recognise the reality that the majority of our primary and secondary schools have limited access to the internet (despite what the government might say). This leaves me to believe (I hope I am wrong) that many projects will not run and never be used. It is sad if this happens as our students love to work with computers.

Personally, I believe in this type of resource as a motivational strategy for my students!

As a critical reflection, I believe that my group had some problems some more alien to us than others due to commencing the project without having a systemised knowledge of the theory involved. However, despite this I think it turned out positive.

Personally, attending this module (and the other modules on this course) affected my personal life

as I teach 90km from home and since Blackboard didn't work as a communication tool I and my colleagues had to spend full weekends working. This was a real struggle but it's over now.

Life has those moments...

Professional D

profserv085

The event lasted 6 weeks.

We felt a little adrift of things as we didn't know what the programme of study we were going to work with.

Any form of training affects us always as it is our future that is at stake.

Time was limited and I had to take options. At the beginning it was not so motivating but afterwards I managed to do well.

What was new was learning about another teaching tool that in the future might be useful to work with.

Now things will be different as we are more relaxed and maybe the work will be completely different since at the beginning we wasted a lot of energy.

I think in professional terms that the structure of the course should have been different with regard to the modules. Maybe in the first semester we should have three modules and now in the second we would have only the two annual modules to deal with in virtue of the fact that completion of the projects and assessment periods clash with the schools' [primary/secondary] exam periods.

Professional D

profserv087

Generally speaking, I think that the content explored in this subject area was really rewarding since we are dealing with materials and processes that are highly innovative and possess great potential.

Professional D

profserv088

One event that affected me considerably was the fact that I would be assessed in a module (Educational Technologies) where one of the parameters would be or will be or still is, my participation in a Forum in which all of my colleagues (and even I from a computing background) have no experience and some not even a computer. This upset me but I thought that if it is bad for me it will be worse for others. After a few days I realised that even the teacher didn't reply to the questions put forward on the forum. It's a pity as I would have had a good grade considering the content.

A second event that for a little while took precedent was that I became really surprised to see that the three teachers who taught on the same module did so in complete different styles. I also saw that we would be assessed by an exam, a project, a forum and a final report. I asked the teacher about this tight method of assessment and in one of the following classes he said that he would dispense with the exam which I thought was very good. I say this because I am on an in-service teacher training course and my work mates who are my rivals in real life are studying on similar courses delivered at other universities, and they only have to do assignments which are far less demanding. The final grade will in the end favour them.

I still haven't been assessed on this module. I liked the work that I have done but it would have been much better if I had had more time to do it because this type of work is at post-graduate/ master's level.

Feelings were many in this subject and they were changing throughout the sessions. I hope that the final grade will leave me with some sense of satisfaction.

Appendix 6: Screenshot of N6 in Action

The screenshot displays the N6 software interface with several key components and annotations:

- Document Explorer:** A list of documents (MM05 to MM17) is shown. A callout box points to MM09, stating: "Browser pop-up related to stories from a particular respondent [MM09]".
- Text Document (MM09):** The main window displays text from document MM09, including the title "INITIAL CLASSES (FACE-TO-FACE) WHERE TOO INTENSE AND TOO THEORETICAL" and the content: "Para dizer a verdade primeiro dia fiquei um pouco areia porque parecia ser tudo muito técnico e ainda mais porque tratava de uma área em que eu me encontro um pouco deslocada. Mas começando o trabalho com toda a garra comecei a acompanhar muito bem. As coisas começaram a misto bem. Ainda mais foi importante para mim fazer o trabalho prático que o meu grupo realizou. Por outro lado foi muito trabalhoso, mais no fim senti consequência." A callout box points to this text, stating: "Browser pop-up of Nodes/Stories associated with 'Workload'".
- Node Explorer:** A hierarchical tree of nodes is shown, including "Free Nodes (14)", "Tree Nodes (88)", and "Workload". A callout box points to the "Workload" node, stating: "Developing nodes for each related factor for coding purposes".
- Text Document (MM07):** A smaller window shows text from document MM07, including the title "ON-LINE DOCUMENT: MM09" and the content: "Ainda mais foi importante para mim fazer o trabalho prático que o meu grupo realizou. Por outro lado foi muito trabalhoso, mais no fim senti consequência." A callout box points to this text, stating: "Pop-up listing respondents and associated replies".

