2008-04-01

Can E-Learning Be Used to Further Improve the Learning Experience To Better Prepare Students For Work In Industry

Eileen O'Donnell

Technological University Dublin, eileen.odonnell@TUDublin.ie

Can e-learning be used to further improve the learning experience, to better prepare students for work in Industry?

Eileen O' Donnell, B.Sc. I.T.

A dissertation submitted to Dublin City University in partial fulfilment of the requirements for the Masters degree of

Master of Science in Information Systems for Managers

Professor Wallace Ewart, formerly Pro-Vice-Chancellor and Provost, University of Ulster.

Oscail, National Distance Education Centre,

Dublin City University,

Glasnevin, Dublin 9.

April 2008

Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Master of Science in Information Systems for Managers is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed: _____ Student Number: 55156398

Eileen O' Donnell

Date: _____

‘We often fool ourselves, as well as others, by denying our subconscious motives. And remember that intentions are cheap, at least when compared with realizations’

(Mintzberg and Hunsicker 1988)

Acknowledgments

It was an honour to work with Professor Wallace Ewart, formerly Pro-Vice-Chancellor and Provost (Belfast), University of Ulster, whose wealth of educational experience came across in the invaluable guidance provided throughout the course of this study. Professor Ewart's commitment to providing interesting questions, forced me to probe deeper into the connection between the available literature and analysis of survey findings.

The co-operation received from students and staff of the Faculty of Business, Dublin Institute of Technology, Aungier Street, who gave their time so graciously to complete surveys. Their involvement in this study was paramount and I am deeply indebted.

Mr. Paul O' Sullivan, Director, Faculty of Business, Dublin Institute of Technology, Aungier Street, for his continuous support and encouragement throughout this course of study leading to the award of the Master of Science in Information Systems for Managers.

Dr. Kevin O' Rourke, Learning Technology Team, Dublin Institute of Technology, for all the assistance he so willingly provided during the course of this study.

Dr. Jill Fresen, Project Manager, Department for Education Innovation, University of Pretoria, Pretoria, 0002 South Africa for her encouragement and interest in obtaining a copy of the completed dissertation.

Contents

Table of Tables

Table of Figures

Abstract

In the context of this study, the term e-learning refers to the use of an e-learning platform as an enhancement to traditional teaching methods in the form of blended learning. The term industry is used here in a generic sense i.e. a form of employment that will remunerate the employee.

This dissertation sets out to explore the hypothesis 'Can e-learning be used to further improve the learning experience, to better prepare students for work in industry?' The theoretical framework consists of empirical research to identify the conclusions drawn by others who have previously explored similar hypotheses. Initially a Survey of Representatives from Industry was conducted, to establish what they considered to be the characteristics students should have if they are to be regarded as being prepared for work in industry?

From the responses received from the hundred and twenty surveys distributed to representatives from various industries (i.e. recruitment agencies, banks, hotels, retail chains, manufacturing, etc.), surveys for students and lecturers were then created, to establish their views on whether e-learning was improving the learning experience (in accordance with the expectations of representatives from industry) to better prepare students for work in industry.

The survey of students and lecturers was undertaken to find out how they perceived e-learning with respect to improving the learning experience and how effective e-learning was over traditional teaching methods in preparing students for work in industry.

The final conclusion is that e-learning blended with traditional teaching methods when used effectively, further improves the learning experience, to better prepare students for work in industry.

Chapter 1

1 Introduction and contributions to research area

1.1 Contribution of chapter

Chapter one provides a brief introduction to the research to be conducted and a synopsis of the relevance of subsequent chapters.

1.2 Introduction to research area

E-learning has undergone a gradual process of evolution, changing as new thoughts and technologies were developed and possibly even now are not static. E-learning will continue to evolve as long as enthusiastic academics continuously strive to improve their teaching methodologies to further improve the learning experience and better prepare students for work in industry. Some educators perceive e-learning as a beneficial enabling tool which can assist in preparing students for the demanding positions lecturers aspire them to achieve in future careers. E-learning is the exchange of knowledge through online media, e-learning can empower learners, and the learner as well as the mentoring system are held accountable (Wild and Griggs 2002). In the context of this study, the term e-learning refers to the use of an e-learning platform (Moodle, Blackboard, WebCT, WebX) as an enhancement to traditional teaching methods in the form of blended learning.

The particular form(s) of e-learning to be explored is where technology is used to enhance students' learning experience through: online distribution of course material; communication forums; discussion boards; chat rooms; distribution and submission of assignments and assessments; use of electronic journals; embedded web-links, etc.

1.3 A brief outline of the background of the research

My B.Sc. was delivered through a form of blended learning provided by Oscail, whereby, the course documentation was distributed; the students studied course content independently, attended approximately four tutorials per module, submitted assignments, and took examinations.

At present I am undertaking a Master of Science through distance learning provided by Oscail. Where the course notes are distributed online, discussion, chat and e-mail facilities are provided for communication with lecturers and fellow students alike, but with no physical tutorials. This form of study is best suited to students who are highly motivated and enjoy the challenge of self directed study. However, the majority of Post Graduate students claim that they would not be sufficiently motivated to study alone and prefer the continuous guidance of a lecturer. 'Learners used to instructors often resent having to learn from a computer, and trainers who feel valued for their platform skills often feel threatened' (Dublin 2006).

Unfortunately, due to time constraints students cannot attend lectures all of the time. Fortunately, with the advent of e-learning, the lectures can be made available electronically to students, so students that are absent or abroad can still keep up with classroom activities when they get the opportunity. During attendance at the Moodlemoot conference, some lecturers from the Law Society said that they were making vodcasts of their lectures available to students. Initially, these lecturers spent a lot of time editing the recorded lectures to omit coughs, gestures, etc., subsequently, they decided to save time to devote to more pressing tasks, and made available online the unedited version of the vodcasts for students to view.

For the past few years I have been lecturing to Post Graduate students. Forty-two contact hours with each group. In order to make the best use of the time spent with these students to improve their learning experience for the work that they are doing in industry, a combination of chalk and talk, practical sessions and online learning are employed.

This is the type of blended learning under review in this dissertation, whereby traditional teaching methods are enhanced by use of an e-learning platform. By posting all course material on line, students who are missing from class, for one reason or another are able to keep up to date as the course progresses.

Students at Post Graduate level, especially those who have many years work experience, have a tremendous amount of valuable information that they can share with their peers to further enhance the learning experience of all, including the instructor/lecturer/tutor, whatever handle you wish to attribute to 'the guide on the side', 'the sage on the stage', or 'the host on the post'. Whichever way one perceives this situation, the objective is to keep concentration levels high, engage the students in class activities and discussions, and review current industries best practices that they have experienced or as experienced by others through reviewing articles in business journals. 'Comparing their own work to that of others can give students a valuable perspective on their own abilities and inspire them to try new ideas of techniques' (Horizon 2007). E-learning provides instructors with an excellent medium to enable students to view the work of their peers, add to it, enhance it, or simply benefit from the quality, appearance and approach of the work undertaken by other students at the same level of attainment.

One way to improve lecturers' effectiveness is for them to continually study how their peers approach their work i.e. how they create course material, what use they make of e-learning platforms, etc. Hence, the interest in completing this study, to identify students and lecturers' perceptions of how effective e-learning actually is in improving the learning experience, to better prepare students for work in industry.

A very significant factor in this equation is that the students report back to their employer on my ability to effectively guide them in their studies. In general the educational sector would benefit by having feedback loops on all lecturers' performance from students, which would be instrumental in improving lecturers' performance and hence student attainment.

1.4 Student engagement and attainment

The study conducted by Fresen and Boyd (2005) in the University of Pretoria, South Africa 'Caught in the Web of Quality' addresses some of the issues that will also be addressed in this study. One of these issues is the measurement of client satisfaction through a student feedback survey. This study will undertake surveys of students and lecturers to obtain their views on the successful implementation of e-learning within the Faculty of Business.

In order to effectively design e-learning material, the instructor has to take into consideration; learning capabilities, motivation, prior knowledge and experience of the target audience (Solheim et al. 2006). Lecturers must be attentive to the needs of their students. By encouraging students to share their views on course material, handling of assessments, etc the lecturer can obtain valuable insight on how to improve the design of their e-learning content to improve student engagement and hence attainment. While a lecturers' knowledge and skills are important, having a positive attitude is crucial for developing a truly interactive dynamic learning community, which takes considerable time and energy (Kempe 2001). The positive attitude could manifest itself in a lecturer inspiring others to share e-learning experiences, approaches and results achieved; by getting involved with lifelong learning, attending conferences, seminars and showcases of learning and technology.

Despite the amount of information imparted to students, there will always be an abundance of relevant subject matter which will not be mentioned or even considered. Ideally, students should be trained to identify relevant information, from reliable sources, on their own, through self-directed learning. Drucker (2006) believed that the key to greatness was to look for people's potential and spend time developing it, by: mentoring, encouraging and challenging them. Alas, Alberts (2005) found that most educational environments still focus on teaching what has already been discovered, rather than encouraging students to discover for themselves. Which is similar to the conclusion drawn by John Henry Cardinal Newman in 1852 'he may have no grasp of things as they

are; or at least he may have no power at all of advancing one step forward of himself' (Newman 1907). Independent learning should be encouraged in order for students to reach their full potential.

Rather than delivering a non-stop flow of information to students, it is sometimes better to select a topic and instruct the students to investigate it under the following headings: critical success factors, implementation issues, risks and drawbacks involved, benefits to be achieved, etc. Then mention that this work will be peer reviewed. When students have to compile work for a lecturer to review, the pressure is less than when students have to prepare work for both lecturer and peer review. Newman (1907) goes on to say that the bodily eye function comes naturally as it is provided by nature, but the minds eye must be cultivated to encourage the students' ability to critically analyse information with a view to identifying truth. Students must be encouraged to keep an open mind, not to exhibit prejudice and to do their best in all activities that are put before them.

1.5 Structure of the dissertation

Chapter two clearly outlines the hypothesis to be explored: that e-learning in the form of blended learning (whereby the course material is available on an e-learning platform, and the students have regular contact hours with the lecturer and fellow students) can be used to further improve the learning experience, to better prepare students for work in industry.

Chapter three contains the Critical Literature Review which details relevant literary work from esteemed researchers in the fields of e-learning and education to establish a framework for this study.

Chapter four outlines the methodology employed to accumulate primary research data from representatives from industry, students and lecturers for analysis to establish answers to the questions arising from the hypothesis.

Chapter five provides details of how the survey for representatives from industry was conducted and subsequently analysed. The resulting student characteristics were used in the formulation of the questionnaires for students and lecturers to ascertain their perceptions on whether traditional teaching methods or blended learning would best enhance the learning experience, to better prepare students for work in industry.

Chapter six is the hub of this study, where all the data collected is analysed and findings presented on student and lecturers' perceptions of how effective blending e-learning with traditional teaching methods is in improving the learning experience, to better prepare students for work in industry.

Chapter seven concludes this study by outlining the key findings of this dissertation regarding the perceptions that students and lecturers have regarding the use of e-learning in an attempt to improve the learning experience, to better prepare students for work in industry.

Chapter eight provides details of possible future studies to be undertaken in the area, in an effort to continuously seek to improve the teaching methods employed by lecturers to better prepare students for work in industry.

The Bibliography contains all the references used in this study.

1.6 Conclusion

Chapter one provides an introduction to the research area by outlining the background and focus of the research to be undertaken and subsequently the structure to be followed in pursuing answers to the hypothesis.

Chapter 2

2 Statement of the hypothesis to be tested

2.1 Contribution of chapter

This chapter provides some background information to further explain the hypothesis to be tested. By considering the nature of e-learning, taking a brief look at pedagogy, and reviewing some critical success factors for the successful implementation of blending e-learning with traditional teaching methods. Interpretation used of work in industry and how better to prepare students for this work.

2.2 Hypothesis

The objective of this study is to explore students' and lecturers' opinions regarding traditional teaching methods and blended learning (whereby e-learning is combined with traditional teaching methods). By analysing students' and lecturers' views regarding the merits of traditional teaching methods versus blended e-learning teaching methods, conclusions will be drawn on how students and lecturers' feel about the hypothesis 'Can e-learning be used to further improve the learning experience, to better prepare students for work in industry?'

2.3 The nature of e-learning

Patience is required when developing an online presence, in order to get it right, Reynolds advises 'to plan for the long journey' because each of us has a unique way of learning, in order for us to achieve the most effective use of technology, when applied to the learning experience (Reynolds 2003). The development of course material is time consuming for lecturers. It takes time to become familiar with the successful use of an e-learning platform. In addition, lecturers are challenged to create multi-media

presentations, podcasts, quizzes, multiple choice questions, discussion board topics, etc. to make e-learning interactive and engaging for students. In order to succeed with e-learning lecturers have to appreciate that it will take time and commitment. Donnelly and O' Rourke (2007) were of the opinion that lecturers would benefit from being online students in order to gain the necessary experience and confidence to move to an online environment. Even if a lecturer has experience of being an online student, it still takes time to come to terms with how best to use this teaching tool to its best advantage to improve the learning experience of students. Also that there was a qualitative difference between 'teaching online' and merely 'putting a course online' (Donnelly and O' Rourke 2007). In some instances e-learning is simply used as a repository for lecturers to store notes, with the intention that students can access them and print them off as required.

Simply putting material online does not make e-learning successful (Wild and Griggs 2002). In my experience, students prefer to have a physical handout to read and study, instead of reading and studying from a computer screen. So even if course notes are available online, the students prefer to have a hard copy to enable them to study effectively. However, should students be absent from class, the opportunity is there for them to download the course material and keep up to date with the progress of the class.

2.4 Pedagogy

According to the online Oxford English Dictionary the noun pedagogy means the profession, science, or theory of teaching (Oxford). In order to design an effective e-learning presence, an appreciation of the theory of teaching is a necessity, to ensure that the material helps students to achieve the learning outcomes the course of study requires.

Pedagogy, how does one adequately define the whole concept of knowledge transfer, the significant combination of reflecting, thinking, knowledge integration and experiences are essential (De Jong 2007). The challenge for an e-learning instructor is to devise an e-learning environment for students, which adequately addresses all of the above concepts,

to ensure that the crucial links between theory and the practical requirements of industry are met.

Condie and Livingston (2007) found that some teachers believed that online learning and independent study was not appropriate for students of varying abilities, also in order for students to be successful with this method they should be mature and self motivated. Too true, online learning and independent study is not appropriate for all students, hence, this study will explore students and lecturers' views on blended learning, whereby students have regular lectures to attend and online learning resources available also. Individual differences in learning styles make designing ILSs (Interactive Learning Systems) a complicated task (Sabry and Baldwin 2003). Therefore, in order to design effective online learning systems the maturity, motivation and difference in learning styles of students have to be taken into consideration. 'Students have choices – choices concerning how much time and effort to devote to their learning and what level of learning they want to achieve' (Hadsell and Burke 2007). Students do have choices, but it is the responsibility of the lecturer to encourage and motivate students to successfully engage with the course material and subsequently achieve their full potential. Vonderwell and Alderman (2007) undertook a case study of five online graduate courses, and found that self-regulatory cognitions and activities, such as reflection, metacognition and self-regulation, were essential aspects of learning and assessment processes in the online learning environment. A good lecturer should be able to guide their students but not spoon feed them. Students have to be encouraged to think for themselves and not expect to be spoon fed at third level education. Unlike primary and secondary level education, where all the course material is provided, students at third level are encouraged to think outside the boundaries of the course material and are rewarded for their efforts at self-regulation.

Levin and Wadmany (2006) conducted a survey involving integrating technology-based information-rich tasks (IRT) into the school curriculum, even though the teachers used the technology to support their teaching, none felt that using the technology actually changed their educational beliefs. There is no need for e-learning to change teachers

educational beliefs, the objective of e-learning is to provide teachers with an alternative delivery method to stimulate thought processes, enhance engagement and hence student attainment.

Instructors must match pedagogy with the desired learning outcomes of a lesson (Cox et al. 2007). Lecturers should adjust their teaching techniques to suit the required learning outcomes and the level of study students are undertaking, be it first year degree or Post Graduate. Some pedagogical methods are more effective in achieving particular learning outcomes than others (Sullivan and Thomas 2007). Experience will enable lecturers to best match the most appropriate teaching techniques to individual learning outcomes. When designing a ship, the most pertinent question to answer, is whether the design selected will best suit the purposes for which the ship will be used, which is a means of transportation (Schon 1992). The challenge to lecturers is to prepare their students for responsible positions in industry and never lose sight of achieving this objective. 'Learners themselves decide, consciously or unconsciously what they will learn from a given lesson, and it is often not what the teacher has in mind' (Chu 2007). Hence, the onus is on the lecturer to make course content as absorbing and relevant as possible, to engage their students as much as possible with the topic in question, hence, ensuring that the most crucial elements of the lesson remain in students' minds.

Sometimes unlearning what the students already know is the key to shifting perceptions, in order to achieve increased paradigmatic awareness (Harrison and Leitch 2007). This implies that in order for students to understand the 'underlying theories and practice of a scientific subject' (Oxford) in some circumstances it may be necessary to encourage students to question previous beliefs. The more students question the more they will gain from the learning experience. Questioning can lead to improved understanding of scientific subjects.

'We also need to develop a more sophisticated understanding of the ways in which teachers develop their professional practices, to better meet the challenges of workforce development' (Summary Report Becta 2007). Continuous professional development of

teachers and participation in creating an online presence can make educators more alert to what is required of their course material to educate students to better meet the requirements of industry. Staff reported increased levels of engagement with other departments and felt that their department and students had benefited from being involved (Beastall and Walker 2006). Attending conferences and seminars enables lecturers to share experiences, the lecturers' course preparation and delivery can only benefit from their conscious efforts to explore their work and continuously improve their delivery of course material, which influences and hopefully prepares students for work in industry. 'Providing real benefit is the primary requirement of all learning, regardless of delivery method or clever instructional design' (Cooper 2007).

Exploratory Practice (EP) allows students the opportunity to actively engage in their own learning to encourage students to seek understanding of the subject matter not just find solutions to problems. 'It is necessary for learners to understand that they are the people who have the power to improve their own learning' (Chu 2007). Positive encouragement can have a significant part to play in helping students to reach their full potential, not only in academia but in sport, art and all walks of life.

'All you can do for a learner enroute to their forming a view of their own view is to aid and abet them on their own voyage' (Bruner 2006p 150). Lecturers can employ many educational techniques to try to engage their students; e-learning is just one of many resources available to lecturers, to assist in capturing the interest of students, in order to enable them to form worthwhile opinions of their own.

The learning experience of students will be influenced by their willingness to participate, what has motivated them to follow the course of study, and what they hope to achieve by doing the course. 'Here, we have focused on a particular weakness in the existing literature – the tendency to conflate 'education' with schooling. Such a failure tends to cause us to ignore the role the broader society and its institutions play in the upbringing of individuals and in the formation of their productive roles in society.' (Auerbach 2007). The learning experience of students will also be influenced by societal and environmental

factors, through online interaction, students may be able to share their life experiences and hence improve the overall learning experience to enable them to fulfil productive roles in society. 'It is surely the case that schooling is only one small part of how a culture inducts the young into its canonical ways' (Bruner 1996 ix).

'Across the HE sector, the rationale for e-learning and benefits are largely accepted, in terms of their positive effect on teaching and learning experiences of students and staff, yet as highlighted by the OECD policy brief on e-learning (2005) the pedagogic value for e-learning has yet to be quantified' (Beastall and Walker 2006). The main objective with e-learning is to enhance the student learning experience, the survey is devised to establish students' perception of e-learning and how it impacts on their learning experience.

'Safety, Health and Environment (SH&E) practitioners and educators alike should consider minimizing the use of pure lecture methods to train employees or students and instead begin to incorporate active teaching strategies that better prepare employees/students for the complex and dynamic challenges they will encounter in the workplace' (Ramsay and Sorrell 2007). Theoretical information is simply not sufficient to prepare students for work in industry. That is why case studies, problem based learning, etc. are beneficial in the educational environment, to assist students in applying their theoretical knowledge to real life scenarios.

'Thinking of prior success encourages self-confidence' (Chu 2007). Students enjoy immediate feedback on their progress. E-learning can provide this immediate feedback through the use of multiple choice questions and assessments, and hence motivate students by inspiring self-confidence. 'In assurance of learning, demonstrating learning achievement is integral to the learning process' (Zhu and McFarland 2005). Lecturers may be discouraged from assigning too many continuous assessments due to the amount of time spent doing corrections. This may hamper feedback on student attainment. The advent of e-learning enables lecturers to assess student learning achievement in an efficient manner. Online feedback is immediate enabling lecturers and students to assess students' engagement with the course material and students' levels of achievement.

When students actively get involved with online learning communities 'this community of enquiry provides a rich collaborative and reflective environment for higher-order learning, which is required for knowledge construction' (Li-Fen Lilly and Jeng 2006). Hence, students can gain more from this discourse than from simply being receptors of information.

Some students may not be able to attend a full time course, hence, have no other choice but to complete their education through e-learning. Not all students have the necessary mature approach to study, to guarantee that they will gain the full benefit of the education that they are seeking to attain. Hence, it is the responsibility of the instructor to ensure that the e-learning experience is as compatible as possible to traditional teaching experiences, to enable all students to benefit from the experience (Pan and Sullivan 2005).

As a result of their study Li-Fen Lilly and Jeng (2006) found that more than 90% of students felt that they had learned information that they could apply to the real world environment. Educators aspire to adequately prepare students to deal with the unexpected in a mature and logical fashion when they embark on their future careers. Professionals need to be able to cope effectively and wisely, with complex and unusual situations (Schon 1992).

2.5 Critical success factors

As part of the Critical Literature Review some critical success factors which are necessary for the successful implementation of blending e-learning with traditional teaching methods will be reviewed. Fresen and Boyd (2005) identified and reviewed Critical Success Factors in relation to the e-learning design and production unit at the University of Pretoria. The critical success factors mentioned will be supported by relevant references to other studies on e-learning or conducted within the educational sphere in general. By identifying the critical success factors that appeared to be most

relevant to the success of blended e-learning assisted in establishing the theoretical framework for this study. Reviewing the studies conducted by others on various areas of e-learning, helped to identify the questions to be put to students and lecturers in order to find some worthwhile answers to the questions raised by this research hypothesis.

The critical success factors to be reviewed in Chapter 3 are:

- Student attainment
- Commitment of the educational providers
- Enhancement of the learning experience
- Anonymity afforded to students who choose to remain unknown
- Student satisfaction
- Design of e-learning course material
- Sense of community
- Learning outcomes
- Accountability
- Lifelong learning
- Effectiveness
- Availability

In order to complete this study it is necessary to determine how beneficial and effective others have found blending e-learning with traditional teaching methods to improve the learning experience, to better prepare students for work in industry.

The aim of the Critical Literature Review is to establish the critical success factors and evidence of the success or failure of blending e-learning with traditional teaching methods to improve the learning experience from secondary research carried out by others. Subsequently, distribute surveys to students and lecturers in the Faculty of Business to identify their views on the impact that e-learning can have on improving the learning experience and preparedness for work in industry.

When the surveys for students and lecturers are analysed, the findings can be cross referenced with the findings of other researchers. Hence, some useful conclusions may be made on whether the critical success factors for the successful implementation of e-learning have been established in the Faculty of Business and how effective blending e-learning with traditional teaching methods is in improving the learning experience, to better prepare students for work in industry. Preparing students for their future careers is one of the main objectives of third level education.

2.6 Work in industry

The scope of this study is not to identify which form of e-learning is best suited to particular areas of work. The objective is to establish if the use of e-learning improves the learning experience to better prepare students for work in industry. The term industry is used here in a generic sense i.e. a form of employment that will remunerate the employee. The actual tasks undertaken by employees on a daily basis and the job titles allocated to them are not under consideration in this study. It is the students' preparedness to adapt to the various requirements made of them, when they secure employment that is under consideration here. According to Wood and Kaczynski (2007) 'university prepares students for any job by developing generic achievements, which then become the focus of education'. This implies that educators are not expected to prepare students for specific jobs in industry, because we do not know what job any specific student will get, we have to prepare students for whatever job they get, by ensuring that they are competent and capable in their chosen field, but also flexible enough to adapt their training to suit all eventualities. Excellent team work and interpersonal skills are important for students to assist them in integrating into whatever work situation they attain.

Once a student has well developed interpersonal skills they are expected to communicate with other employees and find out how exactly to do tasks in the most efficient and effective manner. One important part of their team work and interpersonal training skills is to respect their colleagues, and understand that even though colleagues may not have a university education, they possibly have a wealth of experience to share, which has built

up over many years. One should never forget that no matter how far up the educational scale we go, even to doctorate level, there is still an abundance of information we will never be exposed to, even in a chosen field of speciality. Students should be advised how to conduct themselves in a mature way, opinions should be contributed in a polite fashion supported by relevant data from recommended sources.

'It is not easy to define generic achievements and there is no general agreement on which skills are essential to success in employment' (Wood and Kaczynski 2007) but there are several characteristics that educators should try to cultivate in students to guarantee them some success in the employment stakes. The challenge to universities and educators everywhere is to find a way to incorporate the skills that representatives from industry desire in graduates into our everyday dealings with students, possibly through leading by example. Lecturers should treat students and colleagues with respect and encourage students to treat others with respect in an effort to develop their team work and interpersonal skills.

Lecturers should keep students up to date on the findings of their latest research studies and those of their colleagues to encourage students to recognise that commitment to ongoing training and further education is not only challenging and rewarding, but highly enjoyable, once one has identified an area of real personal interest to study. Students can sometimes respect and sometimes detest lecturers for various reasons, the onus is on the lecturer to try to connect with the students and guide them to achieve their potential. Lecturers who; arrive punctually, prepared for class, show an interest in students' work, encourage and motivate students, can lead the students through good example on how to achieve the characteristics desired by representative from industry. Hopefully the students will emulate the lecturers. Basically, if the lecturers aspire to personally demonstrate the characteristics desired by representatives in industry, the students will possibly follow suit and develop the desired characteristics also.

Some attempts have been made by the Association of Business Schools to standardise Third Level education across Europe, in the form of the Bologna Accord (2008), which

aims to standardise the forty European higher education systems by creating a single system of Bachelor and Master qualifications. The agreed framework consists of a consistent grading system. The main objective is to create a more competitive European higher education system, which is compatible with global standards, to enable European students to compete for jobs in industry globally. The Bologna Accord has led to modularisation and semesterisation, which has changed the basic structure of our university courses, but whether this accord has led to improvements in student learning we do not yet know. The Bologna Accord improves graduates opportunities of getting employment abroad. Previously, when graduates were seeking employment, they would need to produce transcripts of results attained, from each year of their university education, to prove to prospective employers their level of competence in each subject undertaken. Standardisation across higher education provides employers with a better system to assess the qualifications of prospective employees and universities to assess students' eligibility to attend further education.

We must not forget, with all this standardisation, the importance of cultivating creativity in our students, by encouraging them to think for themselves, maybe they can lead the educators to be creative in their teaching methods also.

2.7 Preparation of students for work in industry

As previously mentioned, the scope of this project is not to review or comment on the functionality of any e-learning platform, the objective is to consider the merits of e-learning as a form of blended learning in general, and can e-learning enhance the learning experience to better prepare students for work in industry.

The Becta report mentions that Moodle has gained a clear lead in the marketplace, WebCT merged with Blackboard which has now doubled the number of colleges using its Virtual Learning Environment since 2001 but Learnwise remained at similar levels (Becta 2005). FAS utilises Moodle for providing online computing courses for example CompTIA and MCSA which are very pertinent to work in industry and are universally

recognised by large IT organisations (FAS 2007). DCU also use Moodle when providing their Distance Learning Programmes through Oscail (Oscail 2007). As seen from the start of this paragraph, various e-learning platforms are available for use with students. This study is not to determine the merits or demerits of any particular e-learning platform.

The objective is to consider the merits of e-learning as a form of blended learning in general, and its effectiveness in enhancing the learning experience to better prepare students for work in industry.

The responsibility of educators is to ensure that their daily activities best prepare students for work in industry. Educators are also responsible for providing suitable further education to address the crisis that businesses perceive within their own four walls. Distance learning and blended learning offer an achievable solution to participating in further education to busy employees. 'Remember that the ultimate purpose of e-learning is not to reduce the cost of training, but to drive business results' (Bersin 2002). In actual fact blending e-learning with traditional teaching methods can reduce training costs and reduce our carbon footprint. Higher Education Institutions (HEIs) need to develop training in line with regional economic needs in order to be proactive in meeting markets that may be rapidly evolving (LTSN-GEES 2003). Links with industry are paramount to the success of educational establishments. Educators cannot provide students with the characteristics desired by industry without keeping in touch with the requirements of employers and current standards and practices within industry.

'Training is expensive, both in out-of-pocket costs and in the time that is lost at work. Because of work force mobility, employees can leave any time, taking their newfound skills with them' (Stone 1991). Work force mobility is a fact or life, increased training leads to increased opportunities. Therefore, each company has to weigh up the advantages and disadvantages of training their employees. Some Institutions request staff to sign an agreement, stating that if they leave within one year of completing an institute

funded course of study, the staff member must reimburse the Institute, in an effort to retain their most qualified and ambitious staff.

Learning by rote to pass examinations is clearly not the best approach to preparing students for work in industry. Using case studies and problem based learning as methods of continuous assessment appear to address the issue of preparing students for work in industry. By assessing students' ability to relevantly apply their new found knowledge to realistic situations that will occur in a business setting. 'What we resolve to do in school only makes sense when considered in the broader context of what the society intends to accomplish through its educational investment in the young' (Bruner 1996 ix).

'Many institutions expect teachers to teach in a way they have never learnt themselves. All teachers should become an online learner before they start teaching online' (Ambrose 2001, 14). Having studied previously online must give the lecturer an advantage, when commencing with the use of an e-learning platform to enhance ones delivery of course material.

'Students gain access to information resources, faculty, lectures, demonstrations, conferences, outside activities, etc. that were previously not attainable' (Charp 1997). Theoretical studies are not in themselves sufficient for all students to grasp a good understanding of the subject matter. Practical demonstrations, laboratory experiments, working examples, etc. can assist students in attaining a better appreciation of the subject matter.

The mind works in mysterious ways we each see things biased by our own experiences, learned responses and ability. To make information available in a variety of formats, allows students the opportunity to gain a mature understanding of the subject matter. Lecturers should aim to connect with all of their students. E-learning can provide a variety of means to achieve this objective. For example, after class, students have the opportunity to review the material at their leisure, save, edit, highlight, or add additional content as they see fit, to improve their understanding. If necessary, students can then

contact their lecturer or peers for clarification or to share their observations on the subject matter.

2.8 Measurement of improvements in learning

Gros (2007) established that digital games are user centred; they can promote challenges, co-operation, engagement, and the development of problem solving strategies. Invariably, when someone commences playing a digital game, their progress through the initial levels or chapters can be slow. Alas, over time, user's experience of the requirements of the game play and the controllable keypad set up improve and progress is enabled. Hence, improvement of learning has occurred in order for the player to advance in the game. It may have merit if lecturers had the time and skills to develop educational games on their subject area and then monitor students' progress through their achievement levels, in order to measure improvements in learning. Digital gaming is a very profitable market, therefore, a lot of time and money is spent on their design and creation, which is not available to the educational sector. Nintendo's Brain Training games can be addictive, scores are recorded, the user is simply drawn into competing again and again with themselves, and others, to achieve a higher score. If this use of technology was available to lecturers through good interactive subject material, when students initially enter the arena, they could be tested for current ability. At various stages throughout the course or on course completion, students could be tested again, and improvements in students' learning monitored. There are lots of packages, particularly at primary level, which will automatically measure students' improvement in certain basic learning skills, to measure improvements in reading and numerical skills.

It is not sufficient to monitor improvements in students' learning only. Students' ability to effectively communicate with others must also be enhanced, along with their ability to apply their knowledge in a useful and progressive way. Universities provide hugely beneficial learning communities in which students learn how to learn, and learn complex social strategies that cannot be learned in a virtual classroom (Bell and Martin 2004).

2.9 Conclusion

The intended outcome of this research is to identify student characteristics as identified by representatives from industry. Subsequently, to assess lecturers' and students' beliefs on which form of teaching method is most appropriate for developing these characteristics to better prepare students for work in industry. The teaching methods under review are traditional teaching methods versus blended learning. Blended learning in this context refers to the use of an e-learning platform to complement classroom teaching.

The objective of this research is to identify what students and lecturers think of the use of e-learning platforms in order to conclude an answer to my hypothesis: can e-learning be used to further improve the learning experience, to better prepare students for work in industry.

Chapter 3

3 Critical literature review

3.1 Contribution of chapter

Initially, this study was to focus on Blackboard because this was the e-learning platform the Learning Technology Team supported in the Faculty of Business. Subsequently, information came to light that this was not the only e-learning platform in use. In addition, a number of lecturers were making their individual course content available electronically through use of their own web-sites or by using shared scratch drives. In order not to limit the numbers of lecturers and students eligible for this study, no particular e-learning platform will be mentioned.

Academic Professional Development looks at the changing role of instructors/lecturers in higher education, identifying the desired professional capacities required to improve the learning experience of students through e-learning (Seagrave et al. 2005). Online students need to explore ideas, values and assumptions, through collaboration, experimentation and reflection in order to experience self-directed learning and hence become independent of their instructors. Students should be encouraged to engage in deep thinking and challenge their own assumptions (Ambrose 2001).

Some see the implementation of e-learning as a catalyst for pedagogical and other changes, others as an opportunity to change teachers' entire approach (Harris et al. 2004). Any catalyst that promotes lecturers to review their approach to lecturing can only be beneficial to improving the learning experience of students.

'The majority of teachers feel that the use of ICT in the classroom positively impacts on the engagement/motivation and achievement of their learners. Perceived impacts are

slightly greater for boys than girls, and slightly higher for engagement/motivation than achievement' (Kitchen et al. 2007). This is another interesting question that could be addressed in surveys for students and lecturers to decide if the perceived impacts are slightly greater for boys than girls. i.e. Do males perceive e-learning to be of more benefit than females?

3.2 Review of academic literature

In the research undertaken by (Fresen and Boyd 2005) Critical Success Factors were mentioned as a result of research undertaken by six other studies to provide benchmarks with respect to the quality assurance of web-supported learning. Not all of the Critical Success Factors reviewed by Fresen and Boyd will be reviewed in this study.

'Our education system has little idea how to cultivate its most promising students' (Cloud 2007). E-learning can enable the Lecturer the opportunity to provide quality educational material to cater for the varied needs of students. More advanced students can go ahead and review extra course material while the lecturer works with students that need extra guidance.

'Courses on using ICT in teaching are among the top three continuing professional development choices for all but the most recently qualified teachers' (Summary Report Becta 2007). There is a lot of pressure on lecturers in Universities and Institutes to create an online presence, hence, courses must be available on e-learning for lecturers and support readily available when required. This type of professional development takes a lot of time to master, initially the lecturer attends the course, the challenge then is to figure out how best to apply this learning medium to their own course material, to further improve the learning experience of their students. Time is a crucial factor in the development of e-learning course material: time attending courses, time creating course content, assessments, etc. which is apart from the time spent delivering the material in a classroom situation.

Ideally the concept of material re-use would be the most practical way to move forward, relieving lecturers from wasting time creating course content that was already available. But 'Some 93% of respondents state that their college had no policy on the reuse of e-learning materials' (Becta 2005). Given the fact that some lecturers fear that e-learning will be used by management to monitor their teaching efforts, the policy on the reuse of e-learning materials is probably best left to the individual. Else, lecturers may be put off creating e-learning material for their own use, for fear it will be reviewed by peers/management and found lacking. Alternatively, e-learning material could be used by other lecturers, who have not made any effort to create content for themselves.

One of many interesting approaches discovered in the literary review was to submit the students to a pre test and subsequently a post test, to give the lecturer some concept of the actual learning that took place during the course of study. Figure 1 is from Labrie and Haveriner showing 'What they knew' and after following a prescribed e-learning course of study 'What they know now' (Labrie and Haveriner 2007).

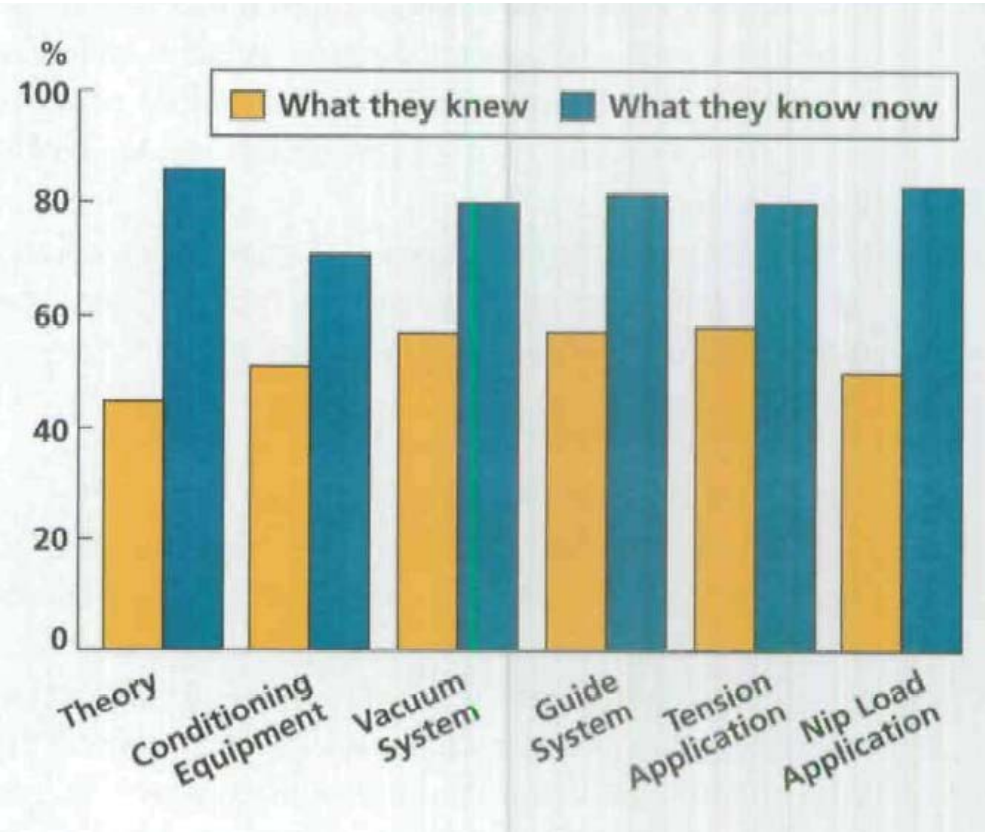


Figure 1: Results show the efficacy of the e-learning modules

Using e-learning in this fashion could well provide part of the solution to the ongoing question of how does a lecturer evaluate the 'Learning Outcomes' of their students. This application of e-learning provides the lecturer with feedback on the students' subject knowledge prior to embarking on the course of study, and feedback on the additional knowledge that the students have gained during the course of study.

Post Graduate students who already have a B.Sc. in Computer Studies or related disciplines can display a range of competencies. Having the ability to quickly assess their knowledge on entry to the course and subsequently on completion of the course, would provide great insight into the relevance of course material and possibly provide some views regarding subject matter that could be removed or expanded upon, to improve students' learning experience. 'Effective access to learning goes beyond simply providing information and learning resources online, to include support, advice, and collaborative and constructive tools' (Summary Report Becta 2007).

3.3 Critical success factors for e-learning

In this section each of the Critical Success Factors for e-learning are expanded upon. In order for e-learning to be effective in improving the learning experience, to better prepare students for work in industry, there are some factors that must be considered. These are the Critical Success Factors (CSFs). 'CSFs describe the underlying or guiding principles of an effort that must be regarded to ensure that it is successful' (Caralli 2004).

According to (Fresen and Boyd 2005) the critical success factors for quality web-supported learning are: institutional factors; technology factors, lecturer factors, student factors, instructional design factors and pedagogical factors. The only contributory factor here that would not apply to traditional teaching methods is the technology factors. All the other factors will influence the student learning experience despite the medium of delivery. Academic teachers should be critically reflective designers of their e-learning developments (Seagrave et al. 2005). Lecturers should critically review the course

content that they themselves have designed and if at all possible request a colleague in the same discipline to critically review the material as well. In addition it does help if lecturers themselves have some experience of using e-learning as a student. Another factor relevant to the successful delivery of online course material is the willingness to update and modify course content as a result of developments in the marketplace and student feedback.

Some critical success factors for e-learning follow, supported by relevant academic quotations:

3.3.1 Student attainment

Condie and Livingston (2007) found that online learning did appear to have a positive influence on attainment, but the evidence suggested that attainment might have been greater had the teachers modified their methods by combining online learning with more traditional methods. This means that online learning or e-learning on its own does not achieve the same level of student attainment as blending e-learning with traditional teaching methods. Blended learning is where a suitable combination of traditional teaching and e-learning are combined to enhance students' level of attainment from a particular course of study. Human interaction is a very important ingredient to the learning experience. In order to credit the fact that learning has taken place, the student must be able to apply the knowledge in a meaningful and worthwhile fashion. The best way to examine students' knowledge and understanding of any subject is to get them to discuss a topic and subsequently answer questions relating to the topic. This method will soon reveal any gaps in a students' knowledge of a particular area.

Recently, one of the presenters at a showcase on Learning and Teaching Innovations mentioned an interesting approach, whereby students interview other students on their presentations, simultaneously the students holding the interviews are the ones being examined by the lecturers, with respect to the integrity and relevance of the questions that they are putting to the other students. An interesting approach to make all involved think

a little harder on their efforts, including of course, the lecturers. The effectiveness of any method of lecturing will invariably depend on the effort, ability and willingness of the lecturer to continuously strive to improve and to challenge students to achieve their full potential. Hence, e-learning will only be effective, if the lecturer is successful in improving student attainment through its use.

3.3.2 Commitment of the educational providers

Management and lecturers must be committed to providing an excellent online presence, one that they are willing to continuously update and improve. 'Change is a continuous process and trend data will be more powerful in revealing the true value and effect of any interventions' (Peach et al. 2007). A lecturer who continuously strives to improve their repertoire of reusable and portable learning objects will have a wealth of material to stimulate their students. There are ample conferences, seminars, showcases, Summer schools, etc. available for committed lecturers to attend, to enable them to keep up to date with alternative and innovative approaches applied by colleagues, to ensure that their own lecturing efforts are novel and effective.

3.3.3 Enhancement of the learning experience

O' Neill et al (2004) came to the conclusion that technology can be used to enhance the learning experience of students, but not replace the lecturer. In order for e-learning to be a success university management and staff must take ownership of e-learning and satisfy themselves that pedagogy can be maintained, even though the medium of delivery is changing. 'Faculty and administrators at universities resist change because they tend to perceive it as a threat to the existing culture and status quo' (Peach et al. 2007). The main objective of a lecturer is to get the relevant points across and ensure that the students can apply this information in a useful fashion, the method of delivering the course material can be by traditional teaching methods, through e-learning exclusively or through blended learning. This study is to determine which method of delivery, the

majority of students and lecturers believe to be the most appropriate for enhancing the overall learning experience, to better prepare students for work in industry. The study of teaching solely through the exclusive use of e-learning is beyond the scope of this dissertation, but would be in itself an interesting study to be undertaken at a later date.

3.3.4 Anonymity afforded to students who choose to remain unknown

Managers who wish to pursue further professional and personal development can do so anonymously through e-learning without the fear of their subordinates discovering their fallibility and learning difficulties (Roffe 2002). In addition to Roffe's observations, managers are very busy people, hence time constrains may be an issue to impede their lifelong learning. Blended learning would give managers the opportunity to study online at times permitted by their busy work schedules, alternative to the times allocated by the educational institution. Shy students may also benefit from the anonymity of blended learning, some students are reluctant to voice their opinions in a classroom situation, but may feel comfortable expressing their views through a discussion board or on an on-line chat facility.

3.3.5 Student satisfaction

Students' satisfaction can be influenced by quality instruction, instruction that accommodates various learner characteristics/learning orientations (Overbaugh and ShinYi 2006). Course material that has been purposely developed to suit the learning abilities of a wide range of students will hopefully be instrumental in keeping the attention of a broader range of students. Once the material is sufficiently absorbing, students should be suitably engaged to ensure satisfaction with the course, therefore, reducing student drop-out rate.

3.3.6 Design of e-learning course Material

If the conceptual design is incorrect this will have a negative impact on subsequent phases of the development. If instructors get the initial design of their e-learning platform wrong 'learners will lose interest and leave' (Stoyanov and Kirschner 2007). Student feedback is very important, hence enabling instructors to modify their efforts to enhance the learning experience of their students. Should students become restless or inattentive it is a good sign that a change of approach is required. The use of self-directed learning, or practical applications of new found knowledge, is excellent for maintaining student involvement in the course work. Alternatively, assigning each student a topic to review and present for their peers, will get students' attention, especially if the instructor assigns some continuous assessment weighting to the exercise. Making available quizzes and multiple choice questions to challenge the students and focus their minds on the most pertinent pieces of information that they are to learn from the course, can also help keep the instructor focused on the relevance of the content being provided for students to study.

3.3.7 Sense of community

Forging a sense of community is not only the responsibility of instructors, students who are academically mature, have the ability to create study groups, maintain phone and e-mail contact with fellow students, to foster cohesion and a sense of community within a group (Overbaugh and ShinYi 2006). Learning through the sole use of Distance Learning can leave students feeling isolated and lost, the onus is on each participant to get involved with the other students and engage them in active discussions on the course topics and their relevance to the business community and the outside world in general. Some University courses have large lecture halls to accommodate in excess of one hundred students, a number of students' feel secluded in such large groups. A sense of community, possibly enabled by discussion boards and online chat facilities, would be

important in this instance to involve students who are on the periphery and likely to get disenchanted with the educational establishment. Therefore, it is important to achieve a sense of community amongst students, as a higher percentage of students participating in distance learning courses tended to drop out than students participating in traditional courses (Abouchedid and Eid 2004). Students from large classes and undertaking distance learning courses who feel isolated would benefit from an online community, where they could discuss their difficulties with others and share experiences.

3.3.8 Learning outcomes

Learning outcomes must be realized, developed and fine tuned over time, and interventions made based on the findings. Assessment of critical thinking is one of the most difficult to quantity as per the experience of (Peach et al. 2007). 'Increased scrutiny about student learning outcomes seems ubiquitous at a time when higher education and accreditation agencies are still grappling with identifying the best measures of these outcomes' (Sullivan and Thomas 2007). This may be so, but it is still paramount to the success of the educational system to keep tying to identify the best criteria for measuring learning outcomes. The more aware lecturers are of their shortcomings, the more effective they may be in trying to implement improvements while endeavouring to improve the learning experience, to better prepare students for work in industry.

3.3.9 Accountability

'Learning institutions at all levels are under increasing pressure from government agencies, the public at large, and even students to show that graduates are achieving the desired learning goals' (Sullivan and Thomas 2007). Institutions that have obtained accreditation with agencies such as the Association to Advance Collegiate Schools of Business (AACSB) founded in 1916 are recognised worldwide for the quality of the courses that they offer. The Bologna Accord (2008) seeks to harmonise higher education systems across Europe by providing a consistent credit and grading system.

Additionally, learning institutions form affiliations with Professional Institutions, for example the Marketing Institute of Ireland (MII), in order to maintain the faith of the public in their ability to provide students with the desired learning goals.

3.3.10 Lifelong learning

Academics must continuously update their own skills, knowledge, and awareness of current practices in industry in order to best serve their students. 'Research can yield new knowledge only in the protected setting of the scholar's study or in the carefully controlled environment of a scientific laboratory, whereas the world of practice is notoriously unprotected and uncontrolled' (Schon 1992). It is the responsibility of lecturers to ensure that their students are kept up to date with the latest theoretical knowledge as well as how it has been successfully and unsuccessfully applied in industry. In order for e-learning to be effective training for teachers in ICT skills and the pedagogy of e-learning is essential (Harris et al. 2004). In order for an instructor to be successful in their delivery of e-learning to improve the learning experience of students the lecturer must possess organisational, intellectual and social facilitation skills in order to provoke intelligent responses from students and create group harmony (Ambrose 2001). The IISME (Industry Initiatives for Science and Math Education) through industry-education partnerships is trying to enable teachers to better prepare students 'to be lifelong learners, responsible citizens, and productive employees' (IISME 2005).

3.3.11 Effectiveness

In order for e-learning to effectively enhance students' learning experience, minimum requirements advising students of expectations should be set by the instructor for example 'The absolute minimum requirement to be able to continue on the course is logging on twice a week' (Churchill 2005). Lecturers can monitor students' engagement and participation in online discussion boards, quizzes and multiple choice attempts to

identify the students who are actively getting involved with the course material and their fellow students, and those who are not.

3.3.12 Availability

The delightful thing about online courses is that one can participate at any time, any place. In the middle of the night, when the mind is active and overflowing with ideas, it is very handy to go on line and offload all your latest contributions on whatever subject is under review, and then enjoy a sound sleep. The pattern of access of a typical student, peaks in the late afternoon with a long tail going into the early hours of the morning (Churchill 2005). Rather than having to wait until the next scheduled meeting of the class group. Any where in the world, providing there is internet access, students can participate in e-learning. There is nothing as infuriating as attending an adventure playground on holidays, where there is absolutely no internet access, when examination results are available on line.

3.4 Advantages of e-learning

Should students and lecturers strongly agree or agree that using blended e-learning with traditional teaching methods can further improve the learning experience, to better prepare students for work in industry, it is possibly because they have realised the advantages of using an e-learning platform. One advantage is the fact that once internet access is available, course content can be accessed from anywhere. The time that can be saved in administration, photocopying, distributing handouts, correcting multiple choice questions and assessments, leaves lecturers more time to concentrate on improving the content of the course material to better suit the range of competencies sought by representatives from industry. The pedagogical approach that a lecturer is taking must be continuously reviewed to ensure that the students are getting the best education that the institute can offer, and course content regularly updated to reflect the outcome of this continuous review process.

The resulting online access to all course material i.e. Reservoir for storing notes – is always accessible to students, even if students are unable to attend lectures due to illness, family or work commitments. The students will benefit from anytime, anyplace access to course material, providing the course notes available on the e-learning platform are regularly updated by the lecturer.

Students should be instructed in personal presentation skills (speaking and body language) with supporting visual (powerpoint, excel or word processed documentation) to improve their team work and interpersonal communication skills. Students should then be able to use these presentation skills to exhibit their knowledge and ability to argue a point. The knowledge that they present should be supported by relevant literary quotes obtained from on line access to electronic journals, and pertinent information on companies and products that they have researched on the Web. Students' presentations should be stored on the e-learning platform and subjected to peer review, constructive criticism from fellow students and the course instructor should help to improve students' future presentations and hence their team work and interpersonal skills, which has been identified as the most sought after student characteristics by representatives from industry.

E-learning platforms can provide an alternative opportunity to communicate with the lecturer and fellow students. Some students may be shy of posing a question to the lecturer in the classroom, generally speaking, the student who needs the most help will rarely ask for it. This type of student may be more comfortable phrasing the question in an e-mail to the lecturer or in a discussion board with fellow students. On line chat facilities enable students to communicate about coursework, assignments and forthcoming examinations in a relaxed environment, which may improve students' understanding and knowledge of their specialised subject areas. Peer review online discussions make students really concentrate on their submissions to impress their peers, alternatively, to ensure that they do not let themselves down. When students post questions to the discussion boards, sometimes peers will provide the solution before the

lecturer comes on line to do so, providing the students with a shared learning experience. Questions put to a lecturer on-line, makes the resulting feedback from the lecturer available for all students to see. Some students may not have thought of the questions themselves but will benefit from the questions posed by others. Students who are part of an online study group and volunteer to meet and socialise with the other students increase their potential to succeed. Through the use of discussion boards and chat facilities the lecturer can monitor the application of individual students.

Online assessment options i.e. quizzes and multiple choice questions can provided the lecturer with the opportunity to quickly assess students' absorption of the course material. The system will provide immediate feedback on the results that students have achieved, saving the lecturer valuable marking time which could be spent interacting with the students or providing improved course content. Another way to get feedback on the knowledge acquisition of students is to subject them to a Pre-test, prior to undertaking the course of study and a post-test at the end of the course. This approach may help the lecturer to assess the proportion of time that should be allocated to various subject areas, depending on the students' absorption rate of the course material. For example, if a mathematics teacher found that a high proportion of students were doing badly in trigonometry, this could be an indication that insufficient time was spent in lecturing the students on this particular topic of the course.

E-learning can help the lecturer to put their time to better use. Presentations developed for online delivery can save lecturers' duplication of work. Crucial information will not be excluded from the delivery of a lecture, if it is pre-recorded or bulleted in a powerpoint presentation. Online material is easy to update and amend as necessary. An old adage is very true in the teaching context i.e. variety is the spice of life. Using alternative methods of presenting information can help to cement a concept in the mind of the student.

Statistical analysis can be made available to students on their performance in assessments and assignments, hence, enabling students to monitor their own progress with respect to

that of their peers. While competitive students may like this rating system, other students may feel intimidated by it, but names are not revealed.

3.5 Discussion boards

When a lecturer tries to draw a class into an open discussion on any topic, some students will contribute of their own free will; others will have to be individually invited to comment. Some students respond by saying yes/no or I agree/disagree, while others will expand briefly. But should a lecturer pose a question and get all to respond, using a discussion board, then all students are encouraged to think about the subject matter, mull it over and then submit their findings to the discussion board for peer review. Hence, comments committed to a discussion board are well thought through, structured, relevant, presentable, and correctly referenced 'Sometimes those who might be very shy in class, project a bolder more talkative personality on discussion boards' (Churchill 2005). Discussion boards enable all students to present their thoughts and views in their own time. Some students can be intimidated by being put on the spot in a classroom situation, but given the opportunity provided by the discussion board can contribute their findings and conclusions to the forum. The interactive communication medium provided by discussion boards and chat facilities enables collaborative learning for students which promotes their engagement with the course material.

'When teachers use ICT in ways which challenge pupils' thinking and engage them in investigations, pupils demonstrate a higher order of mathematical reasoning and increased attention than when teachers adopt a 'transmission' view of teaching (where knowledge is 'transmitted' directly from teacher to pupil)' (Cox et al. 2007). Regardless of teaching method used, it is generally accepted that student engagement enhances their appreciation and understanding. Additionally, the lecturer achieves an improved appreciation of individual students' ability by observing how they approach challenges. A 'transmission' approach to teaching is soul destroying for the lecturer and the students.

‘The nature of online discussion and communication removes traditional boundaries faced by some students, who may find it difficult to communicate face to face or otherwise for many reasons’ (Beastall and Walker 2006). Discussions on-line do not place one on the spot to the same degree class discussions might. Some people have the ability to respond instantaneously, others get a type of stage fright and start to stammer when a lecturer requests their participation in a discussion on the subject currently under review. In class if a lecturer introduced a topic that students are not familiar with, some may shy away from entering the discussion because they are unfamiliar with the topic and do not feel confident enough to contribute. Online discussion boards allow participants time to compose their thoughts, formulate opinions, locate relevant material to justify conclusions, so as to enable them to confidently submit their findings online. Allowing students time for their thoughts to develop and mature on the subject matter.

Garvin (2007) reveals that at schools like Harvard and Virginia as much as 50% of MBA students’ grades are based on their classroom comments and participation. By allocating a percentage of the overall grade for students’ comments and participation is an excellent way to force all students to communicate their views and opinions, which in effect will improve their learning experience as well as making the lecturing sessions much more interesting and effective for all. All too often, students enter the classroom, snuggle into their seats, preferably at the back of the classroom and wait to be entertained or bored by the lecturer. By forcing students to actively participate in on-line discussions, the lecturer is removing them from their comfort zone and forcing them to sit up and pay attention. Classroom discussions do not make each individual contribution as clear to be seen, as on-line discussions, which are electronically stored and available for peer review.

‘Relationships are the foundation of successful student learning outcomes and are as crucial in online learning as they are in any other medium’(Kempe 2001). **T**he use of discussion boards, with continuous assessment weightings assigned, is very valuable in getting students’ interest and hence improving their application. Because their work will be viewed by peers as well as the lecturer, submissions of excellent quality are achieved. ‘People learn in the workplace through interactions with others in their daily work

environments when the need to learn is greatest' (Seagrave et al. 2005). Classroom discussions about content submitted to the discussion boards, also getting each student to comment on the findings of others, is very conducive to ensuring students' engagement with the course content. This affords lecturers the opportunity to gauge the ability of each student to effectively apply the theory content of the course to relevant real life scenarios. In addition, weaker students can benefit by listening to the arguments presented by the stronger students.

In the surveys for students and lecturers' questions regarding the use of 'Discussion Boards' will be included to assess the use of this functionality.

3.6 Chat rooms

Through the effective use of chat rooms in e-learning platforms, discussions can be facilitated between students and instructors, where clarification can be sought on course material, and students can benefit from sharing their ideas or findings on particular topics. Unfortunately, some students find chat rooms cumbersome to use, due to their slow prowess at typing, educational institutions should consider the use of Skype to enable students to communicate verbally online. According to Pan and Sullivan (2005), when using Skype, users are not hampered by their typing prowess, all the mental effort of the instructor and students can be directed at communicating thoughts, posing questions, structuring and organising verbal feedback, allowing the group to stay focused on the subject matter. The use of Skype will be discussed in Chapter eight - Future Research.

3.7 Evaluation of prior research

'Some U.S. employers are starting to make the connection between good grades and productive employees' (Stone 1991). From experience there is a correlation between students that actively get involved in class discussions and show a genuine interest in the course work, these are the students that achieve higher grades. When recruiting

personnel for jobs in industry the students who achieved the highest grades should be considered first. Because these high grades should be indicative of students who have shown a willingness to participate, engage with the course material, and apply theoretical knowledge to case studies provided during the course of their studies. Therefore, implying that the students in question have the ability to critically evaluate the most appropriate solution to a given work based situation. The objective when guiding students is to identify the most appropriate solutions to situations that will occur in the working environment through the process of initiating continuous improvements. 'Critical thinking is recognized as an important, but difficult, ability to assess' (Peach et al. 2007).

Condie and Livingston (2007) found that confidence in Information Communications Technology is not the same as understanding how to develop it to its full potential to support and enhance learning. By attending conferences, seminars and tutorials on e-learning and through shared experiences with students and colleagues, lecturers can develop their skills to support and enhance e-learning.

'In executive teaching, I think I have a completely different job. I'm standing in front of people who do the actual work. I almost feel like a pretender. But my job there is different – it's to help them organise their experiences into a coherent whole' (Garvin 2007). Whilst Lecturing to Post Graduate students who are all working in IT related jobs, it is easy to feel like a pretender, but one should remember that they are streamed into particular areas/disciplines of excellence, and the objective is to draw on their individual experiences to improve the appreciation and understanding of all. Arbaugh (2000) concluded that students who partook in his study in general had a fairly high level of perceived learning. Perceived learning is very difficult to quantify and can be subject to bias, educators must continually strive to eliminate bias from their judgement of 'Learning Outcomes' in order to be truly effective.

According to Honey and Mumford (1986) students use a mixture of active, practical, theoretical and reflective learning. This is the reason why e-learning has a lot to offer for

third level students, thus giving them the opportunity to explore the course content, through a variety of media, to enhance their overall experience of the subject matter.

'Higher education faces competition from the for-profit educational sector and an increasing demand by students for instant access and interactive experiences' (Horizon 2007). Students are used to multi media in their daily lives and have come to expect some technological presence in the classroom. Blended learning offers the students an opportunity to experience different ways of learning and introduces them gradually to more independent learning (Livingston and Condie 2006). Internet access provides the ideal medium for independent learning, library opening hours or proximity are no longer restraining factors to inhibit research. According to Keel and Bielema (2006) they can see a clear indication that the integration of online learning and teaching strategies is critical to the students and instructors of the 21st Century. Very few presenters now make any delivery without technological backup.

3.8 Conclusion

Chapter three clearly outlines the theoretical framework which reviews the impact that e-learning has had on education to date. Critical Success Factors are explored, which are necessary to ensure that the most effective use is made of e-learning in the form of blended learning whereby e-learning is combined with traditional teaching methods. Some lecturers perceive e-learning as a threat, others as a challenging opportunity to explore new delivery methods to improve student attainment. This study is to establish how students and lecturers within the Faculty of Business perceive the impact that e-learning has on improving the learning experience to better prepare students for work in industry, and how these findings correlate to the theoretical framework

Chapter 4

4 Methodology

4.1 Contribution of chapter

Chapter four presents the methodology to be used for sourcing the data to be analysed to test the hypothesis. Initially, a Survey for Representatives from Industry is required to establish a list of desired student characteristics. Surveys of both students and lecturers to assess their perceptions of e-learning and determine views on whether using e-learning blended with traditional teaching methods can improve the learning experience to better prepare students for work in industry. Questionnaires will be issued by e-mail and in person (to increase the response rate) to students and lecturers predominantly in the Faculty of Business, DIT, Aungier Street, Dublin 2.

4.2 Research method and design

Questionnaires were selected as the research methodology in order to collect a large volume of data, over a short period of time. Questionnaires were devised to answer questions that were raised during the Critical Literature Review relevant to the hypothesis.

In order to perform this research, three separate research questionnaires were required:

- Questionnaire for Representatives from Industry
- Questionnaire for Students
- Questionnaire for Lecturers

Data collected to be entered into SPSS statistical package for analysis.

4.3 Questionnaire for representatives from industry

In order to compile a survey for students and lecturers to qualify the effectiveness of e-learning in improving the learning experience, to better prepare students for work in industry. First, it was necessary to establish what characteristics representatives from industry expected graduates to have in order to classify them as being prepared for work in industry. Please refer to Appendix I for the questionnaire that was distributed to representatives from industry.

From the responses received from representatives in industry, surveys were compiled for students and lecturers to establish their opinions on whether these characteristics were more effectively addressed through e-learning than traditional teaching methods.

4.4 Questionnaire for students

The purpose of the survey for students is to establish students' opinions on the use of e-learning platforms. Please refer to Appendix III for Survey for Students and Appendix IV for Analysis of Survey for Students.

Content of the Questionnaire for students:

Section A

1. Access to technological resources - In order for students to make effective use of e-learning platforms they require access to technology and broadband as enabling tools. This section should assess technological equipment and broadband access available to students.

2. E-learning - This section will provide information regarding the number of lecturers who employ the functionality of an e-learning platform. The amount of course material delivered through e-learning. And, providing course content was

made available in audio format, would students download it onto their iPods or MP4 players?

3. Use of e-learning platforms – This section will provide feedback from students on their current use of e-learning platforms.

Section B

1. This section is to establish students' views on which teaching methodology they think most appropriate for developing each characteristic in students as desired by representatives from industry.

2. To dig deeper into students' thoughts on this study, students have the opportunity to add comments.

Section C

This section explores the main hypothesis on students' views on e-learning, two questions are posed:

1. Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods.

   Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods.

   In this section of the questionnaire Likert's five-rating scale pattern of responses was used i.e. "strongly agree", "agree", "neutral", "disagree", "strongly disagree" .

2. The level of study student is currently undertaking.

3. Students' gender to enable comparison between the choices selected by both.

4. Students are provided with another opportunity to add comments, to access any further thoughts provoked on the use of e-learning platforms.

Manual distribution preferred over electronic distribution, to guarantee respondents that there was no way of tracing comments back to individuals. In addition, more individual respond to the personal human request than the online request for their time to complete surveys.

4.5 Questionnaire for lecturers

The purpose of the survey for lecturers is to establish lecturers' opinions on the use of e-learning platforms. Please refer to IV for Survey for Lecturers.

Content of the Questionnaire for lecturers:

Section A

1. Access to technological resources - In order for lecturers to make effective use of e-learning platforms they require access to technology and broadband as enabling tools to create course content and manage the delivery of courses. This section should assess technological equipment and broadband access available to lecturers.

2. E-learning – This section is to provide data for analytical purposes on Lecturers: use of e-learning, training on e-learning platforms, adequacy of training, creation of course content, sharing of course content, usage of content from alternative sources, and satisfaction levels with resources available for creating e-learning content.

Section B

1. This section is to establish lecturers' views on which teaching methodology they think most appropriate for developing each characteristic in students as desired by representatives from industry.

2. To dig deeper into lecturers' thoughts on this study, lecturers have the opportunity to add comments.

Section C

1. Use of e-learning platforms – This section to provide feedback from lecturers on their current use of e-learning platforms.

2. This section explores the main hypothesis on lecturers' views on e-learning, two questions are posed:

    - Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods.

    - Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods.

    In this section of the questionnaire Likert's five-rating scale pattern of responses was used i.e. "strongly agree", "agree", "neutral", "disagree", "strongly disagree" .

3. Respondents number of years lecturing experience.

4. Gender of respondents

5. Lecturers are provided with another opportunity to add comments, to access any further thoughts they may have on the use of e-learning platforms.

4.6 Primary research

Kitchen et al (2007) mention that The Harnessing Technology schools survey 2007 employed questionnaires for three target groups (school leaders, ICT co-ordinators and subject teachers) which was intended to assess the uptake of ICT in schools across England. A survey targeting a particular group of respondents will provide a certain amount of data for analysis. Hence, implementing a single survey can limit the information obtained and subsequently the scope of the findings. By combining the findings from three separate surveys in response to a single hypothesis a much richer data set is available for analysis which subsequently provides a greater insight to the research area.

To facilitate a worthwhile conclusion to the hypothesis it was necessary to incorporate three separate surveys in this study. The first survey was for representatives from industry to source information on the characteristics they believed necessary for students to possess in order to be considered prepared for work in industry.

The student characteristics which appear most frequently in the resulting lists provided by representatives from industry to be incorporated into the second and third surveys in order to test the hypothesis: can e-learning be used to further improve the learning experience, to better prepare students for work in industry. The second survey is for students and the third for lecturers. Students and Lecturers will be requested to consider the student characteristics identified by representatives from industry, in order to select the teaching methodology they believe to be the most appropriate for developing these characteristics to better prepare students for work in industry.

This approach has been devised to provide sufficient data from three separate groups of respondents to enable cross referencing between the data sets and hence an interesting combination of findings in response to the questions raised by the hypothesis.

Surveys for students will be distributed to students from first year undergraduate level to masters' level to find out their views on the effectiveness of e-learning in preparing students for work in industry. This study is predominately concerned with the third level sector, but students' perceptions on e-learning can be developed in primary and secondary levels also, as so many primary and secondary schools now use interactive whiteboards and computers in the classroom.

'Although it may be possible to show associations between effective implementation of e-learning and performance measures' (Harris et al. 2004). The difficulty of this study lies in how exactly does one go about isolating the distinctive impact of e-learning from other influencing factors i.e. ability of the instructor to engage the student, and motivation of the student to learn. In the instance of blended learning, how does one quantify improvement in students' learning experience as opposed to traditional teaching methods? This study does not aim to quantify improvements in students' learning experience but qualify students' and lecturers' perceptions on the influence blended learning has on the learning experience to better prepare students for work in industry.

In order to establish what characteristics students should portray, the opinions of representatives from industry were required (on the characteristics that students should portray in order to consider them as being prepared for work in industry) in order to proceed with the creation of surveys for students and lecturers.

The survey of representatives from industry is to provide a list of characteristics that students should possess in order to be considered prepared for work in industry.

4.7 Limitations of the methodology

As with all Information Systems a strategy of deployment must be in place, in order for e-learning to be effective it should be continually updated and evolve to suit the needs of students and industry 'a pattern in action over time' (Mintzberg and Hunsicker 1988). This is where the Critical Success Factors of e-learning are relevant. My surveys request students and lecturers to give their opinions on the success of e-learning on achieving certain student characteristics as identified by representatives from industry. In this study no actual measurements have been undertaken to assess improvements in the learning experience of students or preparedness to get jobs in industry. Instead, the opinions of students and lecturers will be sought, to assess how useful they perceive e-learning to be in enhancing the learning experience to better prepare students for work in industry.

'When we go about the spontaneous, intuitive performance of the actions of everyday life, we show ourselves to be knowledgeable in a special way' (Schon 1992). The knowledge that we bring from previous experiences will inadvertently bias or influence our perceptions. In all human activity some form of bias takes place, consciously or subconsciously. Students' ability in the Information and Communication Technology (ICT) skills will vary depending on their exposure outside of the educational environment (Harris et al. 2004). Some students are allowed to take the PC apart at home and install software of their choice, others are forbidden to interfere with the setup. In general most students have access to the technological equipment and communication medium required to access e-learning.

Lim et al (2006) found that the quality of online instructor, student motivation, and learning involvement, had significant influences on course outcomes. It is outside the scope of this study to analyse the significant influences on course outcomes, by establishing the quality of online instructor, student motivation and learning involvement. Each of these components would have to be reviewed and analysed individually to assess the relevant influences made to course outcomes.

4.8 Conclusion

Chapter four explores the methodology selected to deal with the collection of data for analysis purposes to address the questions raised by the Hypothesis. The views of Representatives from Industry are required to identify what student characteristics they deem necessary in order to classify students as prepared for work in industry. Students' and Lecturers' opinions are sought to clarify their beliefs on whether blended learning is more appropriate than traditional teaching methods to achieve the requirements identified by representatives from industry. Answers are sought to both questions raised by the hypothesis i.e.

1. Can blended learning improve the learning experience of students?
2. Can blended learning better prepare students for work in industry?

Analysis of data collected to provide a positive or negative response to the hypothesis. In order to determine can e-learning blended with traditional teaching methods be instrumental in improving the learning experience to adequately prepare students to meet the requirements of work.

Chapter 5

5 Research Undertaken

5.1 Contribution of chapter

Chapter five contains information on the primary research undertaken. Surveys were distributed to: Representatives from Industry, Students and Lecturers. The survey to Representatives from Industry was brief. The only information necessary from this survey was what expectations representatives from industry had of graduates, in the form of characteristics. By analysing the responses of representatives from industry, a list was compiled of the most frequently mentioned desired characteristics of graduates. This list was then used in the survey for students and lecturers to ascertain their perceptions on whether traditional teaching methods or blended learning would best enhance the learning experience, to better prepare students for work in industry.

This chapter outlines the surveys that were conducted in order to complete this study. The survey of representatives from industry was undertaken in order to establish the characteristics that representatives from industry thought were necessary to consider students prepared for work in industry. The survey for students and lecturers were undertaken to get their views on whether traditional teaching methods or blended learning were the best method to use in order to fulfil the student characteristics most frequently mentioned as desired by representatives from industry.

5.2 Survey of representatives from industry

In order to ascertain ‘Can e-learning be used to further improve the learning experience, to better prepare students for work in industry?’ a very concise survey was distributed (just one question on a page, please refer to Appendix I) to a number of people in various industries, generally over forty years old (to benefit from their work/life experience) to find out their opinions on “What characteristics should students have if they are to be regarded as being prepared for work in industry?”. ‘The actual list of options provided

will influence the respondents, meaning the options that appear in the beginning of a long list have the "primacy effect" and have a higher likelihood of being selected' (SurveyMonkey 2007). The reason that an open question was used in the survey for representatives in industry, was to prevent influencing the responses received through the 'primacy effect' or to bias respondents views in any way, by my own perceptions of the characteristics students should have in order to be considered as prepared for work in industry. In addition this survey was concise to prevent influencing respondent's replies by using leading questions or by restricting responses allowed.

The top fifteen characteristics that students should have in order to classify them as being 'prepared for work in industry' are outlined in the following section.

5.3 Analysis of survey of representatives from industry

Survey of representatives from industry was conducted to find out their views on "What characteristics should students have if they are to be regarded as being prepared for work in industry?" See Appendix I for a copy of the survey distributed and Appendix II for analysis of responses received.

Student Characteristics	Percentage of respondents who selected this student characteristic
Team work/Interpersonal skills	81%
Ability to demonstrate initiative/leadership	71%
Communication skills verbal and written	67%
Confidence and competence in chosen field	52%
Commitment to ongoing training/further ed.	48%
ICT skills/PC literate	48%
Punctuality good time management	33%
Motivated, enthusiastic and committed	29%
Respect for more experienced colleagues	19%
Good general knowledge of business	19%
Investigation/problem solving skills	19%
Ability to determine objectives Vs Goals	14%
Good Manners Politeness Courteous	14%
Strong work ethic	14%
Telephone skills	14%

Table 1: Top fifteen desired student characteristics

In the distribution of survey for representatives from industry, a gender balance of respondents would have been favourable. Unfortunately, 62% of respondents were male, 38% were female and thus a gender balance was not achieved.

LaFrancois (1992) conducted a study on graduate characteristics most desired by Certified Public Accountancy firms and found that 'the responses of the participants indicated that the most marketable students are those with well-developed written and oral communication skills'. The responses received from representatives in industry were quite similar, team work and interpersonal skills was mentioned by 81% of respondents with communication skills both verbal and written mentioned by 67% of respondents. LaFrancois (1992) goes on to mention in the following paragraph that a survey of recent literature showed an increased emphasis on interpersonal and communication skills. This also corresponded with two out of the top three most frequently found characteristics that representatives from industry desired as graduate student characteristics in this survey. In summary, the findings of this study were similar to the findings of LaFrancois. Wood and Kaczynski (2007) also found that employers preferred graduates that exhibited good personal and interpersonal skills which related directly to working within an organisation.

Some of the findings of this survey are similar to the views and opinions which Cardinal John Henry Newman expressed in his book titled "The Idea of a University" dating back to 1852. Alas, the book available to print from the internet was initially printed in 1907, so is not an original version.

According to Newman (1907 p 167) a University education 'is the education which gives a man a clear conscious view of his own opinions and judgments, a truth in developing them, an eloquence in expressing them, and a force in urging them'. Similar to Newman's observations is the fact that one of the key elements mentioned is the students' eloquence in expressing his own opinions and judgments. In the survey for representatives from industry 67% of respondents mentioned 'Communication Skills both verbal and written' as being high on their list of priorities when considering the characteristics students should have if they are to be classified as prepared for work in

industry. Another key element mentioned by Newman was 'and a force in urging them' referring to their opinions and judgments, this means the ability of the student to share with their peers, colleagues and lecturers their own opinions and judgments. The analyses of survey for representatives from industry found that 'Team work and Interpersonal skills' was mentioned as the main student characteristic desired by 81% of representatives from industry.

Students should be encouraged to be self-starters "A man may have done it all, yet be lingering in the vestibule of knowledge … he may have no grasp of things as they are; or at least he may have no power at all of advancing one step forward of himself" (Newman 1907 p151). If students are consistently treated like receptors to receive and learn off by rote the information that we present to them, but never actually disseminate this information in any true fashion, then they will not achieve true understanding, which would lead to their ability to create knowledge for themselves. 71% of respondents would like the students to have the "Ability to demonstrate initiative and leadership skills". Students have got to be forced, if necessary, to take "one step forward of himself" (Newman 1907 p 151) and learn to think and do for themselves.

Newman (1907) believed that Intellect should be cultivated not for some particular profession, science or study, but should be disciplined for its own sake in the form of a Liberal Education. How many students come out from a university education and go into industry where they use all or even 50% of what they have learned over the past four years? One of the respondents to my survey for representatives from industry, made the following comment:

> 'Openness to learning and a humility to accept that the majority of what has been learned at college is not relevant to the job'

This quote cannot be referenced due to the anonymity of the survey, but this is true, all industries are different, specialised areas are created for all sorts of tasks. So even if a student studied accounting for years, when they enter employment, they may be dealing

with one side of the ledger, possibly creditors, and never ever compiling trading profit and loss accounts or tax returns, but as part of the course of study, they would have been required to pass examinations in Financial Accounting along with various other subjects, which they may never be required to use in their working lives. But a broad education is never a loss and the business can benefit from the comprehensive knowledge that their employees have at their disposal in times of need. This is where the students' Team work/Interpersonal skills and Communication skills both verbal and written come into play, when they can contribute to the future direction of the business, coming from an informed background. 'I say that a cultivated intellect, because it is a good in itself, brings with it a power and a grace to every work and occupation which it undertakes, and enables us to be more useful, and to a greater number' (Newman 1907 p 160).

It is not what they actually learn that is important; it is how they learn to apply their knowledge to the tasks assigned to them in industry. In this study, 52% of respondents would expect students to demonstrate "Competence and Confidence in chosen field". Competence in their chosen field would imply that the graduate would have the ability to investigate unforeseen topics for themselves and come up with some worthwhile contributions on the subject.

"When a University has been doing useless things for a long time, it appears at first degrading to them to be useful" (Newman 1907). Some may not wish anyone to question the appropriateness of a University education in preparing students to work in industry. This may be construed as implying that the way things are currently being undertaken is questionable. It is essential for academics to participate in lifelong learning to ensure that they stay up to date with teaching and learning innovations and the technologies available to assist with teaching and learning objectives to ensure that students are prepared for work in industry. 'There has been a very welcome focus on how to teach, on the need for innovation in teaching and improvement in the learning experience' (Barry 2007). Recently, the Dublin Institute of Technology hosted the Showcase of Learning and Teaching Innovations. Opportunities like this enable lecturers to connect with each other and share experiences, hopefully to the betterment of all, and subsequently improve the

learning experience of students. The challenge now is for universities to produce students that meet the requirements of industry; each and every lecturer should be involved in this process in order to ensure uniformity across all disciplines.

It is also important for students who enter industry to be willing to participate in Continuous Professional Development and further education to assist the organization in maintaining competitiveness in the market place, which is continually evolving. From my survey of representatives from industry 48% of respondents identified 'Commitment to ongoing training and further education' as one of the student characteristics that they like graduates to have, this commitment to ongoing training shows that employees have an interest in broadening their knowledge and contributing to the improvement of their workplace. This commitment to ongoing training benefits not only the employee, but also the organization for which they work and their fellow employees. In order to achieve this outcome, the objectives of industry and education must be strategically aligned. In order to do this, some of us must question the how, when and why of education and seek information from as many participants as possible to try to identify how this alignment may be best addressed. Industry needs students that are flexible, willing to learn, and more importantly willing to share ideas with colleagues, to effect beneficial changes resulting from their university experience.

This survey showed that 48% of respondents mentioned ICT skills as a preferred characteristic in graduates. Livingston and Condie (2006) came to the same conclusion that employers' increasingly expect students to be familiar with and skilled in the use of ICT.

5.4 Survey for students

The objective of this research is to identify what students think of using e-learning blended with traditional teaching methods to further improve the learning experience, to better prepare students for work in industry. Please refer to Appendix III for Survey for Students. This survey was distributed manually, to increase the response rate.

The objective of this survey is to ascertain students' perceptions about e-learning. In this survey e-learning represents any form of learning which incorporates the use of an e-learning platform e.g. Blackboard, Moodle, WebCT, WebX, etc.

All the data collected from student questionnaires was input and verified in SPSS statistical package version 15 for the purpose of analysis.

5.5 Survey for lecturers

The objective of this study is to ascertain lecturers' opinions on the use of e-learning platforms to determine their views on: Can e-learning be used to further improve the learning experience, to better prepare students for work in industry? Please refer to Appendix V for Survey for Lecturers and Appendix VI for Analysis of Survey for Lecturers.

Initially the intention was to distribute survey to lecturers electronically. For two good reasons they were distributed manually instead:

1. By using Survey Monkey or similar survey distribution and analysis software applications, the option is available to trace the respondent's identity. Respondents were to be assured that no tracing of responses was available in order to achieve genuine feedback and comments of their views of blended learning as opposed to traditional teaching methods.
2. It is harder to refuse an individual face to face than ignore an e-mail questionnaire completion request.

Hence, the lecturer questionnaires were printed and distributed to lecturers with self-addressed enveloped for ease of return. All the data collected from lecturer questionnaires was input and verified in SPSS statistical package version 15 for the purpose of analysis.

5.6 Conclusion

Chapter five analyses the findings from representatives from industry which concur with the findings of other researchers with respect to the characteristics which representatives from industry have identified as important, in order to consider students suitably prepared for work in industry. Some of the most frequently mentioned characteristics identified by this study were also identified by Cardinal John Henry Newman (1907), which indicates that time has not changed the expectations that representatives from industry have of graduates. For obvious reasons Cardinal John Henry Newman was unable to comment on students' ICT skills, but Livingston and Condie (2006) came to the same conclusion as this study: that employers' expect students to be skilled in the use of ICT. Lecturers from all disciplines are also expected to be skilled in the use of ICT in order to create an effective online presence. Therefore, the characteristics identified by representatives from industry who participated in this study are suitably aligned to use in Survey for Students and Survey for Lecturers in order to establish which teaching methodology is more appropriate for nurturing these identified characteristics in students.

Chapter 6

6 Analysis of survey for students and lecturers

6.1 Contribution of chapter

This chapter presents the analysis derived from the data collected from students and lecturers. Analysis from students and lecturers are combined in one chapter to enable comparisons between findings. In the survey for students, there were 223 respondents in total, 122 were male, 92 were female and 9 did not fill in this field. In the survey for lecturers, there were 41 respondents in total, 28 respondents were male, 12 were female and 1 did not fill in this field.

6.2 Analysis of survey for students

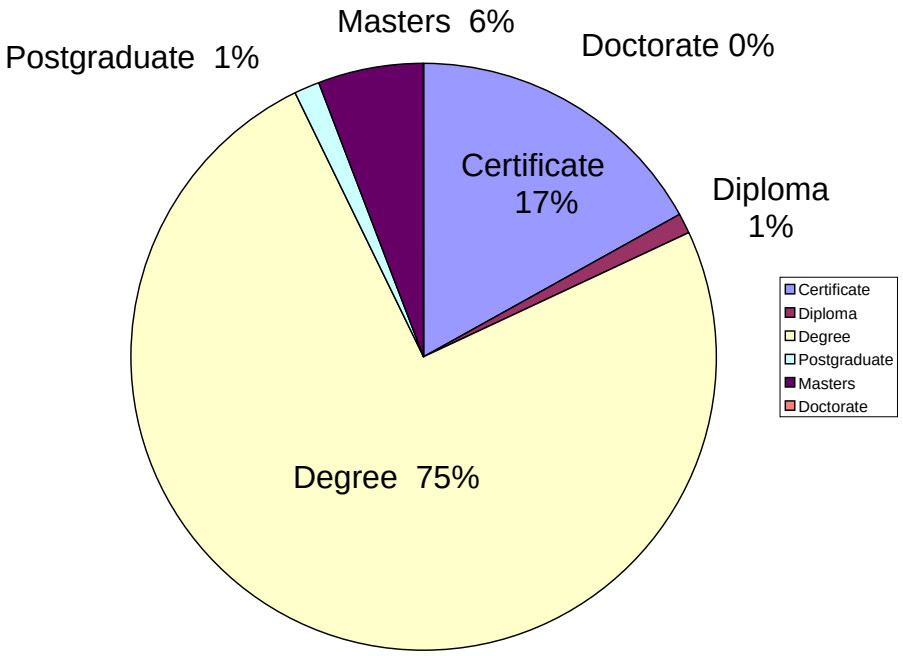


Figure 2: Level of study currently undertaken by student respondents

Students' access to the following technological resources:	Number of Students out of 223	% of Students
Laptop	175	78%
Mobile Phone	222	100%
iPod	182	82%
MP4 player	47	21%
PDA	12	5%
Desktop PC at home	190	85%
Internet access at home	217	97%

Table 2 : Students' access to technological resources

Table 2 reveals the availability of technological resources which enable student access to e-learning. 'Where schools invest in new devices, investment seems to focus on laptops rather than desktops, possibly indicating a wider shift towards more 'mobile technologies'' (Kitchen et al. 2007). Third level institutions are also going in the direction of 'mobile technologies'. Students at Warwick University protested when the university was 'considering plans to make owning or leasing a laptop computer compulsory for students wanting to take a degree course' (BBC-News 2001). Massachusetts Board of Higher Education also considered making laptops compulsory for students (BBC-News 2000). There was mention at the DIT's Annual Showcase of learning and teaching innovations of Flexible Learning Spaces and the move towards the increased use of mobile devices. 56% of students responded that if course content was available in audio format they would download it onto their iPod or MP4 player. Figure 3 on the following page, shows students access to technological resources in Pie Chart Format.

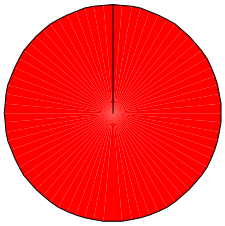
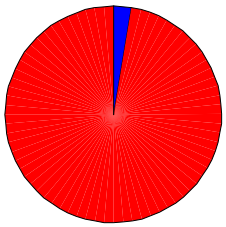
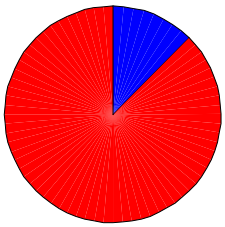
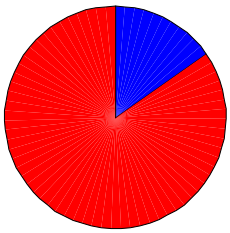
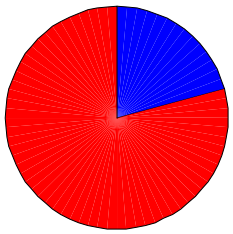
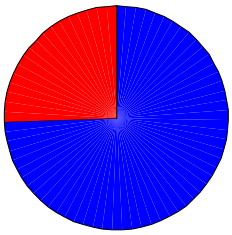
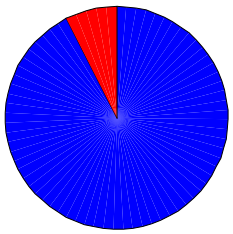
Yes **No** Key	 Mobile Phone **100%**
 Internet Access **97%**	 Desktop PC **85%**
 iPod **82%**	 Laptop **78%**
 MP4 **21%**	 PDA **5%**

Figure 3: Students' access to technological resources

Students' use of an e-learning platform for the following:	Number of Students out of 223	% of Students
To access course notes	216	97%
To access course assignments	210	94%
To partake in Quizzes	68	30%
To do Multiple Choice questions	79	35%
Access course information i.e. notice board	192	86%
To participate in Discussion Boards	45	20%
To communicate through the Chat facility	53	24%

Table 3: Students' usage of an e-learning platform within the Faculty of Business

The most frequent use of an e-learning platform is to access course notes, assignments and course information. Approximately a third of students engage in online quizzes and multiple choice questions, there could be a connection between this fact and the fact that only 15% of lecturers have sufficient time to create e-learning material.

34% of lecturers employ the use of Discussion Boards and 20% of students have used Discussion Boards. 12% of lecturers employ the use of Chat Facilities and 24% of students have used Chat Facilities. The use of Discussion Boards and Chat facilities are relatively low this could be related to the fact that only 29% of lecturers received adequate training to enable them to develop an effective e-learning presence and only 15% had sufficient time to create e-learning material. This does not necessarily imply that the training provided by the Learning Technology Team is inadequate, but that lecturers have insufficient time to tie in what they have learned with their course material in order to develop an effective e-learning presence, which is a very time consuming process. Designing an effective e-learning presence is a slowly evolving process. As one tries to tie in course content, with appropriate assessments and assignments, to result in students' acquiring the desired learning outcomes, in order to ensure student satisfaction

and attainment, thus improving the learning experience to better prepare students for work in industry.

Student Characteristics	Methodology students thought most appropriate for developing each characteristic	
	Traditional Teaching Methods	Traditional Teaching Methods Blended with E-Learning
Team work and interpersonal skills	72%	26%
Ability to demonstrate initiative and leadership skills	64%	34%
Communication skills - verbal & written	55%	44%
Competence in chosen field	43%	53%
Commitment to ongoing training and further education	24%	74%
ICT skills and PC literate	9%	88%
Punctual, good time management	73%	26%
Motivated, enthusiastic and committed	69%	30%
Respect for more experienced colleagues	71%	28%
Good general business knowledge	29%	68%
Investigation and problem solving skills	30%	66%
Ability to determine objectives and goals	42%	54%
Good manners, politeness, courteous	83%	15%
Strong work ethic	67%	31%
Telephone skills	48%	49%

Table 4: Methodology students identified to best achieve each characteristic

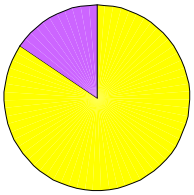
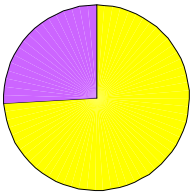
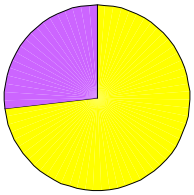
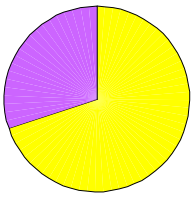
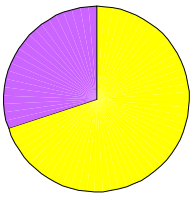
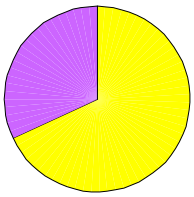
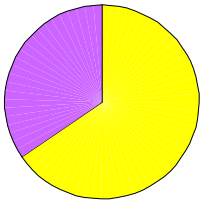
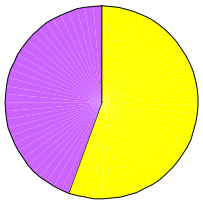
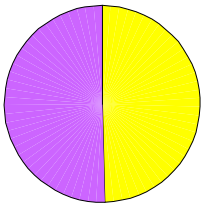
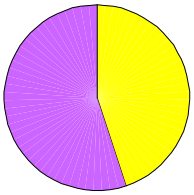
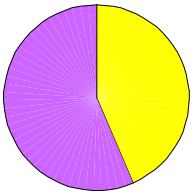
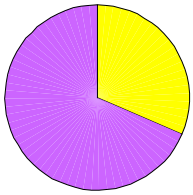
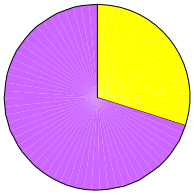
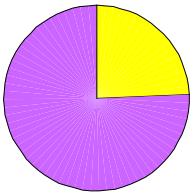
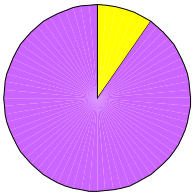
Students who selected:	**Traditional Teaching Methods**	**Blended E-Learning**
 Good Manners **83%**	 Punctual **73%**	 Team Work **72%**
 Respect **71%**	 Motivated **69%**	 Work Ethic **67%**
 Initiative **64%**	 Comm. Skills **55%**	 Telephone Skills **48%**
 Chosen Field **43%**	 Objectives **42%**	 Problem Solving **30%**
 Business Knowledge **29%**	 Further Education **24%**	 ICT Skills **9%**

Figure 4: Students' views on attainment of student characteristics

6.3 Analysis of survey for Lecturers

'Teachers who favour ICT are likely to have well developed ICT skills and to see ICT as an important tool for learning and instruction' (Cox et al. 2007). Lecturers who do not have well developed ICT skills can still benefit from using an e-learning platform by using the resources provided by Publishing companies to increase the material available to students. 88% of Lecturers have access to PCs and 80% have access to Laptops, 100% have Internet access at work and 90% have Internet access at home. It is not necessary for lecturers to create e-learning material themselves.

Do you have access to the following resources:	Yes
Desktop PC	88%
Laptop PC	80%
Digital Camera	59%
Digital Video Camera	32%
Overhead Projector	95%
Headphone & Microphone	32%
Internet access at home	90%

Table 5: Lecturers' access to technological resources

Lecturers' limited access to Digital Video Cameras will limit their ability to make multimedia presentations for students. And, lecturers' limited access to Headphone and Microphone will limit their ability to make podcasts for students to download to iPods and MP4 players.

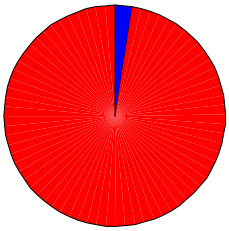
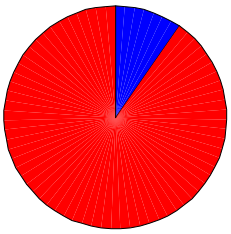
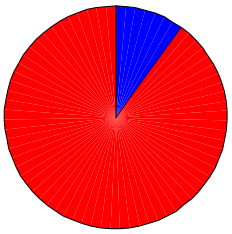
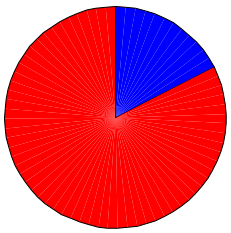
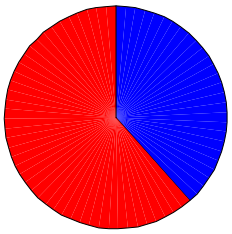
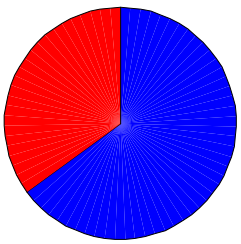
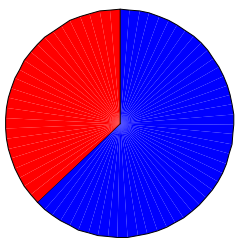
Yes **No** Key	 Overhead Projector **95%**
 Internet Access **90%**	 Desktop PC **88%**
 Laptop **80%**	 Digital Camera **59%**
 Digital Video Camera **32%**	 Headphone and Microphone **32%**

Figure 5: Lecturers' access to technological resources

6.4 Aural transmission of course data

56% of students responded that if course content was available in audio format they would download it onto their iPod or MP4 player. But, only 32% of lecturers have access to Headphone & Microphone and only 15% of lecturers have sufficient time to create e-learning material. How are overworked lecturers supposed to supply the content for students, when only 34% of lecturers have responded that they are satisfied with the resources available to them for creating e-learning content? One suggestion put forward at an e-learning conference was to use the output of second year students as course content for first year students. Another suggestion was to get second year students to correct assignments submitted by first years, which improves the second year students' engagement with course content. Arbaugh (2000) suggests that higher levels of perceived usefulness, and the user friendliness of the delivery medium, will enhance students' attitudes toward their course experience, by extrinsically motivating their performance in the course and, therefore, further engaging them in the learning process.

As part of a trial on voice delivery of course content, the opportunity arose to listen to course content delivered through the use of a voice simulator as well as human voices. The course content delivered by the voice simulator was irritating to the aural senses. More work is required with voice simulators in order to achieve the same impact of an interesting human voice for delivering course content to students.

E-Learning	Yes
Do you use e-learning with your students?	68%
Have you attended training in the use of an e-learning platform?	49%
Was this training adequate to enable you to develop an effective e-learning presence?	29%
Do you have sufficient time to create e-learning material?	15%
Do you share course content that you have developed with colleagues?	44%
Do you use content from alternative sources e.g. (websites/CDs from Publishers)?	76%
Are you satisfied with the resources available to you for creating e-learning content?	34%

Table 6: Lecturers' responses on e-learning

6.5 Sharing of e-learning course content

'As academics co-operate in research teams for maximum productivity, so they should also co-operate in teaching teams, rather than in isolation behind closed doors' (Gibbs 1995). 44% of lecturers in the Faculty of Business have responded that they share course content that they have developed with colleagues, this is an excellent solution to lecturers having insufficient time to create course content for themselves. And the content will benefit through peer review.

Ideally the concept of material re-use would be the most practical way to move forward, relieving lecturers from wasting time creating course content that was already available. But 'Some 93% of respondents state that their college had no policy on the reuse of e-

learning materials' (Becta 2005). Given the fact that some lecturers' fear that e-learning will be used by management to monitor their teaching efforts, the policy on the reuse of e-learning materials is probably best left to the individual. Else, lecturers may be put off creating e-learning material for their own use, for fear it will be reviewed by peers/management and found lacking. Alternatively, e-learning material could be used by other lecturers, who have not made any effort to create content for themselves.

In the future, lecturers will be under pressure to create their e-learning material to suit the technology that the students wish to use e.g. iPods, MP4 players, Mobile Phones, Laptops, etc. This makes good sense from the educational providers' perspective for a number of reasons, predominantly the amount of money that the University/Institute will save with respect to the replacement of technological equipment (both hardware and software) and the maintenance of equipment used by the students. Basically, the educational provider is transferring the costs and responsibility of purchasing and maintaining technological equipment for student use, to the students.

The advantage to the student is that they have continuous access to their own laptop which provides them with a consistent interface. Previously students would have to deal with one system at home and another at college. The disadvantages to students are that students now have the additional expense of purchasing and responsibility of maintaining their own computer equipment for educational purposes.

Student Characteristics **The methodology lecturers thought most appropriate for developing each characteristic in students**	**Traditional Teaching Methods**	**Traditional Teaching Methods Blended with E-Learning**
Team work and interpersonal skills	59%	37%
Ability to demonstrate initiative and leadership skills	54%	39%
Communication skills - verbal & written	49%	49%
Competence in chosen field	22%	66%
Commitment to ongoing training and further education	10%	76%
ICT skills and PC literate	2%	90%
Punctual, good time management	66%	34%
Motivated, enthusiastic and committed	54%	34%
Respect for more experienced colleagues	66%	22%
Good general business knowledge	27%	66%
Investigation and problem solving skills	17%	78%
Ability to determine objectives and goals	46%	44%
Good manners, politeness, courteous	78%	17%
Strong work ethic	51%	37%
Telephone skills	37%	46%

Table 7: Methodology lecturers' identified to best achieve each characteristic

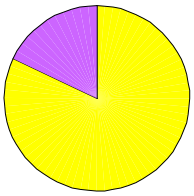
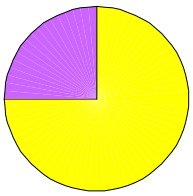
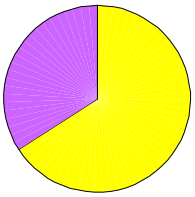
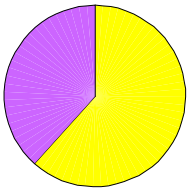
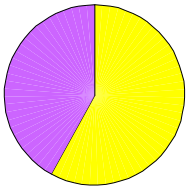
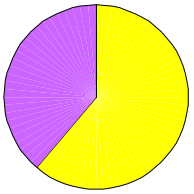
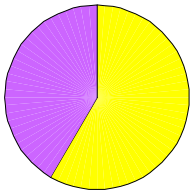
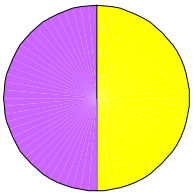
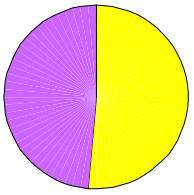
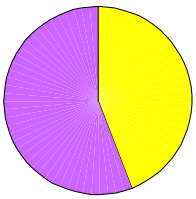
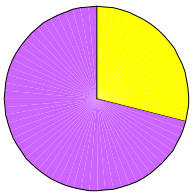
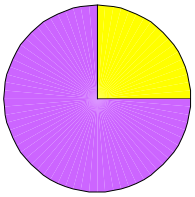
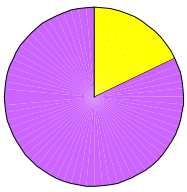
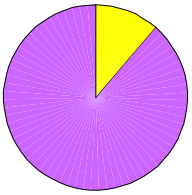
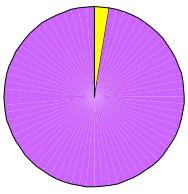
Lecturers who selected:	**Traditional Teaching Methods**	**Blended E-Learning**
 Good Manners **78%**	 Respect **66%**	 Punctual **66%**
 Team Work **59%**	 Initiative **54%**	 Motivated **54%**
 Strong Work Ethic **51%**	 Comm. Skills **49%**	 Objectives **46%**
 Telephone Skills **37%**	 Business Knowledge **27%**	 Chosen Field **22%**
 Problem Solving **17%**	 Further Education **10%**	 ICT Skills **2%**

Figure 6: Lecturers' views on attainment of student characteristics

Student Characteristics	Methodology Students and Lecturers thought most appropriate for developing each characteristic			
	Traditional Teaching Methods		Traditional Teaching Methods Blended with E-Learning	
Team work and interpersonal skills	72%	59%	26%	37%
Ability to demonstrate initiative and leadership skills	64%	54%	34%	39%
Communication skills - verbal & written	55%	49%	44%	49%
Competence in chosen field	43%	22%	53%	66%
Commitment to ongoing training and further education	24%	10%	74%	76%
ICT skills and PC literate	9%	2%	88%	90%
Punctual, good time management	73%	66%	26%	34%
Motivated, enthusiastic and committed	69%	54%	30%	34%
Respect for more experienced colleagues	71%	66%	28%	22%
Good general business knowledge	29%	27%	68%	66%
Investigation and problem solving skills	30%	17%	66%	78%
Ability to determine objectives and goals	42%	46%	54%	44%
Good manners, politeness, courteous	83%	78%	15%	17%
Strong work ethic	67%	51%	31%	37%
Telephone skills	48%	37%	49%	46%

Key: **Students' response in Green** **Lecturers' response in Lilac**

Table 8: Students' and lecturers' combined opinions

Table 8 provides some interesting correlations between students' and lecturers' views on how appropriate each teaching methodology is in developing student characteristics. Traditional Teaching was the method identified as most appropriate for developing: Team work and interpersonal skills; Initiative and leadership skills, Punctuality; Motivation; Respect; Good manners and Strong work ethic. Traditional teaching methods blended with e-learning were the methods identified as most appropriate for developing: Competence in chosen field; Commitment to ongoing training and further education; ICT skills; Business knowledge; and Investigation and problem solving skills.

In general there is no more than a 10% disparity between students' and lecturers' opinions as to which methodology is most appropriate for developing each characteristic. This provides sufficient evidence that the respondents did consider each characteristic individually and tick the box that they felt was most appropriate for developing each one.

As a matter of fact in all but one characteristic, students had more faith in traditional teaching methods than lecturers because a higher percentage of students were in favour of traditional teaching methods than lecturers were, so any lecturers that feels threatened by blended learning can be assured that students are more in favour of maintaining traditional teaching methods than lecturers. Ability to determine objectives and goals was the one characteristic that lecturers' identified as more appropriately dealt with through traditional teaching methods than students.

The final analysis on this table is that both methodologies overall got a similar amount of respondents votes. Students were slightly more in favour of traditional teaching methods and lecturers were slightly more in favour of traditional teaching methods blended with e-learning

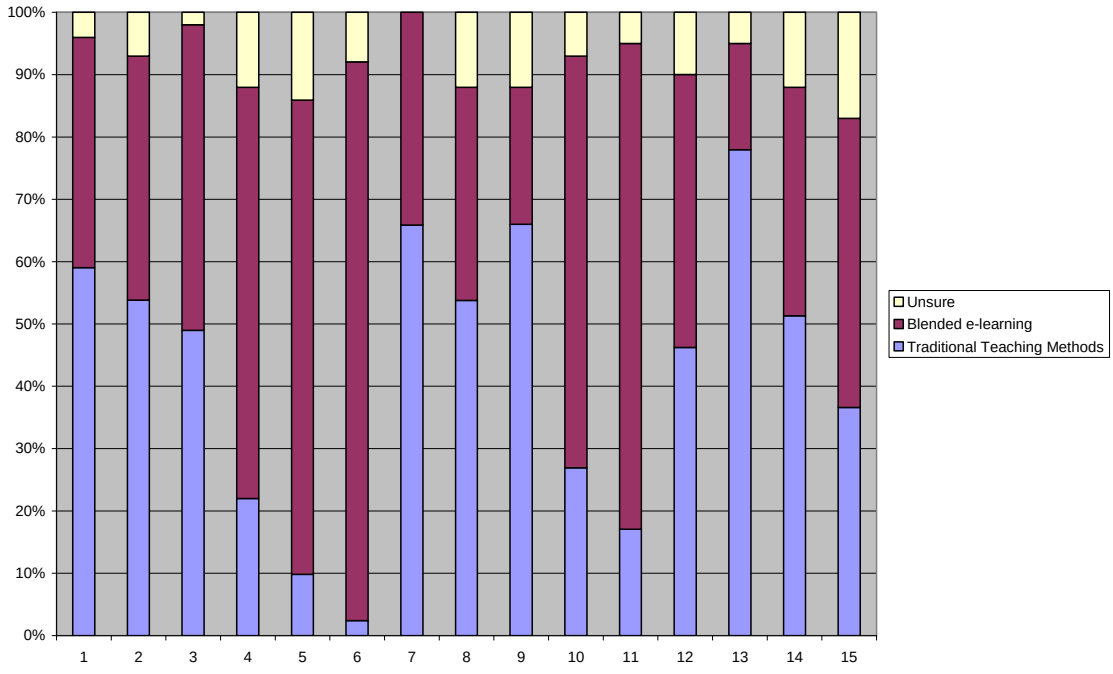


Figure 7: Lecturers' selected option for realising desired characteristics

Figure 7 clearly indicates that lecturers do not believe that their jobs are under threat from e-learning platforms and that they acknowledge benefits can be realised through the successful implementation of e-learning platforms.

Good manners, politeness, and courteous behaviour, is the student characteristic that students and lecturers have most strongly identified as best being developed by traditional teaching methods and ICT skills and PC literacy was most strongly identified by students and lecturers as best being developed by traditional teaching methods blended with e-learning.

6.6 Comparable analysis of surveys for students and lecturers

Donnelly and O' Rourke (2007) came to the conclusion that e-learning is not delivering the wide benefits to education that were expected, and that these benefits are not easily achieved. This findings of this research conducted in the Business Faculty concurs with the findings of Donnelly and O' Rourke, e-learning may not be delivering the wide benefits to education that were expected, possibly expectations were too high. These benefits are not easily achieved due to the time constraints on lecturers, only 15% of lecturers responded that they had sufficient time available to create e-learning material. The majority of students and lecturers in the Faculty of Business perceive the use of blended e-learning as improving the learning experience and better preparing students for work in industry. Table 9 below indicates students' and lecturers' perceptions on e-learning.

Do you agree with the following statements? (please tick the appropriate box)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods.	**25%** **27%**	**52%** **34%**	**17%** **27%**	**3%** **7%**	**0%** **2%**
Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods.	**30%** **27%**	**38%** **32%**	**25%** **27%**	**4%** **7%**	**0%** **2%**

Key: **Students' response in Green** **Lecturers' response in Lilac**

Table 9: Students' and lecturers' responses to hypothesis

‘Self-servitude is a powerful motivator, and motivation is what drives a successful project’ (Flatow 2007). Once Heads of Departments, lecturers and students realise the benefits to be achieved by using e-learning blended with traditional teaching methods, successful use of e-learning platforms will be realised.

Lecturers who use an e-learning platform for the following?	**%**
To distribute course notes	88%
To distribute assignments	80%
To assess students using Quizzes	15%
To assess students using Multiple Choice Questions	20%
As a notice board	78%
Discussion boards	34%
Chat facility	12%

Table 10: Lecturers’ usage of e-learning platforms

E-learning platforms in use in the Faculty of Business are mainly used to: distribute course notes, distribute assignments and as a notice board. A fifth or less of lectures use Quizzes and Multiple Choice Questions, more research would have to be done to establish whether this was because lecturers perceived this form of assessment unsuitable for third level students, or whether time constraints restricted lecturers’ creation of these forms of assessment. A third of respondents use Discussion Boards and only 12% use Chat Facility.

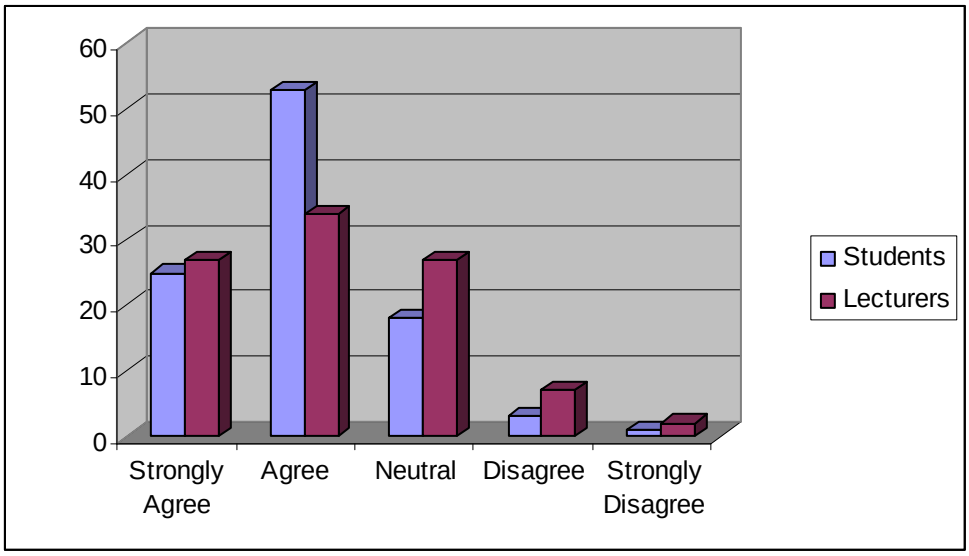


Figure 8: Crosstabulation - Improves the learning experience of students

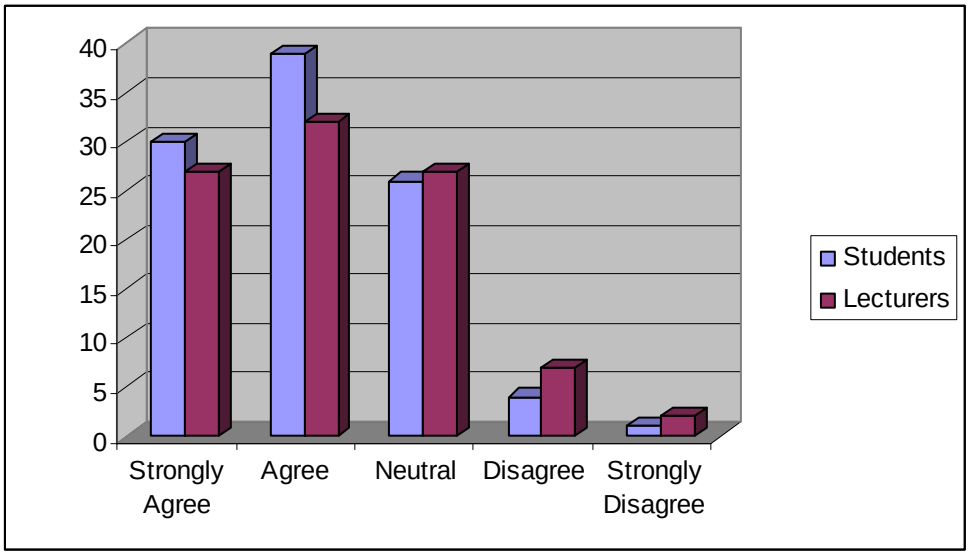


Figure 9: Crosstabulation - Better prepares students for work in industry

Figure 8 is a crosstabulation of students' and lecturers' responses to: Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods. Figure 9 is a crosstabulation of students and

lecturers' responses to: Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods. Figures 8 and 9 provide a very clear picture as to the opinion that students and lecturers have on the positive influence on e-learning on the learning experience to better prepare students for work in industry.

6.7 Gender analysis

'The majority of teachers feel that the use of ICT in the classroom positively impacts on the engagement/motivation and achievement of their learners. Perceived impacts are slightly greater for boys than girls, and slightly higher for engagement/motivation than achievement' (Kitchen et al. 2007). Tables 11, 12, 13 and 14 below indicate the overall opinions on e-learning, and also the breakdown between male and female opinions regarding the success of using e-learning platforms with respect to the hypothesis in question.

Students	Strongly Agree %	Agree %	Neutral %	Disagree %	Strongly Disagree %
Overall	25	53	18	3	1
Male	23	57	16	2	0
Female	26	50	18	4	1

Table 11: Students' Views - Improves the learning experience of students

Lecturers	Strongly Agree %	Agree %	Neutral %	Disagree %	Strongly Disagree %
Overall	27	34	27	7	2
Male	29	33	29	3	3
Female	25	41	16	16	0

Table 12: Lecturers' Views - Improves the learning experience of students'

Students	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Overall	30	39	26	4	1
Male	27	39	28	5	1
Female	35	38	23	2	0

Table 13: Students' Views - Better prepares students for work in industry

Lecturers	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Overall	27	32	27	7	2
Male	23	34	26	11	3
Female	42	33	25	0	0

Table 14: Lecturer' Views - Better prepares students for work in industry

Findings from analysis on: Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods

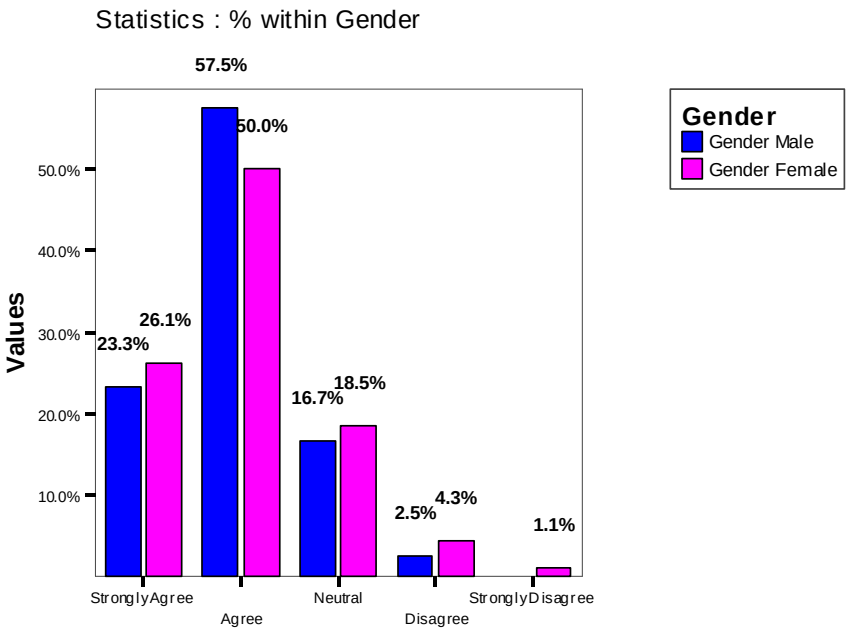


Figure 10: Students' crosstabulation - Improves the learning experience of students

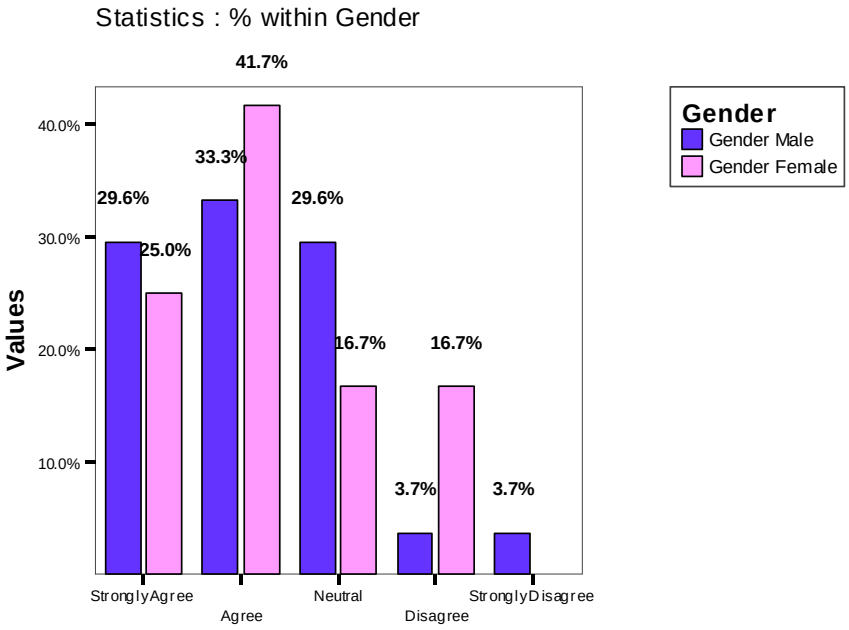


Figure 11: Lecturers' crosstabulation - Improves the learning experience of students

The significantly high proportion of students and lecturers who strongly agree and agree that using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods indicates how successful the Faculty of Business have been in implementing e-learning platforms. Consequently, the Critical Success Factors of implementing e-learning platforms must have been met to achieve such a vote of confidence from both students and lecturers.

Fresen and Boyd (2005) in their study were encouraged to find that 58% of respondents found web-supported learning to be an enriching learning experience. This research found that 78% (25% Strongly Agree and 53% Agree) of students and 61% (27% Strongly Agree and 34% Agree) of lecturers agreed that e-learning improves the learning experience of students.

Findings from analysis on: Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods.

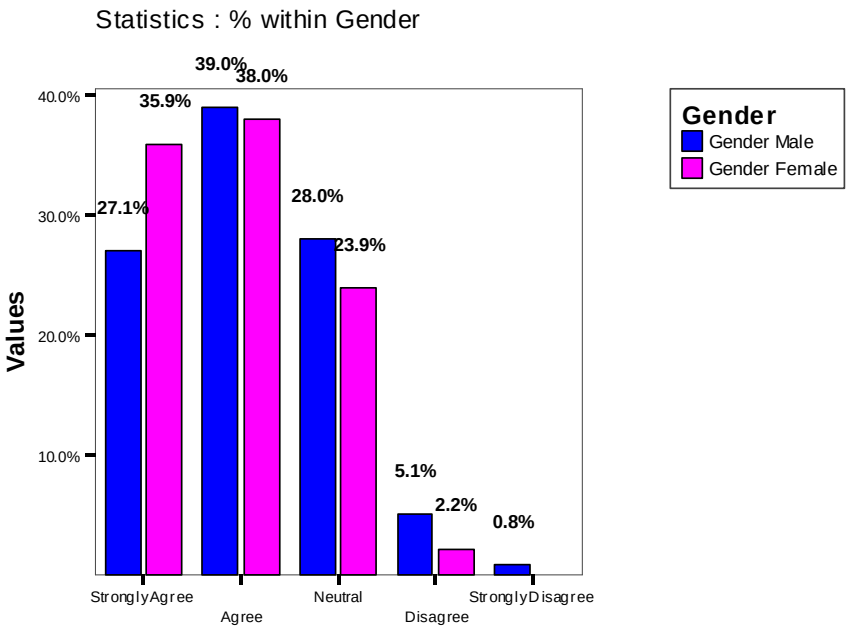


Figure 12: Students' crosstabulation - Better prepares students for work

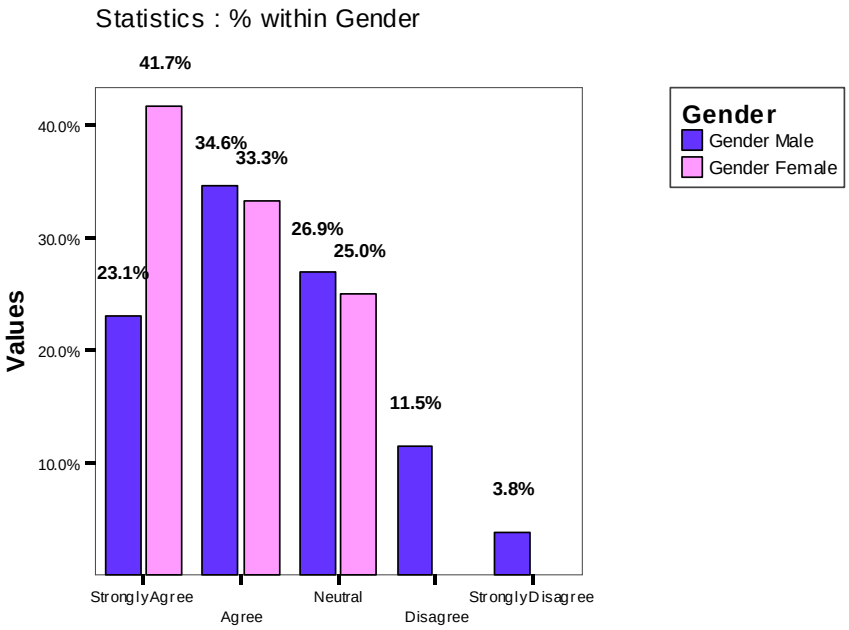


Figure 13: Lecturers' crosstabulation - Better prepares students for work

Figure 12 shows that Female students surveyed has more positive views than males on the use of e-learning platforms for better preparing students for work in industry. Figure 13 shows that Female lecturers surveyed had very positive views on the use of e-learning platforms for better preparing students for work in industry. Abouchedid and Eid (2004) found that males have more favourable attitudes towards computers and e-learning than females. This study indicates that females in the Faculty of Business have more favourable attitudes towards e-learning than males for preparing students for work in industry but less favourable attitudes towards e-learning for improving the learning experience of students.

Figures 12 and 13 show the significant number of students and lecturers who strongly agree and agree that using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods. These statistics indicate the confidence that students and lecturers in the Faculty of Business have in the use of e-learning platforms.

The Critical Success Factors discussed in the Critical Literature Review must have been met in order to achieve such a high confidence rate in the e-learning platforms in use in the Faculty of Business.

6.8 Comments on e-learning

Educational change involving information technology is an individual process, teachers respond differently to similar educational innovations, the use of Information Technology when educating students is unique to each teacher (Levin and Wadmany 2006). This study also identified the fact that the use of Information Technology when educating students was unique to each lecturer. Below are some lecturer's comments on e-learning:

- 'I do not believe that e-learning is an appropriate tool for 3rd level teaching. It runs contrary to the liberal notion of a university. It would also seriously undermine status of lecturers and researchers.'

- ‘I think e-learning is over-rated for some subjects especially the quantitative ones. Students need to see a lecturer do a question and have the opportunity for interaction.’

- ‘There is still a place for traditional methods. Interaction should be in class as well as via e-learning.’

And each student has an individual opinion on e-learning, below are some comments from students:

- ‘I recommend that all lecturers should use e-learning as well as lectures, as they give students a chance to study from home if unavailable to attend college on any given day.’

- ‘A lot of it comes down to the quality of the lecturer or the quality of the online class.’

- ‘Combination of traditional and e-learning methods probably the ideal.’

Despite the various comments made by students and lecturers, the overall response from both students and lecturers was positive in favour of e-learning. For the complete list of comments made by students and lecturers please refer to Appendix VII.

6.9 Conclusion

Findings fall very positively in favour of the hypothesis being tested. Traditional Teaching Methods were identified as most appropriate for developing some characteristics in students and Traditional Teaching Methods Blended with e-learning were identified as most appropriate for developing other characteristics in students.

With respect to students' and lecturers' opinions on: Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods, there was absolutely no contest: 78% of students (Strongly Agreed and Agreed), and 61% of lecturers (Strongly Agreed and Agreed) with this statement.

In addition, with respect to students' and lecturers' opinions on: Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods, there was absolutely no doubt: 68% of students (Strongly Agreed and Agreed), and 59% of lecturers (Strongly Agreed and Agreed) with this statement. Quite obviously, within the Faculty of Business students and lecturers have great confidence in the benefits achieved by the employment of e-learning platforms.

With respect to developing student characteristics as identified by representatives in industry, the final analysis is that both methodologies overall got a similar amount of respondents votes. With students voting slightly more in favour of traditional teaching methods and lecturers voting slightly in favour of traditional teaching methods blended with e-learning. Fresen and Boyd (2005) found that 39% of respondents reported that web supported learning developed their abilities to work as a team or group member. 26% of students and 37% of lecturers felt that e-learning supported team work and interpersonal skills, but 72% of students and 59% of lecturers felt that traditional teaching methods supported team work and interpersonal skills. Obviously both students and lecturers alike believe that traditional teaching methods are more appropriate for developing team work and interpersonal skills in students.

This study concluded that traditional teaching methods are still favoured for developing: Team work and interpersonal skills; Initiative and leadership skills; Punctuality; Motivation; Respect; Good manners; and Strong work ethic. Several other characteristics were identified which were more appropriate for traditional teaching methods blended with e-learning: Competence in chosen field; Commitment to ongoing training and

further education; ICT skills, Business knowledge; and Investigation and problem solving skills.

The overall conclusion in answer to the hypothesis was a very strong vote in favour of traditional teaching methods blended with e-learning to improve the learning experience of students and to better prepare students for work in industry by both students and lecturers in the Faculty of Business.

Chapter 7

7 Conclusion

7.1 Contribution of chapter

Chapter seven provides a summary of the findings of this research and how these findings tie in with the findings of other esteemed researchers who have previously conducted research in the area of e-learning.

7.2 Summary of key findings

Students need not necessarily be aware of the Critical Success Factors for an e-learning platform to be successful, but the fact is that 25% of students strongly agree and 52% agree, and 27% of lecturers strongly agree and 34% of lecturers agree that using an e-learning platform as a form of blended learning improves the learning experience of students' more than using traditional teaching methods. And, 30% of students strongly agree and 38% agree, 27% of lecturers strongly agree and 32% agree that using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods. This confidence indicates that students and lecturers believe that the way e-learning has been implemented throughout the Faculty of Business has been instrumental in improving the learning experience to better prepare students for work in industry. Hence, the way that the Faculty of Business lecturers are utilising e-learning blended with traditional teaching methods meets the requirements of the Critical Success Factors as outlined in Chapter three.

Charp (2002) believes that insufficient evidence exists on how technology is really being used to further enhance the learning experience, and how increased use of the Internet will result in better attainment of educators' goals and objectives. How to gather sufficient evidence to prove that technology enhances the learning experience, would be a

difficult experiment to undertake, there are so many variables that would have to be taken into consideration that could bias the outcome. No two class groups are equally matched in all dimensions, so trials run on the learning experience of students from two groups would not necessarily produce definitive answers to this hypothesis. Time saved by using the Internet to access online Library journals can be put to very good use in actually reading and learning from the works of others. Study time now is more productive and less expensive. No longer a requirement to heed Library opening hours, travel, pay library photocopying charges, waste time queuing for photocopiers, etc.. Studying and researching is much more amenable using technology than traditional methods. Hence, e-learning effectively improves the learning experience by making more time available to students to study.

'Perhaps, that is one of the reasons the advent of the computer hasn't drastically changed how teachers teach and students learn' (Charp 2002). Anyone who expected the advent of the computer to drastically change how teachers teach and students learn was naïve in their expectations. Each lecturer has an individual style of imparting information to their students, from attending various conferences, seminars, Summer schools, etc. on learning and teaching innovations they may incorporate some new methods into their delivery approach with their students, to gauge how successful this new concept is in increasing student engagement with the subject matter. 'Students need to learn by engaging in learning activities that are interesting and meaningful to them' (Shroff et al. 2007). Lecturers' individual style will still be influential in how they incorporate new teaching methods and how they assess the benefits to students of each method as they try it out with their students. There is as much of a learning curve in teaching for lecturers as there is for students. The advent of using computers in education could not be expected to drastically change how students learn, student still need to review and engage with course material, as they have always done in order to benefit from the university experience. The use of computers in education can be effective or ineffective depending on the usage made by lecturers and students. Computers are simply just another tool at the disposal of lecturers to enhance the delivery of course material to improve the learning experience of

students. This study has shown that students and lecturers alike have confidence in the fact that e-learning improves the learning experience of students.

Subramanian (2006) states that while e-learning was predicted to be a $23,112 billion business by 2004, it is quite obvious that it has not turned out to be the panacea that was expected. Lecturers do not perceive e-learning platforms as a business, but as an enabling tool to assist with course delivery, student engagement and attainment. In this study students and lecturers are obviously quite satisfied with the use of this enabling tool to enhance the learning experience.

Bell et al (2004) stated that the adoption, diffusion and exploitation of e-learning by educational institutions and organizations have been slower than anticipated. Also there is far less investment in e-learning in the educational environment because of a renewed interest in a basic understanding of learning. If this renewed interest in the basic understanding of learning has been brought about as a result of the diffusion and exploitation of e-learning, then e-learning has at least been successful in renewing an interest in the basic understanding of learning, which can only enhance the student learning experience. Of course the adoption of e-learning by educational institutions has been slower than anticipated. The comment below from a lecturer who participated in this study by completing a survey may be relevant to the slow adoption of e-learning by educational institutions:

> 'DIT creating division of labour and status (via 'research centres') between teaching and research staff. E-learning will further undermine teaching by diluting intellectual copyright and making lecturers 'Disposable'. Plus, DIT will not provide sufficient protected time to develop and generate e-learning.'

During the course of the Critical Literature Review, similar views came to light: with respect to Lecturers not getting appropriate acknowledgment for their lecturing prowess, who felt that too much emphasis was placed on the achievements of researchers, whereby it was the lecturers who were actually responsible for developing student potential and

the daily activities of keeping third level institutions functioning. The point regarding DIT not providing sufficient protected time to develop and generate e-learning material is something that should be addressed at Directorate level within the DIT.

> 'E-learning environment not facilitated in "timetable structures in IT's. Additional time required to develop e-learning materials not recognised. Need to include e-learning into "traditional teaching" programmes as a methodology in addition to other delivery modes.'

Above is another comment made by a lecturer who participated in this study, who has expressed concerns with respect to the implementation of e-learning within the Dublin Institute of Technology.

Only 15% of lecturers surveyed have sufficient time to create e-learning material, this statistic is possibly a contributory factor to the slow adoption of e-learning within the Institute.

Lecturers are required to teach a set number of hours a week, produce examination scripts, marking schemes, assignments, correct continuous assessments and examinations. In addition, lecturers are expected to attend courses on e-learning and prepare course content in a suitable format for presentation to students. Few lecturers are speed typists, so putting all their course notes in electronic format can be a very time consuming process. Hence, it is perfectly understandable that the diffusion and exploitation of e-learning has been slower than anticipated. But, despite all the misgivings, the majority of lecturers' are in agreement that e-learning can improve the learning experience to better prepare students for work in industry.

Bell et al (2004) stated that due to a lack of demonstrated value, Government has had to cut back funding for e-learning programs, because e-learning does not seem to offer a solution, technology seems to frustrate rather than empower. Technology can be frustrating and unreliable. When in attendance at a conference recently on Learning and

Teaching Innovations, one presentation included a short video clip, which had to be postponed to the afternoon session due to technological incompatibility. This episode did not inspire confidence. Some lecturers are reluctant to incorporate technology into the classroom; for fear that failure will deflect from their professionalism.

> 'Reliability of core IT functions essential – fancier stuff very prone to technical failure that wipes out any advantage from using it'

This quote was taken from Survey of Lecturers. Lecturers, particularly those who teach on Continuous Professional Development courses wish to present a professional veneer to their audience. Hence, IT support has to be excellent and available.

> 'The IT facilities in DIT Aungier Street are brilliant. It's the way forward.'

This quote was taken from Survey of Students.

McFarland and Hamilton (2005) found evidence that students who had enrolled in a traditional class felt their course was more effective in developing knowledge and skills than students enrolled in a 'web-assisted' course. Unlike the findings of McFarland and Hamilton, this study found that students and lecturers in the Faculty of Business felt strongly that blending e-learning with traditional teaching methods improved the learning experience of students to better prepare students for work in industry.

Student learning is primarily determined by how instructors exert their instructional influences in online classrooms (Shen et al. 2006). During the course of this survey some lecturers expressed concern at the fact that they may be doing themselves out of jobs by participating in e-learning. Lecturers will always be required to update course material and guide their students. The majority of students spoken to regarding e-learning, appreciated the benefits this tool had to offer, but clearly stated that lecturers were still required to motivate them to interact with course material. So whether the content is in electronic format or paper format (books and handouts) most students prefer having an

instructor by their side to encourage and lead them through their course of study and answer all their questions as they arise. The analysis of which teaching methodology was most appropriate for developing students' characteristics clearly indicated that both students and lecturers believed that traditional teaching methods was still a necessity in further education. But blended learning also had a part to play in improving the learning experience, to better prepare students for work in industry.

Holsapple and Lee-Post (2006) found that online students participating in a satisfaction study on e-learning desired the human touch. Hence, came to the conclusion that even when students are sufficiently ready, human instructors will never be fully replaced by the Internet. Online learning can form the basis for exposing students to new material, but in order to get students engaging with each other effectively about the topics under review, the human touch is most definitely required. Student respondents clearly indicated that the lecturers' presence was still required.

McFarland and Hamilton (2005) found no significant difference in overall course satisfaction between traditional and web-assisted course delivery. This study has shown that students in the Faculty of Business agree that e-learning has a positive influence on the learning experience.

Kanuka (2006) discovered that even though e-learning had been an aspect of education for the last two decades there was no indication that it would revolutionize education. Pedagogy must be relevantly addressed in the use of e-learning platforms; hence the quality of the e-learning impact is more important than the time taken for this enabling tool to evolve.

'E-learning seems to have a positive effect on the 'learning' outcome, measured by final tests and exams after course completion' (Solheim et al. 2006). This study did not assess tests and examinations, but it did take into account how students and lecturers felt about incorporating e-learning as a form of blended learning into the classroom and the overall

result showed that the majority of students and lecturers felt that e-learning was having a positive effect on the students' learning experience.

Zemsky and Massy (2004) came to the conclusion that for the most part, what the web provides are merely correspondence courses distributed electronically. This may well be the case, but there is a requirement in society for courses of this type: carers who are unable to attend regular courses; students with unexpected illnesses; and shift workers of course who would not be able to attend regularly, but should not be excluded from the opportunity of further education. The advent of e-learning gives people in the above groups the opportunity to participate in lifelong learning. Unanimously, anyone spoken to on the subject of e-learning has stated that the human interaction is still paramount to successful learning. In addition, there is a universal preferment to read from paper than a computer screen. So even if a course of study is distributed electronically, it invariably ends up in written format for students to explore and enjoy at their leisure. Above all else, education should be an enjoyable challenging experience.

Hands-on experience is far better for students than watching someone doing it on screen e.g. replacing a hard disk drive in a computer or assembling a computer. It takes a lecturer more time and effort setting up practical hands-on sessions than presenting all the material in theoretical form (Alberts 2005) but students do benefit and enjoy the hands-on experience. That is why there will always be a need for traditional teaching methods.

This study has shown that only 20% of lecturers employ the use of multiple choice questions on the e-learning platform. Electronic multiple choice assessments are very handy for the lecturer, but are they really an appropriate means of testing students' cognitive ability at Post Graduate level? This is one of the questions encountered during this study. Possibly not the most appropriate means of testing Post Graduate students, but it is a quick assessment of students' engagement with the course material, to see if they are really engaging with the course material. In addition, an insight can be provided for the lecturer for any weakness in the delivery, if certain topics are systematically identified incorrectly by the students.

A dynamic lecturer could never be replaced by the boring interface of a computer. However, not all lecturers could be classified as dynamic.

> 'Learning depends on connection between students and lecturer, method is only one facet. "E-learning" is overdone, it can't compensate for (1) Poor lecturers (2) Poor students'

This quote was extracted from the Survey of Lecturers. In no instance throughout the Critical Literature Review were any claims made that e-learning could compensate for poor lecturers or poor students. The instance of poor lecturers and poor students is simply a fact of life, which will affect all teaching methodologies, not exclusively e-learning. Possibly the electronic interface may assist in focusing the lecturers' objectives and improving students' engagements and attainment.

The benefits to be realised depend solely on the commitment of the designer. In order for e-learning to be effective in improving the learning experience and preparing students for work in industry, the designer/lecturer must continually update content, seek student feedback, keep abreast of industry best practices and update examples of successes and failures from the marketplace.

7.3 Recommendations

Only 15% of Lecturers' agreed that they have sufficient time to create e-learning course content. The rest could obtain assistance in sourcing suitable material (e.g. a tutors' package) from a publishing company that comes with e-learning course material (Power Point slides, summarised chapters, learning outcomes, case studies, relevant web site links, etc.) and assessments (i.e. review and multiple choice questions). By using this material in conjunction with their own content, lecturers can exert a personal influence on the subject matter.

Mintzberg and Hunsicker (1988) mention that smart strategists appreciate that they cannot always be smart enough to think through everything in advance. With e-learning it is impossible to weigh up all the influencing factors on commencement of online course delivery. Therefore, conscientious lecturers should update their online material regularly. Hence their work will evolve as a result of contact with students and experiences learned from industry.

7.4 Limitations of the study

The students and lecturers targeted for this study were predominantly from the Business Faculty, if this study had been conducted in a different educational sphere, perhaps the respondents would have had alternative views.

Course material is only as good as the effort put into its creation. The real benefits of e-learning will only be achieved by those who already have excellent teaching ability 'recent research on the contribution of ICT to attainment shows that ICT is effective only when combined with good teaching' (Cox et al. 2007).

7.5 Conclusion

Students' acknowledgement of the benefits to be achieved through blending e-learning with traditional teaching methods is very satisfying. Lecturers spend hundreds of hours compiling course material into multimedia presentations, devising multiple choice assessments, compiling assignments, listing discussion board topics, creating quizzes and podcasts. Rewarding to know that this time is appreciated by students.

The overall conclusion is that most students and lecturers strongly supported the hypothesis that blending e-learning with traditional teaching methods would further improve the learning experience, to better prepare students for work in industry. The final analysis on the methodology which was most appropriate for developing each

characteristic in students fell with almost an equal divide between Traditional Teaching Methods and Traditional Teaching Methods Blended with e-learning.

Hence, traditional teaching methods are still most definitely required to improve the learning experience to better prepare students for work in industry. The position of lecturer will not be eroded by e-learning because students need the human interaction, guidance, feedback, encouragement, motivation, etc. in order to succeed in obtaining a good education. Some student characteristics simply cannot be learned from e-learning alone, for example: Team work and interpersonal skills; Good manners, politeness, courteousness; Punctuality, good time management; but blended e-learning is still an excellent tool to enhance the learning experience of students if employed effectively.

Chapter 8

8 Future work to be undertaken in the area

8.1 Contribution of chapter

Chapter eight concludes that undertaking research of this nature brings home the extent of the literature available for review and hypotheses that are yet to be explored. E-learning has undergone a gradual process of evolution, only with constant monitoring and revision, will this process be developed to its full potential.

8.2 Future research

This dissertation outlines a methodology based on a strong literature review. It would be interesting to repeat this study on a larger scale, to include other Faculties in the Dublin Institute of Technology and other third level institutions in Ireland. In essence, it could be the foundation of a useful national survey, from which correlations could be drawn to assess how effective e-learning has been implemented in the various different institutions.

8.2.1 Effectiveness of computers in education

'Clearly, however, the challenge of delivering greater value from technology and realising significant benefits for learners is a continuing one.' (Summary Report Becta 2007). Every lecturer has a responsibility to identify what works best for them and their students. Hence, the benefits to be achieved by incorporating e-learning with traditional teaching methods should be reviewed by all lecturers and employed if considered suitable to enhancing the learning experience of students.

'The inconclusive findings of years of research on the effectiveness of computers in education highlight the need for a new approach to thinking about the issue' (Hadsell and

Burke 2007). Computers are ubiquitous; students need to become familiar with their use and what better way to achieving PC literacy than using computers to enhance their learning experience at third level. Practice makes perfect.

8.2.2 Shared learning resources

The Becta Summary Report (2007) concluded that there was little progress, in using technology to deliver shared learning resources. Also, the potential for technology to enable learning providers to collaborate and share resources, deliver a greater level of assessment for learning, and support the use of information across and between institutions and sectors was as yet relatively untapped. 44% of lecturers involved in this study share course content they have developed with colleagues.

8.2.3 Skype – synchronous form of communication

To explore the benefits to be achieved by encouraging online students and instructors to use Skype as opposed to online chat facilities. Online chat facilities become frustrating when several students are involved in this asynchronous form of communication. Inefficient use of the keyboard can hamper responses due to slow typing speeds. Immediate response to questions can lead to immature feedback, because the student or instructor has insufficient time to formulate a better thought through response. Pan and Sullivan (2005) preliminary findings suggested that Skype (freeware program) could be utilised to provide an effective method for synchronous interaction between students and instructors, to enable immediate clarification and information.

8.2.4 Problem based learning (PBL)

There are many evolving methodologies under review at present in the educational sphere, the benefits will only be acknowledged with time and research to establish their usefulness. The important thing is that educators continue to seek improvements in

delivery methods to enhance the learning experience of future generations. Newman discovered quite a number of relevant facts about a university education which are still pertinent in today's world.

> 'As teaching methods are continuously expanding. How do you define Traditional Teaching Methods, and other "Newer Methods" like Problem Based Learning, etc? Where do they fit in, in terms of the above student characteristics?'

This question posed by one of the lecturers who kindly completed my questionnaire is outside the scope of this study, but would be an interesting hypothesis to pursue.

8.3 Conclusion

There is no definitive answer as to how best to improve the learning experience, to better prepare students for work in industry, but the interest shown by lecturers and researchers in this area indicates a real intent on behalf of lecturers to do their utmost to provide students with an excellent foundation for commencing their careers.

The environment that Newman was familiar with, has totally changed, but his perceptions of what constitutes a good education have not. The youth of today have technological devices in their pockets that they take for granted. Methods of communication are constantly changing, no longer are hieroglyphics carved in stone. Libraries are continuously re-inventing themselves to keep up to date with technology, no more dusty volumes to be sought, a few quick key depressions can access Newman's book written over a century ago. In order for lecturers to connect with students, it is necessary to understand the technologies with which students are so familiar and deploy these technologies to enhance students' education.

> 'We need to follow students to these platforms'

This quote was from one of the lecturers who responded to Survey for Lecturers and it is only too true. Information overload is a term frequently mentioned, students must be encouraged to critically assess the enormous amount of information available. Students have to be instructed in correct dissemination of this information. Lecturers' presence in education is still paramount to student engagement and participation, in order to be effective lecturers must keep up to date with the technologies in use by students.

Publishing companies now offer a variety of multimedia packages to lecturers; they have obviously identified this as the way forward in education. Will school text books soon be a thing of the past at third level? Will vodcasts and podcasts be the way forward? Educators must keep up to date with these changes and ensure that pedagogical requirements are met in these multimedia presentations, vodcasts and podcasts for students.

9 Bibliography

AACSB. "Association to Advance Collegiate Schools of Business."

Abouchedid, K and G Eid. 2004. "E-learning challenges in the Arab world: revelations from a case study profile." Quality Assurance in Education 12(1):15-27.

Alberts, Bruce. 2005. "Summing up: Creating a Scientific Temper for the World."

Ambrose, Lyn. 2001. "Learning Online Facilitation Online." Intellectual Property Unit, Southbank Institute of TAFE, Brisbane.

Arbaugh, J. B. 2000. "How Classroom Environment and Student Engagement Affect Learning in Internet-based MBA Courses." Business Communication Quarterly 63(4):9-26.

Auerbach, Paul R. 2007. "U.S. Decline in the Context of Formal Education and In Situ Learning." Journal of Economic Issues 41(3):715-728.

Barry, Don. 2007. "President's Inaugural Address 19th September, 2007."

BBC-News. 2000. "Massachusetts - Laptops compulsory for students."

BBC-News. 2001. "Warwick University - Students Protest at Compulsory Laptops."

Beastall, Liz and Richard Walker. 2006. "Effecting institutional change through e-learning: An implementation model for VLE deployment at the University of York." Journal of Organisational Transformation & Social Change 3(3):285-299.

Becta. 2005. "ICT and e-learning in Further Education - the challenge of change." British Educational Communications and Technology Agency.

Becta. 2007. "Summary Report - Harnessing Technology Review 2007: Progress and impact of technology in education." In British Educational Communications and Technology Agency: Becta Publications.

Bell, Mark and Graeme Martin. 2004. "Engaging in the future of e-learning: a scenarios-based approach." Education + Training 46(6/7):296-307.

Bersin, Josh. 2002. "Measuring E-learning's Effectiveness." e-learning 3(3):36.

Bologna-Accord. 2008. "The Bologna Declaration, Globalisation and Business Schools." ed. Association of Business Schools.

Bruner, J. 2006. In Search of Pedagogy Volume II. First Edition: Routledge Taylor & Francis Group.

Bruner, J S. 1996. The Culture of Education. Cambridge, Mass.: Harvard University Press.

Caralli, Richard A. 2004. "The Critical Success Factor Method: Establishing a Foundation for Enterprise Security Management." In Technical Report CMU/SEI-2004-TR-010 ESC-TR-2004-010.

Charp, Sylvia. 1997. "Changing teaching strategies through technology." In T H E Journal. 24 Edition.

Charp, Sylvia. 2002. "Changes to Traditional Teaching. (Cover story)." T H E Journal 29(10):10.

Chu, Po-ying. 2007. "How students react to the power and responsibility of being decision makers in their own learning." Language Teaching Research 11(2):225-241.

Churchill, Tony. 2005. "E-Reflections: A Comparative Exploration of the Role of e-learning in Training Higher Education Lecturers'." Turkish online Journal of Distance Education 6(3).

Cloud, John. 2007. "Failing Our Geniuses. (Cover story)." Time 170(9):40-47.

Condie, Rae and Kay Livingston. 2007. "Blending online learning with traditional approaches: changing practices." British Journal of Educational Technology 38:337-348.

Cooper, Kenneth Carlton. 2007. "12 Unavoidable Truths About E-Learning." Chief Learning Officer 6(1):42-45.

Cox, Margaret, Mary Webb, Chris Abbott, Barry Blakeley, Tony Beauchamp and Valerie Rhodes. 2007. "ICT and Pedagogy." British Education.

De Jong, Wilma. 2007. "From 'doing' to '˜knowing what you are doing': Kolb's learning theory in teaching documentary practice." Journal of Media Practice 7(2):151-158.

Donnelly, Roisin and Kevin O' Rourke. 2007. "What now? Evaluating eLearning CPD Practice in Irish Third-Level Education." Journal of Further and Higher Education 31(1):31-40.

Drucker, Peter F. 2006. "What Executives Should Remember." Harvard Business Review 84(2):144-152.

Dublin, Lance. 2006. "E-Learning Success: Engaging Organisations, Motivating Learners." Chief Learning Officer 5(11):24-56.

FAS. 2007. "FAS eCollege."

Flatow, Stuart. 2007. "Making the case for E-Learning." Associations Now 3(11):63-69.

Fresen, Jill W and Lesley G Boyd. 2005. "Caught in the web of quality." International Journal of Educational Development 25(3):317-331.

Garvin, David A. 2007. "Teaching Executives and Teaching MBAs: Reflections on the Case Method." Academy of Management Learning & Education 6(3):364-374.

Gibbs, Graham. 1995. "Training Lecturers to Value Teaching." People Management 1(7):34-38.

Gros, Begona. 2007. "Digital Games in Education: The Design of Games-Based Learning Environments." Journal of Research on Technology in Education 40(1):23-38.

Hadsell, Lester and Gerald T. Burke. 2007. "Computers, Learning Outcomes, and the Choices Facing Students." Eastern Economic Journal 33(1):111-124.

Harris, Rachel, John Hall, Alison Muirhead, Erica McAteer, Seb Schmoller and Graham Thorpe. 2004. "Impact of e-learning on learner participation, attainment, retention, and progression in Further Education: report of a scoping study." Glasgow: Scottish Centre for Research into On-Line Learning & Assessment, University of Glasgow.

Harrison, Richard and Claire Leitch. 2007. "Developing Paradigmatic Awareness in University Business Schools: The Challenge for Executive Education." Academy of Management Learning in Education 6(3):332-343.

Holsapple, Clyde W. and Anita Lee-Post. 2006. "Defining, Assessing, and Promoting E-Learning Success: An Information Systems Perspective." Decision Sciences Journal of Innovative Education 4(1):67-85.

Honey, Peter and Alan Mumford. 1986. The Manual of Learning Styles. Berkshire: Printique.

Horizon. 2007. "A colloboration between the new media consortium and the Educause Learning Initiative." In Creative Commons.

IISME. 2005. "IISME (Industry Initiatives for Science and Math Education)." In National Academy of Sciences.

Kanuka, H. 2006. "Has eLearning Revolutionized Education." In Canada's Foreigh Policy Newsweekly.

Keel, Robert and Cheryl Bielema. 2006. "MyGateway at UMSL, 2000-2006: Taking Education into the 21st Century." In Focus on Teaching and Technology Conference. UM-St. Louis.

Kempe, A. 2001. "Putting the Teacher Online." In Toowoomba Education Centre.

Kitchen, S , S Finch and R Sinclair. 2007. "Harnessing Technology schools survey 2007." Becta.

Labrie, Ronald and Bill Haveriner. 2007. "Longview Fibre Protects Knowledge, Improves Decision with eLearning." Pulp & Paper 81(2):33-35.

LaFrancois, Helen A. 1992. "The marketing of an accounting graduate: Characteristics most desired by CPA firms." Journal of Education for Business 67(4):206.

Levin, Tamar and Rivka Wadmany. 2006. "Teachers' Beliefs and Practices in Technology-based Classrooms: A Developmental View." Journal of Research on Technology in Education 39(2):157-181.

Li-Fen Lilly, Lu and Ifeng Jeng. 2006. "Knowledge Construction in Inservice Teacher Online Discourse: Impacts of Instructor Roles and Facilitative Strategies." Journal of Research on Technology in Education 39(2):183-202.

Lim, Doo Hun and Michael Lane Morris. 2006. "Combined Effect of instructional and Learner Variables on Course Outcomes within An Online Learning Environment." Journal of Interactive Online Learning 5(3):255-269.

Livingston, Kay and Rae Condie. 2006. "The Impact of an Online Learning Program on Teaching and Learning Strategies." Theory Into Practice 45(2):150-158.

LTSN-GEES. 2003. "Learning and Teaching at the Taught Postgraduate Level." In Geography, Earth and Environmental Sciences (GEES).

McFarland, Daniel and Diane Hamilton. 2005. "Factors affecting student performance and satisfaction: Online versus traditional course delivery." Journal of Computer Information Systems 46(2):25-32.

MII. "Marketing Institute of Ireland."

Mintzberg, Henry and J. Quincy Hunsicker. 1988. "Crafting strategy." McKinsey Quarterly(3):71-90.

Newman, John Henry. 1907. Idea of a University - Discourse 7. New Impression Edition. London: Longmans, Green, and Co.

O' Neill, K, G Singh and J O' Donoghue. 2004. "Implementing eLearning Programmes for Higher Education: A Review of the Literature." Journal of Information Technology Education 3:314-320.

Oscail. 2007. "Distance Education." Dublin.

Overbaugh, Richard C. and Lin ShinYi. 2006. "Student Characteristics, Sense of Community, and Cognitive Achievement in Web-based and Lab-based Learning Environments." Journal of Research on Technology in Education 39(2):205-223.

Oxford, English Dictionary. "Compact Oxford English Dictionary."

Pan, Cheng-Chang and Michael Sullivan. 2005. "Promoting Synchronous INTERACTION in an eLearning Environment." T H E Journal 33(2):27-30.

Peach, Brian E., Arup Mukherjee and Martin Hornyak. 2007. "Assessing Critical Thinking: A College's Journey and Lessons Learned." Journal of Education for Business 82(6):313-320.

Ramsay, Jim and Elbert Sorrell. 2007. "Problem -Based Learning." Professional Safety 52(9):41-46.

Reynolds, John R. 2003. "E-Learning Effectiveness." Association Management 55(10):37.

Roffe, Ian. 2002. "E-learning: engagement, enhancement and execution." Quality Assurance in Education 10(1):40-50.

Sabry, Khaled and Lynne Baldwin. 2003. "Web-based learning interaction and learning styles." British Journal of Educational Technology 34(4):443-454.

Schon, Donald A. 1992. "II. Philosophical Perspectives and Practice: The Crisis of Professional Knowledge and the Pursuit of an Epistemology of Practice." In Praxiologies & the Philosophy of Economics - Praxiology: Transaction Publishers.

Seagrave, S, D Holt and J Farmer. 2005. "The Power of the 6three model for Enhancing Academic Teacher's Capabilities for Effective Online Teaching and Learning: Benefits, Initiatives and Future Directions." Australasian Journal of Educational Technology 21(1):118-135.

Shen, Demei, James Laffey, Yimei Lin and Xinxin Huang. 2006. "Social Influence for Perceived Usefulness and Ease-of-Use of Course Delivery Systems." Journal of Interactive Online Learning 5(3):270-282.

Shroff, Ronnie H, Doug Vogel, John Coombes and Fion Lee. 2007. "Student E-Learning Intrinsic Motivation: A Qualitative Analysis." Communications of AIS 2007(19):241-260.

Solheim, I, Y Barnard, M Storrosten and E Sorhaug. 2006. "E-Learning in enterprises: identifying and realising benefits and improved business processes." In IV International Conference on Multimedia and Information & Communication Technologies in Education. Badajoz, Spain.

Stone, Nan. 1991. "Does Business Have Any Business in Education?" Harvard Business Review 69(2):46-62.

Stoyanov, Slavi and Paul Kirschner. 2007. "Effect of Problem Solving Support and Cognitive Styles on Idea Generation: Implications for Technology-Enhanced Learning." Journal of Research on Technology in Education 40(1):49-63.

Subramanian, Ram. 2006. "Blended eLearning: Integrating Knowledge, Performance Support, and OnLine Learning." Academy of Management Learning & Education 5(2):248-249.

Sullivan, Bryce F. and Susan L. Thomas. 2007. "Documenting Student Learning Outcomes Through a Research-Intensive Senior Capstone Experience: Bringing the Data Together to Demonstrate Progress." North American Journal of Psychology 9(3):321-329.

SurveyMonkey. 2007. "Smart Survey Design." In Survey Monkey, ed. The Monkey Team.

Vonderwell, Selma, Liang Xin and Kay Alderman. 2007. "Asynchronous Discussions and Assessment in Online Learning." Journal of Research on Technology in Education 39(3):309-328.

Wild, Rosemary H and Kenneth A Griggs. 2002. "A framework for e-learning as a tool for knowledge management." Industrial Management & Data Systems 102(7):371-380.

Wood, Leigh and Dan Kaczynski. 2007. "University Students in USA and Australia: Anticipation and Reflection on the Transition to Work." International Journal of Employment Studies 15(2):91-106.

Zemsky, Robert and William F Massy. 2004. "Thwarted Innovation - What Happened to e-learning and Why." In The Learning Alliance at the University of Pennsyviania.

Zhu, Faye X. and Daniel McFarland. 2005. "Towards Assurance of Learning in Business Programs: Components and Measurements." Journal of American Academy of Business, Cambridge 7(2):69-72.

10 Appendices

10.1 Appendix I – Analysis of survey for lecturers

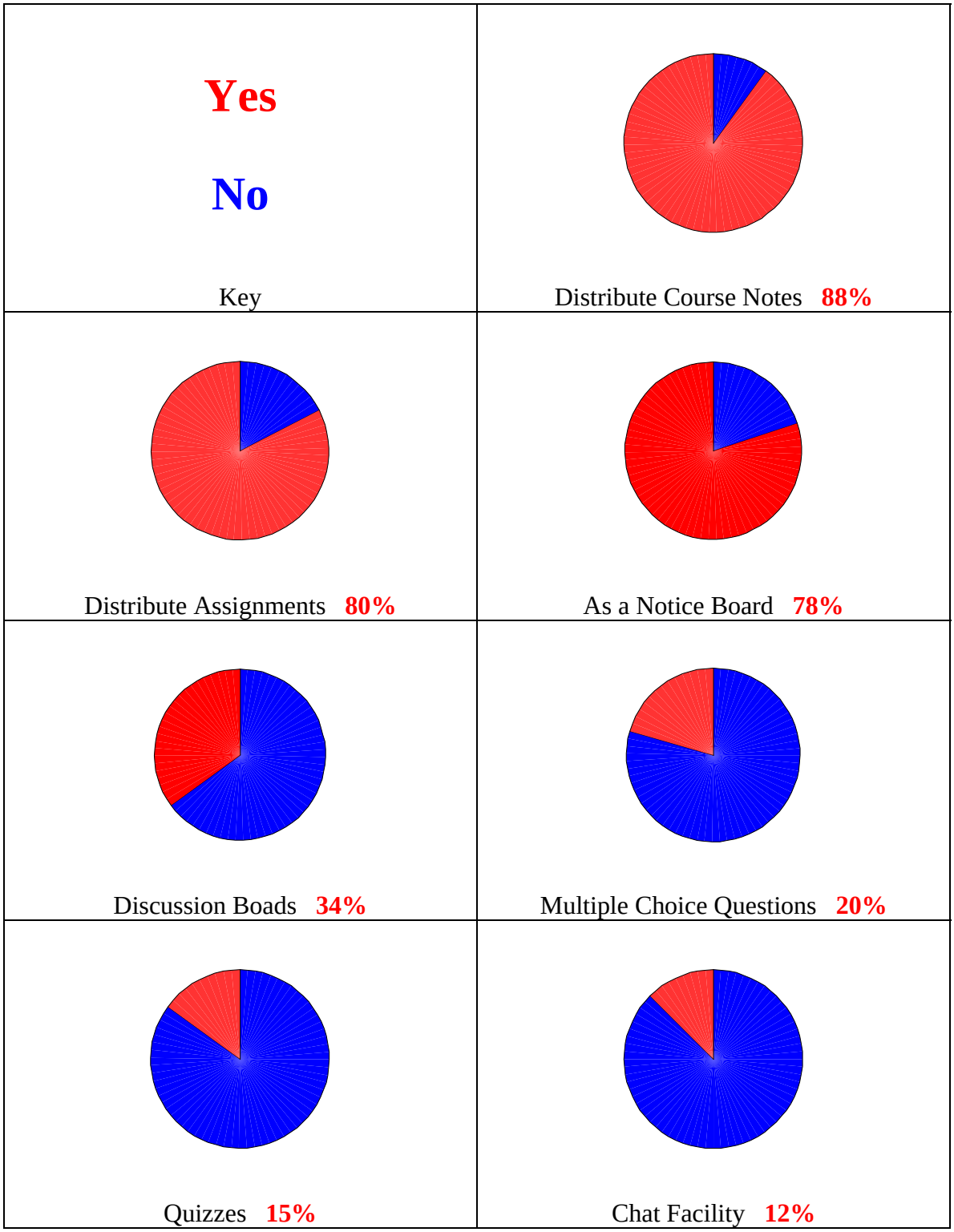


Figure 14: Lecturers' usage of e-learning platforms

10.2 Appendix II – Analysis of survey for representatives from industry

Student Characteristics	Total number of respondents = 21 Percentage of respondents who selected this student characteristic
Team work/Interpersonal skills	81%
Ability to demonstrate initiative/leadership	71%
Communication skills verbal and written	67%
Confidence and competent in chosen field	52%
Commitment to ongoing training/further ed.	48%
ICT skills/PC literate	48%
Punctual good time management	33%
Motivated, enthusiastic and committed	29%
Respect for more experienced colleagues	19%
Good general knowledge of business	19%
Investigation/problem solving skills	19%
Ability to determine objectives Vs Goals	14%
Good Manners Politeness Courteous	14%
Strong work ethic	14%
Telephone skills	14%
Bring new advances in technology, etc.	14%
Honesty	14%
Neat Appearance	10%
Planning and organisation ability	10%
Focused Concise	10%
Management skills	10%
Determination to see things through	10%

Student Characteristics	Total number of respondents = 21 Percentage of respondents who selected this student characteristic
Ambitious/prepared to work their way up	5%
Flexibility/ability to adapt	5%
Accountability	5%
Responsibility	5%
Understanding of strengths and weaknesses	5%
Good at routine work	5%
Dependable	5%
Friendly Disposition	5%
Professional attitude	5%
Project management skills	5%
Methodical worker/Logical thinker	5%
Resilence	5%
Presentation skills	5%
Reasonable pay expectations	5%
Cleanliness	5%
Conscientious	5%
Delegate tasks fairly and efficiently	5%
Healthy attitude to work/life balance	5%
Willingness to work hard	5%

Table 15: Analyses of survey for representatives from industry

10.3 Appendix III – Analysis of survey for students

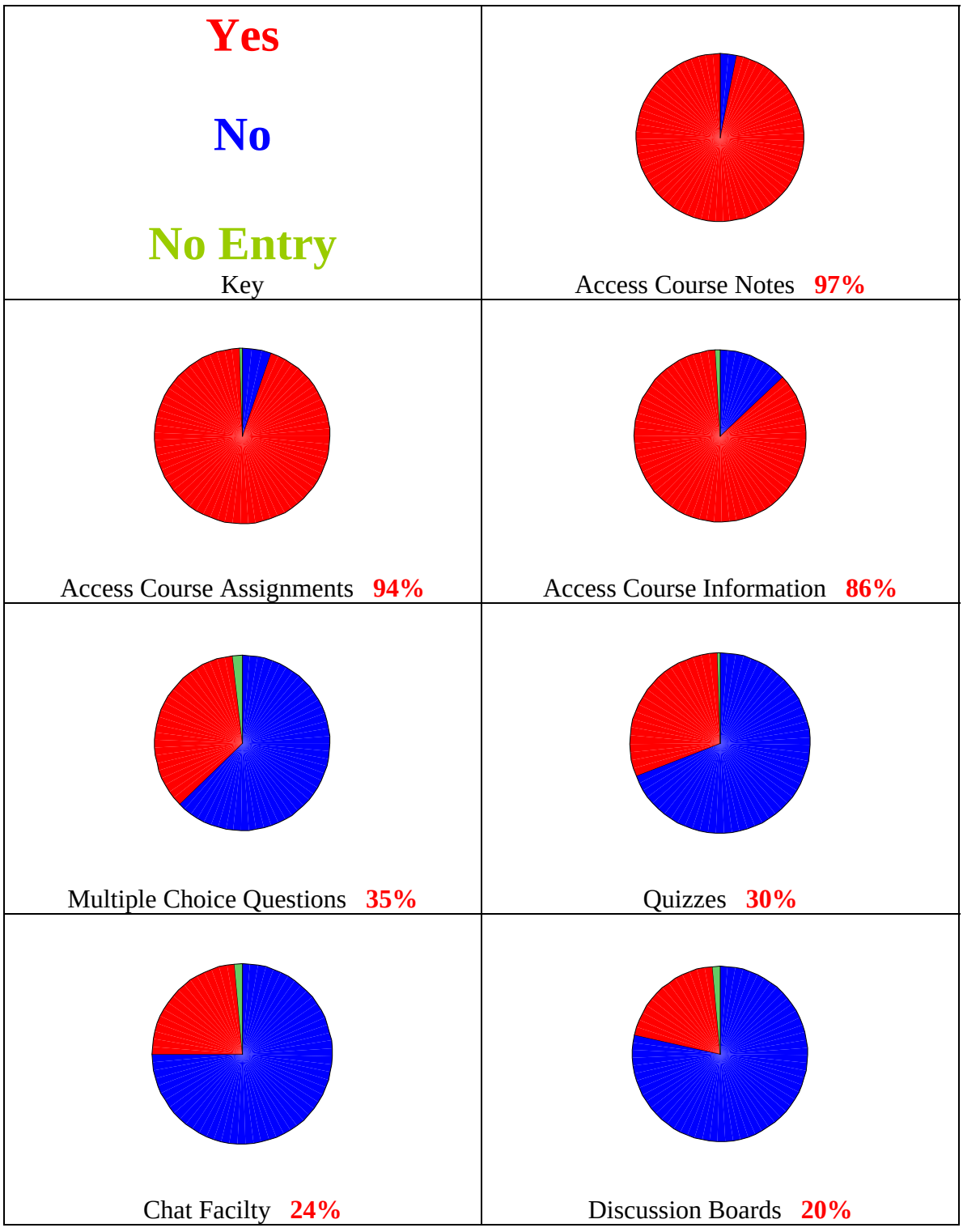


Figure 15: Students' usage of e-learning platforms

10.4 Appendix IV - Glossary and abbreviations of terms used

APD – Academic Professional Development (Seagrave et al. 2005).

CMC – Computer-mediated-communications (Arbaugh 2000)

CSF – Critical Success Factor

DIT – Dublin Institute of Technology

E-Portfolio – personal online learning space designated to each student

EP – Exploratory Practice

FE – Further Education

HE – Higher Education

HEIs - Higher Education Institutions

Hypotheses – plural of hypothesis

Hypothesis - a supposition made on the basis of limited evidence as a starting point for further investigation (Oxford).

ICT – Information Communications Technology (Harris et al. 2004)

IISME – Industry Initiatives for Science and Math Education

ILS – Interactive Learning Systems (Sabry and Baldwin 2003)

IRT – Information-Rich Technology (Levin and Wadmany 2006)

Learning Platform – covers a broad range of ICT systems which can be used to deliver and support learning e.g. WebX, Webtutors, Moodle.

LTT – Learning Technology Team

LSI – Learning Style Inventory

MLE – Managed Learning Environment

PBL – Problem Based Learning

VLE – Virtual Learning Environments ‘provide a unified platform for communications, content delivery, course management and assessment, with managed interfaces linked to university information systems and resources.’ (Beastall and Walker 2006).

10.5 Appendix V – Survey for lecturers

A dissertation submitted in partial fulfilment of the requirements for the

Masters in Information Systems for Managers

Dear Colleague,

This questionnaire is part of a study to determine: Can e-learning be used to further improve the learning experience, to better prepare students for work in industry?
The purpose of this questionnaire is to establish your views on the use of e-learning platforms to improve the learning experience of students. All respondents will remain completely anonymous.

Section A - Some background information on your access to technological equipment and use of e-learning.

Section B – The characteristics of students that representatives from industry have identified in order to classify students as being adequately prepared for work in industry are listed. Please tick the box for the teaching methodology (traditional teaching versus blended learning through the use of an e-learning platform) that you would think most appropriate for developing these characteristics in students.

Section C – Your views on e-learning, number of years lecturing experience and gender. Please return the completed questionnaire in the envelope provided. I wish to thank you most sincerely for taking the time to complete my survey. My dissertation will be available to view in the DCU Library. Contact details: Eileen.ODonnell@dit.ie

Regards, Eileen. Room 2-089, Faculty of Business, DIT, Aungier Street, Dublin 2.

Section A

These questions are to provide basic information which will be helpful in analysing the survey results.

Do you have access to the following resources:	**Yes**	**No**
Desktop PC		
Laptop PC		
Digital Camera		
Digital Video Camera		
Overhead Projector		
Headphone & Microphone		
Internet access at home		
E-Learning	**Yes**	**No**
Do you use e-learning with your students?		
Have you attended training in the use of an e-learning platform?		
Was this training adequate to enable you to develop an effective e-learning presence?		
Do you have sufficient time to create e-learning material?		
Do you share course content that you have developed with colleagues?		
Do you use content from alternative sources e.g. (websites/CDs from Publishers)?		
Are you satisfied with the resources available to you for creating e-learning content?		

Section B

Student Characteristics **(Please place a tick under the methodology you think most appropriate for developing each characteristic)**	**Traditional Teaching Methods**	**Traditional Teaching Methods Blended with E-Learning**
Team Work and Interpersonal Skills		
Ability to demonstrate Initiative and Leadership Skills		
Communication Skills - Verbal & Written		
Competence in chosen field		
Commitment to ongoing training and further education		
ICT skills and PC Literate		
Punctual, Good Time Management		
Motivated, enthusiastic and committed		
Respect for more experienced colleagues		
Good general Business Knowledge		
Investigation and Problem Solving skills		
Ability to determine Objectives and Goals		
Good Manners, Politeness, Courteous		
Strong Work Ethic		
Telephone Skills		

Any comments you wish to add: _____

_____

_____

_____

_____

Section C

Do you use an e-learning platform for the following?	**Yes**	**No**
To distribute course notes		
To distribute assignments		
To assess students using Quizzes		
To assess students using Multiple Choice questions		
As a notice board		
Discussion Boards		
Chat facility		

Do you agree with the following statements? (Please tick the appropriate box)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods.					
Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods.					

How many years have you been lecturing?	**No. of Years:**

Gender (Please tick the appropriate box)	**Male**		**Female**	

Any further comments you may wish to add: _____

_____

_____

10.6 Appendix VI - Survey for representatives from industry

What characteristics should students have if they are to be regarded as being prepared for work in industry?

_____

_____

_____

_____

_____

_____

_____

_____

_____

10.7 Appendix VII – Survey for students

A dissertation to be submitted in partial fulfilment of the requirements for the

Masters in Information Systems for Managers

Dear Student,

This questionnaire is part of a study to determine: Can e-learning be used to further improve the learning experience, to better prepare students for work in industry? The purpose of this questionnaire is to establish your views on the use of e-learning platforms to improve the learning experience of students. I would appreciate if you would complete this questionnaire as soon as possible.

Section A - Some background information on your access to technological equipment and use of e-learning.

Section B – The characteristics of students that representatives from industry have identified in order to classify students as being adequately prepared for work in industry are listed. Please tick the box for the teaching methodology (traditional teaching versus blended learning through the use of an e-learning platform) that you would think most appropriate for developing these characteristics in students.

Section C – Your views on e-learning, year of course and gender.

Please leave the completed form in the Computer Lab. for collection or return to the Helpdesk (room 2-071 on the second floor) or e-mail Eileen.ODonnell@dit.ie
Thanking you,
Eileen O' Donnell. Room 2-089, Faculty of Business, DIT, Aungier Street, Dublin 2.

Section A

These questions are to provide basic information which will be helpful in analysing the survey results.

Do you have access to the following resources:	**Yes**	**No**
Laptop		
Mobile Phone		
iPod		
MP4 player		
PDA		
Desktop PC at home		
Internet access at home		
E-Learning		
How many lecturers did you have last semester/year?		
How many employed the use of an e-learning platform?		
What % of your course was delivered through e-learning?		
If course content was available in audio format would you download it onto your iPod or MP4 player? (please tick)	Yes	No
Do you use an e-learning platform for the following?	**Yes**	**No**
To access course notes		
To access course assignments		
To partake in Quizzes		
To do Multiple Choice questions		
Access course information i.e. notice board		
To participate in Discussion Boards		
To communicate through the Chat facility		

Section B

Student Characteristics	Please place a tick under the methodology you think most appropriate for developing each characteristic.	
	Traditional Teaching Methods	**Traditional Teaching Methods blended with E-Learning**
Team Work and Interpersonal Skills		
Ability to demonstrate Initiative and Leadership Skills		
Communication Skills - Verbal & Written		
Competence in chosen field		
Commitment to ongoing training and further education		
ICT skills and PC Literate		
Punctual, Good Time Management		
Motivated, enthusiastic and committed		
Respect for more experienced colleagues		
Good general Business Knowledge		
Investigation and Problem Solving skills		
Ability to determine Objectives and Goals		
Good Manners, Politeness, Courteous		
Strong Work Ethic		
Telephone Skills		

Any comments you wish to add: _____

_____

Section C

Do you agree with the following statements? (please tick the appropriate box)	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Using an e-learning platform as a form of blended learning improves the learning experience of students more than using traditional teaching methods.					
Using an e-learning platform as a form of blended learning is better for preparing students for work in industry than traditional teaching methods.					

What level of study are you currently undertaking? (Please tick the appropriate box)	Certificate	
	Diploma	
	Degree	
	Postgraduate	
	Masters	
	Doctorate	

Gender (Please tick the appropriate box)	**Male**		**Female**	

Any further comments you may wish to add: _____

_____

_____

I wish to thank you most sincerely for taking the time to complete my survey. My dissertation will be available to view in the DCU Library. Contact details: Eileen.ODonnell@dit.ie

Regards,
Eileen. Room 2-089, Faculty of Business, DIT, Aungier Street, Dublin 2.

10.8 Appendix VIII – Written comments made by students and lecturers

Comments students wished to add after question on student characteristics:

- ‘An audio format would be a great idea to supplement written documents etc.’
- ‘Characteristics are a very individual thing, each person responds differently to either a teacher or online classes.’
- ‘A lot of it comes down to the quality of the lecturer or the quality of the online class.’
- ‘The greater the quality, the greater the respect and the greater development.’
- ‘Combination of traditional and e-learning methods probably the ideal.’
- ‘E-learning expected nowadays, if lecturers did not use would be unusual.’
- ‘E-learning is the best thing that ever happened for me. I have 3 young kids and can not afford a lot of time out of the house, but now I don't miss on further education!’ This particular comment was made by a student studying with Oscail.
- ‘I personally learn everything better through computers and I feel the weaker aspects of my course lie in the non-computer parts.’
- ‘The IT facilities in DIT Aungier Street are brilliant. It’s the way forward.’
- ‘They could be done by either but probably more efficient using e-learning.’
- ‘Those that I left blank were because I really don't know which would be better. Sorry!’

Comments students wished to add at the end of the survey

- ‘E-learning is not easy, classes are usually big and one teacher is not enough, it is quite intense.’

- ‘E-learning is useful but we will always need human interaction/an opportunity for students to talk face to face so that we can access our individual standard in comparison to the class i.e. Find out if everybody in the class is better prepared for an exam!’

- ‘Good Luck’

- ‘Good luck with the research’

- ‘I've never worked in industry so it is very difficult to know.’

- ‘I find e-learning good as an extra resource, to aid lecture material, but would be against too much assignments and internet only lectures.’

- ‘I recommend that all lecturers should use e-learning as well as lectures, as they give students a change to study from home if unavailable to attend college on any given day.’

- ‘I think if all lecturers were forced to use e-learning it would be a good way to keep a check on what the lecturer is actually teaching the class and is it suitable and relevant.’

- ‘I would have liked a "don't know" or "neigher agree nor disagree" category for some...’

- ‘And I think you might benefit from adding something on the inconvenience of e-learning, eg the isolation, difficulty of getting hold of help, admin problems etc.’

- ‘In case it invalidates the survey response, I am tutoring part time in an e-learning environment rather than studying; however I have experience of distance learning as a student also so I think the comments above are valid but please include or not in accordance with your research requirements.’

- ‘Is it WebCT’

Comments lecturers wished to add after question on student characteristics:

- ‘As teaching methods are continuously expanding. How do you define Traditional Teaching Methods, and other "Newer Methods" like Problem Based Learning etc. Where do they fit in in terms of the above student characteristics?’

- ‘Clearly certain characteristics are encouraged by face-to-face interaction. Some of the above characteristics are not purely linked to formal interaction.’

- ‘Copyright issues not resolved - i.e. who owns the material created and produced by lecturers through e-learning.’

- ‘Depends on what is meant by "e-learning"! Is it just WebCT/Webexone/Blackboard or similar or the wider internet e.g. Google, Wikipedia, Library Journals online etc?’

- ‘I do not believe that e-learning is an appropriate tool for 3rd level teaching. It runs contrary to the liberal notion of a university. It would also seriously undermine status of lecturers and researchers.’

- ‘I do not feel that I use e-learning to its potential. I have not had the time to engage with the technology enough to be comfortable enough to extend its use. I am aware that publishers have additional resources I could use, but am only adopting them one step at a time.’

- ‘I think e-learning is over-rated for some subjects especially the quantitative ones. Students need to see a lecturer do a question and have the opportunity for interaction.’

- ‘Leading Questions - This whole section is biased and does not make sense as respondents will invariably click the right hand column.’ This is an interesting observation, but one that I noted was not true, respondents did choose to click the left hand column also.

- ‘Many of the above skills are best learned in the work place and not in either a traditional teaching or e-learning environment.’

- ‘There is still a place for traditional methods. Interaction should be in class as well as via e-learning.’

- ‘Traditional face to face (f2f) best for initial introductory class meetings and scheduled f2f sessions throughout modules essential to enhance interactions and discussion.’

- ‘Unsure about some of the characteristics being measured.’

Comments lecturers wished to add at the end of the survey:

- ‘DIT creating division of labour and status (via 'research centres') between teaching and research staff. E-learning will further undermine teaching by

diluting intellectual copyright and making lecturers 'Disposable'. Plus, DIT will not provide sufficient protected time to develop and generate e-learning.'

- 'E-learning environment not facilitated in "timetable structures" in ITs (Institutions of Technology). Additional time required to develop e-learning materials not recognised. Need to include e-learning into "traditional teaching" programmes as a methodology in addition to other delivery modes.'

- 'E-learning platform shouldn't be used to distribute course notes. Shouldn't be a substitute for teaching. Should be used to supplement teaching - e.g. forum for distributing softcopy of journal article. Forum for distributing solutions to additional questions.'

- 'I don't think it improves performance/experience as students lose key skills of analysing material. They become over reliant on information provided and the assumption of its correctness, above all else.'

- 'Learning depends on connection between students and lecturer, method is only one facet. "E-learning" is overdone, it can't compensate for (1) Poor Lecturers (2) Poor Students

- 'Reliability of core IT functions essential - fancier stuff very prone to technical failure that wipes out any advantage from using it.'

- 'Thus bias on previous page'

- 'We need to follow students to these platforms!'

- 'Your questions appear very general, could you have considered other issues rather than black or white situation of traditional or e-learning'