The e-Learning Experience in First-Year Introductory Accounting and its Impact on Learning Outcomes

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ABSTRACT

The primary objective of this thesis was to improve the learning experience and academic outcomes in Victoria University's first-year introductory accounting unit; specifically in relation to the use of technology to augment traditional modes of teaching and learning. To achieve this, the Blended Learning Assessment Framework was devised and tested in the first year accounting unit. The application of this conceptual framework identified the extent to which e-Learning is currently used in this unit and its effectiveness in supporting the diverse needs of this student cohort.

The Blended Learning Assessment Framework considers student and staff readiness, as well as the intensity of adoption of each of style of delivery in its evaluation of the overall effectiveness on improving the quality of learning achieved. This framework was initially tested and applied in the first-year accounting unit, however, it has broad application in evaluating the overall impact and effectiveness across a range of learning options.

This is a longitudinal trend study and predominantly interpretivist in nature. It was conducted over four consecutive semesters with participation from teaching staff and students enrolled in this unit. It is a single case study with elements of action research. A mixed method approach was used and simple descriptive statistics were applied to analyse the quantitative and qualitative data collected.

Key findings:

- Despite the availability of three e-Learning options: viewing recorded lectures, viewing recorded tutorials and participating in online tutorials, students perceived traditional face-to-face delivery to be the most effective in improving their learning and assessment outcomes. Adopted with the highest level of intensity, students affirmed the importance of social interaction as integral to their learning. Of the online options, the viewing of recorded lectures was adopted with a moderate level of intensity, whilst the lowest level of intensity was for participating in online tutorials. Although these online options were not utilised to their full potential, students acknowledged that they had some effect in enhancing their learning and assessment outcomes.
- A possible relationship was found between the level of student engagement with online resources and their overall academic performance. The most significant increase in the overall pass rate coincided with the availability of all three online learning options to support the traditional modes of delivery. An improvement in the quality of the learning experience was achieved over the four semester period.
- In relation to the Blended Learning Assessment Framework, the assessment suggested that certain aspects of the university's blended learning approach could be investigated further, in particular, the level of staff and student readiness for different blended learning options.

DECLARATION

I, Lily Wong, declare that the PhD thesis entitled ”The e-Learning Experience in First-Year Introductory Accounting and its Impact on Learning Outcomes” is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signed

Lily Wong

6 February 2015

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Chinese Proverb:

"Tell me and I will forget. Show me and I may remember. Involve me and I will understand."

(Confucius, 551- 479 BC)

This proverb by Confucius not only reflects my approach to teaching but also describes my approach to studying over the past six years in working towards the completion of this thesis. This submission would not have been possible without the ongoing guidance and support of my Principal Supervisor, Associate Professor Arthur Tatnall and Associate Supervisor, Associate Professor Stephen Burgess, my deepest gratitude to you both.

Stephen, may I thank you for instilling in me the belief that I could take on this challenge and for your recommendation of Arthur as my Principal Supervisor. If it was not for our conversation back in 2007 on a train travelling to Nice, this PhD would not have eventuated. I have appreciated all the time you have taken out from your busy schedule to help me wherever and whenever I was in need. Arthur, may I thank you for attending to my numerous chapter drafts sent well after the midnight hours, for your detailed editing and helpful feedback to keep me on track. Our regular meetings over the last three months have been crucial to finalising my submission on time. It was so beneficial having a weekly deadline and I would walk away each week with a greater sense of achievement. I am very proud of what we have achieved as a team and the publication of our joint A* journal article in 2014 has been a career highlight.

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LIST OF PUBLICATIONS FROM RESEARCH

Refereed Journals and Publications

- Wong, L., Tatnall, A., & Burgess, S. (2014). A Framework For Investigating Blended Learning Effectiveness, *Education+ Training,* 56 (2/3), 233-251
- Wong, L., & Fong, M. (2014). Student Attitudes Toward Traditional And Online Methods Of Delivery, *Journal of Information Technology Education: Research,* 13, 1-13
- Wong, L. (2013). Student Engagement With Online Resources And Its Impact On Learning Outcomes, *Journal of Information Technology Education: Innovations in Practice*, 12, 129-146
- Wong, L. (2012). Student Attitudes Towards e-Learning: The First Year Accounting Experience, *Journal of Issues in Informing Science and Information Technology*, 9, 195-207
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- Wong, L. & Tatnall, A. (2010). Factors Determining the Balance between Online and Face-to-Face Teaching: An Analysis using Actor-Network Theory, *Interdisciplinary Journal of Information, Knowledge and Management*, 5, 167-176
- Wong, L., Manning, K. & Tatnall, A. (2010). Aspects of e-Learning in a University. *International Journal of Actor-Network Theory and Technological Innovation,* 2 (4), 43-52
- Wong, L. (2009). E-assessment: Its Implementation and Impact on Learning Outcomes, *Journal of Applied Research in Higher Education*, 1, (1), 49-61
- Wong, L. & Tatnall, A. (2009). The Need to Balance the Blend: Online versus Face-to-Face Teaching in an Introductory Accounting Subject, *Journal of Issues in Informing Science and Information Technology*, 6, 309-322

LIST OF PRESENTATIONS FROM RESEARCH

Presentations at National and International Conferences

Informing Science and IT Education Conference, Wollongong, July 2014

Informing Science and IT Education Conference, Porto, July 2013

Informing Science and IT Education Conference, Montreal, June 2012

American Accounting Association Conference, San Francisco, July 2010

Informing Science and IT Education Conference, Cassino, July 2010

Business & Economic Society International Conference, Bahamas, January 2010

Accounting & Finance Association of Australia & New Zealand Conference, Adelaide, July, 2009

Informing Science and IT Education Conference, Georgia, July 2009

AWARDS

Research Paper Awards

"Student Attitudes Toward Traditional And Online Methods Of Delivery"
Best Student Paper Scholarship - Informing Science and IT Education Conference, Wollongong 2014

"Student Engagement With Online Resources And Its Impact On Learning Outcomes"
Best Paper Award - Informing Science and IT Education Conference, Porto 2013

"Student Attitudes Towards e-Learning: The First Year Accounting Experience"
Best Paper Award - Informing Science and IT Education Conference, Montreal 2012

Teaching Awards

2010 Vice-Chancellor's Peak Award for Excellence in Teaching and Learning - Victoria University

2010 Vice-Chancellor's Citation for Teaching Excellence in Higher Education - Victoria University

2010 Outstanding Contribution to Student Learning - Australian Learning and Teaching Council

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KEY TERMS AND DEFINITIONS

Blended Learning

Blended learning is defined as “the organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies” (Garrison & Vaughan, 2008, p. 148).

e-Learning

e-Learning can be defined as “Learning facilitated and supported through the use of information and communications technology. It can cover a spectrum of activities from the use of technology to support learning as part of a ‘blended’ approach (a combination of traditional and e-Learning approaches), to learning that is delivered entirely online” (JISC, 2014). When e-Learning is combined with face-to-face instruction, the term ‘blended learning’ is commonly used. For the purpose of this thesis, it is within this context in which both these terms are used.

Elluminate

Elluminate is an interactive online communication tool which enables web conferencing with web, audio, video, and social networking to facilitate real-time collaboration between students and instructors. It may be used to review recordings of online tutorials.

Elluminate Live

Elluminate Live allows instructors and students to communicate and collaborate in real-time over the internet with their personal computer. To participate, the instructor and students enrolled in the session log in at a pre-determined time. Class content can be viewed or shared using word documents, PowerPoint presentations, web pages, media or other applications. It facilitates two-way communication via voice chat with a computer microphone with web-cam video or by text chat with other participants in the session. Elluminate Live is used to conduct online tutorials that can be recorded and reviewed.

WebCT

WebCT (Course Tools), also known as the Blackboard Learning System, is an online virtual learning environment system that is licensed to colleges and other institutions to be used as a platform for e-Learning. Instructors are provided access to web-based course tools which include discussion boards, mail systems, live chat, in addition to course content which may comprise documents and web pages.

Learning Management System

A Learning Management System (LMS) is a software application for the administration, documentation, tracking, and reporting of training / education programs for e-Learning and blended learning (Ellis, 2009). It is a virtual learning platform used for the implementation of web-based learning. WebCT and the Blackboard Learning System are examples of a learning management system.

Lectopia

Lectopia is a web-based technology which allows the automated recording of audio and visual elements of face-to-face lectures for web delivery which are processed into a variety of streaming formats Recording options can either be audio only or audio-visual which captures visual images from the computer or document camera. Recordings are accessible via streaming, downloading to computers and mobile devices or accessible as podcasts (Gosper et al., 2008).

Staff / Teacher / Instructor / Faculty

In this thesis, the terms: *staff, teacher, instructor* and *faculty* appear in journal articles and text cited. All of these terms are taken to mean to the same and are used interchangeably.

Unit / Subject

In this thesis, the terms *unit* and *subject* appear in journal articles and text cited. Both of these terms are taken to mean to the same and are used interchangeably.

CHAPTER 1
INTRODUCTION AND BACKGROUND

1.1 Overview

There is an increasing demand and expectation for universities to incorporate greater levels of technology into the design and delivery of their curriculum. The rapid development of new technologies has placed academic staff under constant pressure to react to these significant changes within a very short and often unrealistic time-frame. As stated by Bates and Poole (2003, p. xiii)**,** one of the major challenges of teaching with technology is that, "You cannot possibly keep up with the technology. The paradox of technology enhanced education is that technology changes very rapidly and human beings change very slowly".

From an academic perspective, it is of significant interest to determine whether the increased use and availability of online teaching resources have made a positive impact on students' perception of a first-year unit, their academic performance and whether this is reflected in improved learning outcomes.

This is a case study with elements of action research which documents the technological changes implemented in Victoria University's largest accounting cohort. The first-year introductory accounting unit is compulsory for students undertaking a Bachelor of Business. The enrolments in this unit were in excess of 800 local students during each of the four consecutive semesters in which this research was conducted, commencing Semester 1/2010 through to Semester 2/2011.

The students enrolled in this unit are a very diverse group both academically and culturally. It is therefore important that appropriate teaching material is developed with an understanding of the differences among these students. The introduction of e-Learning and online resources enables a greater degree of flexibility in providing additional support for these students. Due to the considerable amount of time and effort invested in the design, development and implementation of suitable online resources to support student learning in this unit, validation of its educational value is sought.

As the unit coordinator, this generates my personal and professional interest in the issues associated with e-Learning and improving the student learning experience. These include questions which arise as to how well academic staff and students have responded to these technological advances, the nature of the e-Learning resources available, the extent to which they are used and how effective they are in the teaching and learning environment. This constitutes the action research element of this thesis by identifying areas in need of improvement, to seek feedback from staff and students and implement, where possible, to enhance the first-year teaching and learning experience.

A positive student experience in the first year of study is considered vital as it is highly influential in creating a favourable impression of the university. By enhancing its profile, it may attract new students and retain existing students. Providing the necessary learning support may enhance students' perceptions of successfully completing this unit. This may potentially improve retention rates and the level of student satisfaction associated with first-year accounting. Under the current Australian Government demand-driven entitlement system for domestic higher education students, high retention rates are crucial for Australian universities. As it is a demand-driven system, the funding follows student demand. Therefore, if a student decides to leave their current university and transfer to another university to complete their course, the government funding will follow the student (Bradley, Noonan, Nugent, & Scales, 2008).

1.2 Statement of Significance

To identify the extent to which e-Learning is currently used in this first-year accounting unit and its effectiveness in supporting the needs of this student cohort, a conceptual framework will be devised to evaluate the level of adoption and impact of blended learning options. This will be applied to provide an insight on students' and academic staff perceptions of the extent to which e-Learning supports and enhances their learning and teaching experience. It is intended that the findings will provide a useful contribution to academics' understanding of students' perceptions, facilitating the development of strategies to stimulate and motivate students to engage with the teaching–learning environment.

The research seeks ways in which a more expansive and empowered use of computer technology can be incorporated in the teaching and learning process. It will investigate the staff and students perceptions of the usefulness of the technology used in the delivery of this unit, as well as the level of engagement with the new online options made available to support them. The increased use of technology in this unit and its potential impact on the student learning outcomes will also be examined. Enhancing the students' experience and providing support in their early stages of their university education may increase the level of student satisfaction and improve retention rates in this introductory accounting unit.

With the changing nature of accounting education, Rebele (2002) highlighted the importance of research specific to the effective use of technology in accounting education. Reviews of accounting education literature from 2000 to 2009 conducted by Watson, Apostolou, Hassell, and Webber (2003), Watson, Apostolou, Hassell, and Webber (2007) and Apostolou, Hassell, Rebele, and Watson (2011) highlighted the need for empirical studies into the effectiveness of using technology in accounting education. With the increasing prominence of blended learning in higher education (Bonk & Graham, 2006), the need for this research has become more prevalent. In their most recent literature review on technologies used in accounting education, Apostolou, Dorminey, Hassell, and Watson (2013) noted that there has been a shift in the type of articles written about educational technologies. In previous years, the main focus was on distance education, however, the majority of the current education technology articles are related to technologies used to support coursework, both traditional and distance courses. In their suggestions for future research, the studies of students were considered important as they would provide some insight into practices that have worked well as well as those in need of improvement. This knowledge would enable opportunities for the next generation of practitioners and academics to better prepare for the challenges ahead. The authors also make reference to constantly changing nature of the technological infrastructure of education. The relevance and need for specific areas has become even greater with increasing popularity of online courses and the widespread use of publicly available online content. It would be of interest to accounting education researchers to identify which online resources are appropriate to maximise learning and how they affect student learning. "It seems that as technology evolves, accounting educators will probably spend less time creating content and more time identifying appropriate online content to use. The opportunities for rigorous research regarding how alternative media facilitate learning are extensive" (Apostolou et al., 2013, p. 148 & 150).

By addressing some of the key issues associated with the implementation of e-Learning and evaluating its impact on learning outcomes, this thesis contributes to this current gap in research. The knowledge acquired through this research would be utilised in the development of more customised online teaching resources specific to the needs of our students.

This thesis on "The e-Learning Experience in First-Year Introductory Accounting and its Impact on Learning Outcomes" is aligned with Victoria University's vision as outlined in VU's Strategic Plan: "To Be A Great University Of The 21st Century 2012-2016, Excellent, Engaged and Accessible". The focus of this research is of particular relevance to the first of the six strategic pillars, namely "The Victoria University Curriculum and Student Experience Strategy relating to point 4 - Blended and e-Learning delivery strategy: to develop a blended and e-Learning strategy to implement a systematic approach to developing the range of blended delivery strategies, including e-Learning, required to meet the diverse learning needs and preferences of our learners. This will enhance the student learning experience and augment the teaching profile of Victoria University's largest accounting unit**.** The findings of this research will also provide an insight into:

- effectiveness in assisting learning and improving assessment outcomes
- usefulness of online resources and quality of unit website
- level of student satisfaction with learning experience
- level of engagement with online resources
- impact on learning outcomes

1.3 Purpose and Objectives of Research

The studies of Mladenovic (2000) and Mintz and Cherry (1993) suggest that changes in accounting education should begin with the very first unit in accounting as it not only sets the tone, but also provides the foundation for further interest in accounting studies. The students enrolled in the first-year core accounting unit are a very diverse group, comprising accounting and non-accounting students from a broad spectrum of business degrees which range from music through to marketing. It is important that the curriculum material is developed with an understanding of the differences among these students. Nelson, Kift, Humphreys, and Harper (2006) identified that students in their first year have special learning needs arising from the social and academic transition they are experiencing. From multiple starting points, all students are on a journey to becoming self-managing and self-directed learners and the first-year curriculum must help get them there. To this end, the introduction of e-Learning and online resources provides greater degree of flexibility in providing support for the diverse demands of our students. These are some of the key issues which have led to this current area of research, with the aim to produce a framework for the effective delivery of e-Learning in first-year accounting education.

Ginns and Ellis (2007) acknowledged the increasing pressure for greater integration of new technology into the student learning experience. One of the significant challenges is finding appropriate ways of evaluating the extent of their contribution to quality learning experiences. This study refers to the extensive research into quality student learning in higher education conducted by prominent researchers in the field which include: Entwistle and Ramsden (1983), Prosser and Trigwell (1999) Biggs (2003) and Ramsden (2003). The outcomes from their research identify key concepts related to quality learning in higher education. These concepts are incorporated into Entwistle's Conceptual Framework Indicating Influences on Student Learning (Entwistle, 2003) which are discussed in Chapter 4. The concepts relevant to this thesis have been extracted from Entwistle's Conceptual Framework and presented in Figure 1.1.

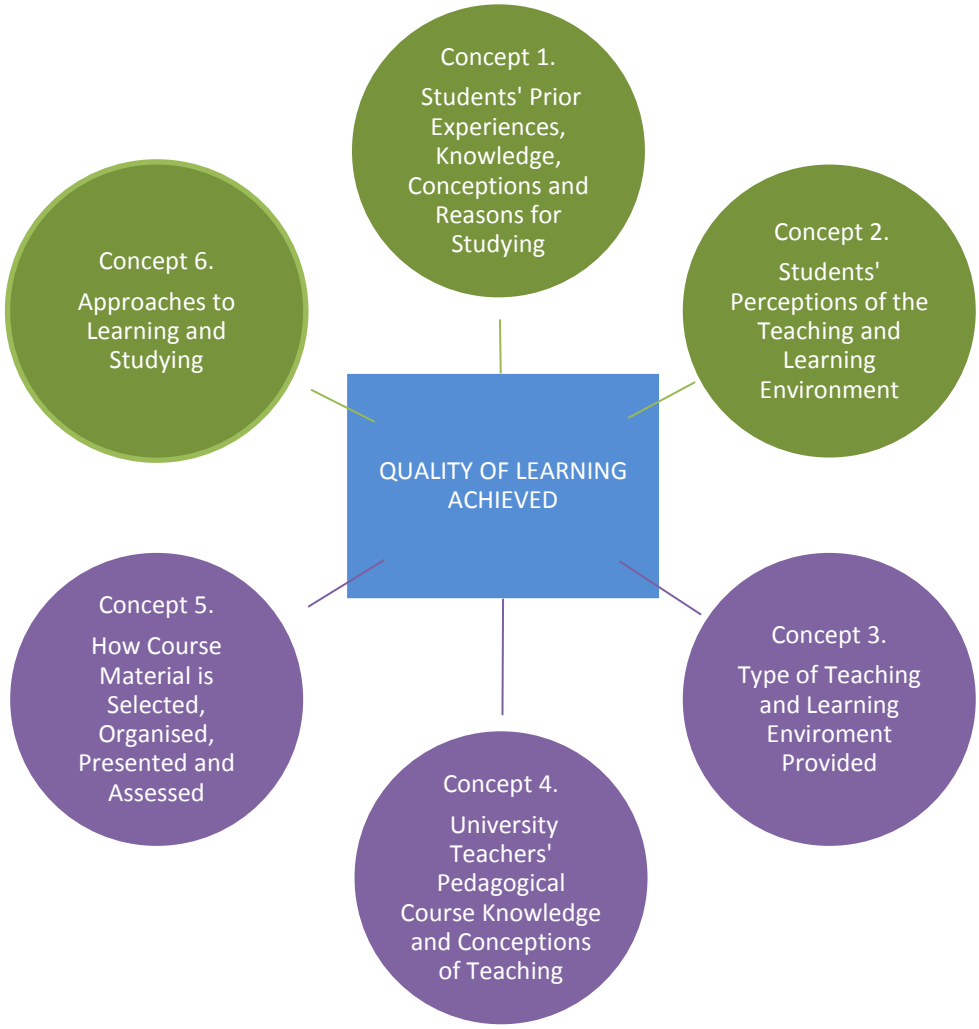


Figure 1.1 Concepts Related to the Quality of Learning Achieved extracted from Entwistle (2003, p. 1)

The primary objective of this thesis was to improve the learning experience and academic outcomes of Victoria University's first-year accounting students; specifically in relation to the use of technology to augment traditional modes of teaching and learning.

To evaluate the overall effectiveness of e-Learning and its potential impact on learning outcomes, the Blended Learning Assessment Framework, which incorporates concepts relating to quality of learning, blended learning and adoption theory, was devised and tested in the first year accounting unit.

The application of this conceptual framework identified the extent to which e-Learning is currently used in the delivery of this unit and its effectiveness in supporting the diverse needs of this student cohort. This research documents the technological enhancements implemented during the four semester research period and examines its impact on student learning outcomes.

1.4 Research Question

As the aim of this research involves investigation into the e-Learning experience in first-year introductory accounting and its impact on learning outcomes, the key research question is two-fold:

1. What is the perception of the e-Learning experience in first-year accounting?
2. How has the e-Learning experience impacted upon learning outcomes?

To answer each of these key research questions, the following sub-questions will be addressed**:**

1. **What is the perception of the e-Learning experience in first-year accounting?**
   - *What are the student attitudes towards e-Learning?*
   - *What are the teaching staff attitudes towards e-Learning?*

2. **How has the e-Learning experience impacted upon learning outcomes?**
   - *What is the level of engagement with the technology used in first-year accounting?*
   - *How does the level of engagement affect student learning outcomes?*
   - *How has the use of technology improved learning outcomes?*

These research questions were developed to assist with the development and refinement of the conceptual framework, the Blended Learning Assessment Framework. It takes into consideration student and staff readiness, the intensity of adoption of each of style of delivery in its evaluation of the overall effectiveness in improving the quality of learning achieved. This framework was initially tested and applied in the first-year accounting unit, however, it has broad application in evaluating the overall impact and effectiveness across a range of learning options.

The preliminary literature reviewed identified various areas of research in need of further investigation. However, there were two areas in particular that had ample scope for research to be undertaken: investigating how educational technology contributes to improvement of accounting education and examining the context in which the application of the technology results in more effective and efficient learning (Apostolou et al., 2013; Apostolou et al., 2011; Rebele, 2002). The research questions for this thesis fall within the categories identified and address the issues considered by the aforementioned reviewers, as a valuable contribution to existing literature in accounting education.

1.5 Research Design

This study is predominantly interpretivist in nature with some elements of action research. The method for this research is a case study approach involving the assessment of a blended learning approach to the delivery of a first-year undergraduate accounting unit at Victoria University, located in Melbourne, Australia. It is a single case study with multiple instances of data collection and multiple forms of data collection that evaluates various online approaches to delivery over a four semester period commencing Semester 1/2010 to Semester 2/2011. This is a longitudinal trend study using a descriptive research approach. The results are drawn from a survey specifically designed to identify students' and staff attitudes towards blended learning and gain an insight into the effectiveness of online options in improving student learning outcomes.

1.6 Development of Conceptual Framework

In order to address each of the research questions, it was necessary to consider three elements to be incorporated into the design of the conceptual framework: the type of the blended learning options available, the perceptions of these options and the quality of learning achieved.

To categorise the type of blended learning options, Jones' Continuum of Blended Learning (N. Jones, Chew, Jones, & Lau, 2009) was used to classify the levels as: basic information and communications technology (ICT) usage, E-enhanced, E-focused or E-intensive. It was also necessary to take into account the student and staff perceptions of the usefulness of these blended learning options as their perceptions would have an impact on the level of adoption and utilisation for each of the options.

The OECD e-Business Indicator Framework (OECD, 2005) was deemed an appropriate model to deal with this aspect as it identifies three different stages of adoption: readiness, intensity and the impact of adoption. The e-Business Indicator Framework was adapted for higher education. The elements from these two models were merged with the Concepts Related to the Quality of Learning Achieved (Entwistle, 2003) shown in Figure 1.1.

This integration formed the basis of the conceptual framework developed in this thesis, the Blended Learning Assessment Framework which may be used to evaluate the overall effectiveness of blended learning options compared to traditional approaches of teaching and learning, and its potential impact on learning outcomes.

The initial focus of this research was to enhance the teaching and learning experience for our first-year accounting students with e-Learning. However, the usefulness of the conceptual framework will have a broader application to other units within the university and in other teaching institutions. The findings will be summarised in the Blended Learning Assessment Framework shown in Chapter 8.

Input from staff and students will help determine the optimal level of e-Learning to be used in the delivery of the unit. The framework will also provide a reference point to aid in the alignment of e-Learning resources to support the needs of its student cohort.

1.7 Structure of Thesis

The thesis is organised into 9 Chapters and 5 Appendices. A summary of the chapters and appendices are provided below in Table 1.1 and Table 1.2 respectively.

Table 1.1 Summary of Chapters

CHAPTER	SUMMARY
1	The introduction provides an overview of the research. It provides the background, research problem, research method and methodology and its contribution to knowledge.
2	Relevant literature on the use of educational technology in accounting education from 2000 to 2014 is reviewed in this chapter.
3	An overview of the changes in Higher Education and the trend towards blended learning is provided in this chapter.
4	An overview of key teaching and learning concepts, adoption theory and the development of the conceptual framework is provided in this chapter
5	The research method and methodology, research philosophies as well as data collection and data analysis for this study is outlined in this chapter.
6	Characteristics of the case study and the findings from the analysis of responses from the student surveys on their perceptions of the e-Learning are presented in this chapter.
7	The findings from the analysis of responses from the staff surveys on their perceptions of the e-Learning are presented in this chapter.
8	The findings from Chapter 6 and 7 into the Blended Learning Approach Framework are integrated into this chapter.
9	The conclusion provides a summary of the research undertaken, limitations and implications for future research.

Table 1.2 Summary of Appendices

APPENDIX	DESCRIPTION
A	Graphs and Tables for Chapter 6
B	Graphs and Tables for Chapter 7
C	Student Survey
D	Staff Survey
E	Staff Focus Group Questions

An overview of the structure of the thesis is provided in Figure1.2.

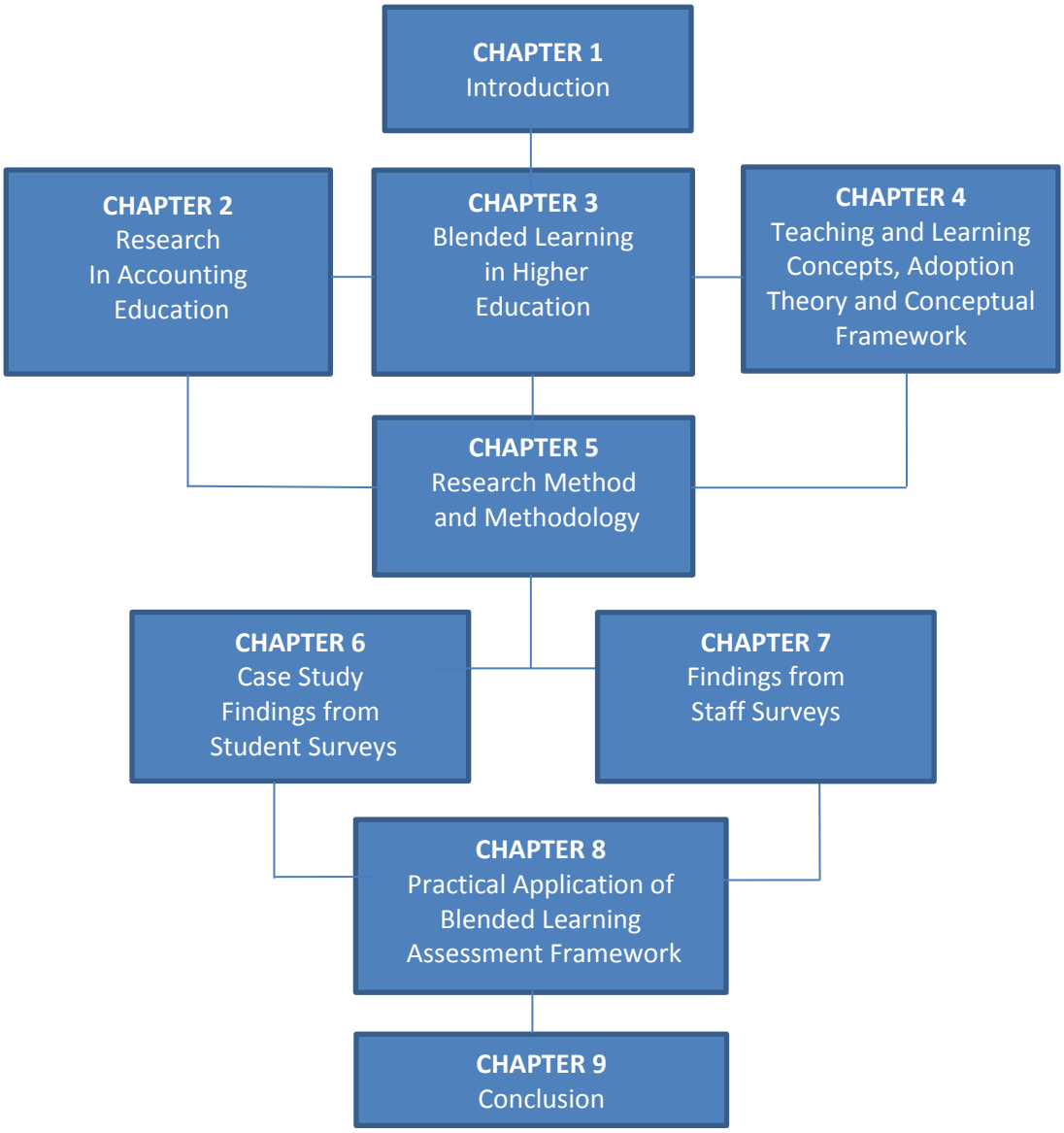


Figure 1.2 Structure of Thesis

As shown in Figure 1.2, the next chapter will be the first of three chapters reviewing the literature relevant to this thesis. The literature review will be conducted in the following order to address the issues pertinent to the research questions. The initial chapter will focus on the literature relating the use of technology in accounting education from 2000 to 2014 to identify the literature gap to which this research contributes. The following chapter will provide an overview of higher education, its function, characteristics and the changes that led to the growing trend toward blended learning. The last of these three chapters will cover fundamental educational concepts and their influence on the quality of student learning outcomes. Models of adoption relevant to the introduction and usage of technology into a blended learning environment will also be discussed. This final section chapter will commence with a summary of the literature review and conclude with the development of conceptual framework used in this thesis.

CHAPTER 2
OVERVIEW OF RESEARCH IN ACCOUNTING EDUCATION 2000 - 2014

2.1 Introduction

The following three chapters constitute a review of the literature relevant to the e-Learning experience in the first-year introductory accounting unit at Victoria University and its impact on learning outcomes. As this literature spans across several distinct areas of research, it has been necessary to categorise into the following three broad areas: the present chapter, Chapter 2 Research in Accounting Education, Chapter 3 Blended Learning in Higher Education and Chapter 4 Educational Concepts and Adoption Theory. In accordance with the scope and nature of this topic, the primary focus of this chapter will be literature relating the use of technology in accounting education. As a significant amount of research in technological advances in education commenced from 2000 onwards, the scope of the present literature review been confined to the period 2000 to 2014. This has been further refined to articles that relate to research on e-Learning in accounting education within higher education. Articles located from business disciplines other than accounting education, if considered relevant, were also included.

This review of the accounting education literature includes journal articles published from 2000 to 2014 from six prominent accounting education journals:

- Journal of Accounting Education
- Accounting Education: An International Journal
- Advances in Accounting Education
- Global Perspectives on Accounting Education
- Issues in Accounting Education
- The Accounting Educators' Journal

The articles in this chapter have been classified according to applications of technology and other themes emerging from the literature. This list of categories includes: podcasting, online homework management systems, use of clickers, digital video technology, virtual learning environments, assessment and feedback, computer based instruction and interactive applications.

2.2 Podcasting

The use and effectiveness of podcasting in introductory financial accounting courses has been documented by Rich (2012). Exercise-based video podcasts were designed to guide students through problems based on material covered during traditional lectures. The effectiveness of the podcasts was evaluated by comparing scores on five multiple-choice questions between students in a treatment group who had access to the podcasts and a control group without access to podcasts. Lectures for both groups were identical and were administered by the same instructor. Use of the podcasts by the treatment group was optional. Students with access to the podcasts scored higher on one of the five multiple choice questions. A second evaluation of the podcasts was made through a survey of students who had access to the podcasts in another semester. Students reported that the podcasts were useful, even when only portions or some of the podcasts are viewed. Rich's study reported high levels of student satisfaction in terms of the impact on their exam performance.

An alternative approach was taken by P. Richardson, Dellaportas, Perera, and Richardson (2013) who assessed students' attitudes and the benefits associated with the use of iPods and podcasts within an online learning environment. Their findings reported that portability was perceived to be the primary advantage of iPods, as it facilitated efficient and effective use of time and study. They also found that students with a preference for visual learning rated the iPod as being important to their learning.

2.3 Online Homework Management and Intelligent Tutoring Systems

Student perceptions of web-based homework (WBH) software was investigated by Khanlarian, Shough, and Singh (2010). Their study examined the change in student perceptions over one semester using five criteria: ease of use, usefulness, fun value, reliability and importance. Students in introductory accounting were surveyed three times during the semester to measure their perceptions: after seeing a software demo at the beginning of the semester, half way through the semester, and at the end of the semester. The mean score of all five criteria was compared across time periods, resulting in 15 comparisons. The following changes in perceptions about the software were observed in at least one of the three time periods; increase in usefulness and reliability, decrease in importance and ease of use, and increase in fun value. A subsequent study by Khanlarian and Singh (2014) explored the factors that influence student performance in a (WBH) learning environment. The results of their study indicated that student perceptions of technology, the use of technology and feelings of frustration all have significant effects on student performance.

The authors suggest that even though students taking online courses have had previous experience with technology, they should be offered some tutorial support or training if they are to succeed. It was also advised that working with other students would also reduce their level of frustration the WBH learning environment and improve their academic outcomes.

The impact the online homework management system upon learning outcomes was addressed by a number of articles. A comparison of student performance and course satisfaction between two large groups in an introductory financial accounting course was conducted by Gaffney, Ryan, and Wurst (2010). The students in one group used an online homework management system (OHMS), whereas the students in the other group used traditional homework methods. This study compared several performance measures and a general course satisfaction survey across the two groups of students. Both groups attended lectures twice a week with the same professor, completed the same assignments, and took the same tests. Performance measures included grades on a set of in-class exams, pre-lecture quizzes taken at home, homework, a written ethics case, a comprehensive problem, class average and course satisfaction. The results indicated that students in the OHMS course performed significantly better on the written ethics case and on the comprehensive problem. The other student performance variables and the level of course satisfaction were not significantly different between the two groups.

Positive results were also reported by F. Phillips and Johnson (2011) in which a quasi-experiment was conducted to compared the learning effects of online homework systems with the learning effects of intelligent tutoring systems (ITS). The participants were undergraduate financial accounting students and focused on the student's ability to learn transaction analysis and recording. Their study was found that students' transaction analysis and exam performance increased at a significantly faster rate when they used the ITS. This was attributed to two features inherent in the ITS format: detailed feedback and support throughout the problem-solving process. However, contrasting results were found by Hahn, Fairchild, and Dowis (2013) in their evaluation of the performance benefit associated with the use of these two supplemental teaching tools. The online homework manager (OHM) and an intelligent tutoring system (ITS) were employed independently as an additional study aid for one group of students in an introductory financial accounting course. Another group used paper-and-pencil only and served as a control group. Results of tests on several performance measures did not identify a learning advantage associated with either the OHM or the ITS. It was also reported that there was no learning advantage identified when this study's results were compared to exam results from 14 previous semesters.

2.4 Use of Clickers / Audience Response Systems

The effect of clickers on student perceptions was examined In a subsequent study by Edmonds and Edmonds (2010). These related to: (1) an active learning environment, (2) an efficient learning environment, (3) offering meaningful feedback, (4) motivating, and (5) developing communication and teaming skills. The participants were students in two managerial accounting classes taught by the same instructor at one university using the same lectures and grading schemes. Both classes were given questions during class that were projected onto a screen: the experimental group responded using the clicker device, the control group answered on paper. For the control group, feedback for the questions was given verbally and for the clicker group, feedback was provided by discussing the polling results. The results showed that the clicker group rated the following two statements significantly higher than the non-clicker group (1) active learning environment, and (2) efficient learning environment.

A comprehensive 'how to' and 'why' guide was devised by Carnaghan, Edmonds, Lechner, and Olds (2011) for accounting educators and faculty considering the use of Student Response Systems (SRS) in teaching accounting. Their study reviewed and synthesised related experimental literature on SRSs and found that whilst students were satisfied with the use of clickers, there was little evidence for improvement in learning. However, there were several articles found in this review of literature that provided some support that the use of this type of technology has made a positive impact on learning outcomes. The effect of student response system (SRS) technology upon student exam performance was investigated by Edmonds and Edmonds (2008). A quasi-experiment was conducted using six introductory managerial accounting courses. Three courses were taught using SRS technology and three were taught without using SRS technology. The students in the SRS courses performed on average 3.15 percentage points better than students in the non-SRS courses after controlling for age, gender, prior Grade Point Average (GPA) and American College Testing (ACT) score. SRS technology was more beneficial to students with the lowest prior GPAs. This study found evidence that SRS technology helped these low-GPA students without having a negative effect on high-GPA students. Significant improvements in the overall student exam performance were also reported by Premuroso, Tong, and Beed (2011) when using clickers as compared to traditional classroom teaching techniques in teaching the introductory financial accounting course. The control group took unannounced pencil and paper quizzes. The treatment group took similar quizzes using clickers, viewed and discussed polling results. Overall, the study showed that students who used clickers were satisfied with their use.

A study on the use of clickers by Eng, Lea, and Cai (2013) reported an improvement in students' test scores in an introductory financial accounting course. Their results showed that the students had a positive experience with using clickers and the test scores were higher in the semester when clickers were used. It was also found that clicker scores also were positively associated with students' test scores. The authors regarded clickers as a useful educational tool to assess assurance of learning. It provides the instructor immediate feedback regarding students' understanding of the materials and the students also receive feedback about whether their understanding is adequate. Both the instructor and students can then work on materials in need of review.

The relationship between the use of a Student Response System (SRS) and course performance was examined by Chui, Martin, and Pike (2013). They investigated how using SRS influences student confidence and time spent studying outside of class. Higher in-class performance on multiple-choice quizzes was found for students using SRS. Students using SRS were more confident and spent less time studying for the course. However, no significant differences in examination performance or overall course performance were found for students using SRS.

2.5 Digital Video Technology

Mahoney and Welch (2002) described the use of personal computer movies to deliver course content in accounting information systems. Student attitudes were very positive, with 96% of respondents indicating that the personal computer movies were perceived as indispensable or very beneficial.

The use of digital video in teaching accounting was explored and documented by Holtzblatt and Tschakert (2011). In their opinion, digital video technologies such as online video clips, student video projects, and online video lectures have great potential in accounting education. Teaching ideas are presented within this article to facilitate video integration into accounting courses. The pedagogical benefits of using video, including those from general education and accounting literature are also discussed. A listing of recommended videos useful to teach a wide range of accounting topics is provided. A similar study was conducted on the use of YouTube and iTunes by Fessler (2011) that reports on his experiences with using digital media to make audio and video lectures. These were made available to students to help them learn about important managerial accounting concepts. Students valued the digital resources and attendance was not compromised due to the availability of the audio and video lectures.

The impact of online tutorials on exam and course grades was addressed by Sargent, Borthick, and Lederberg (2011). Their study on the use of ultra-short online videos in an accounting principles course aimed to address three common reasons for poor performance: intimidating class environments, low aptitude, and low motivation. Students using the online tutorials had significantly lower course drop-out rates and better pass rates. The online tutorial use was correlated with higher exam scores, although the effect was moderate. Based on analysis of the two-year periods before and after implementation, the use of online tutorials was correlated with higher course grades.

Rudolph and Milkman (2002) studied the impact of interactive television on learning used in an accounting course. It was reported that only 17% of students, if given the choice, would choose this mode of learning again. Similar results were found in study conducted by Halabi, Tuovein, and Maxfield (2002) on student attitudes toward tele-teaching and traditional face-to-face contact in an introductory accounting unit. Their survey results indicated that most students expressed a preference for the traditional face-to-face lecture.

Vamosi, Pierce, and Slotkin (2004) examined student attitudes toward classes that rotated between live lectures and lectures distributed via the Internet. They found no significant differences regarding student attitudes toward the technology, but found that course satisfaction declined significantly after the introduction of streamed lectures in an accounting principles course.

An innovation incorporating digital storytelling into a first-year introductory financial accounting course was documented by Suwardy, Pan, and Seow (2012). The story revolves around three young graduates embarking on a business venture together and chronicles the progress of their entrepreneurial endeavours. It involves conducting market research, formulating a business plan, as well as considering different ways to finance and start their business. This approach demonstrated the importance and practical application of accounting information in the business decision making process. An online survey was used to evaluate the project. Qualitative feedback indicated that this approach enabled an interesting, fun, engaging, interactive and dynamic way of learning. Students appreciated the opportunity to contextualise the technical content of the course in a business venture. The authors concluded that digital storytelling, as a pedagogical tool, can engage students' visual and auditory senses in a way that traditional text cannot convey.

2.6 Virtual Learning Environments / WebCT

Students' perceptions of Virtual Learning Environments (VLE) was examined by Love and Fry (2006) to determine if its use enhances their learning experiences. The authors caution that if it is used solely to disseminate information, it only encourages a dependent and surface approach to learning. It is recommended that tutors should take a more active role to develop strategies that stimulate and motivate, to engage rather than alienate students from the learning process. A similar study was conducted by López Gavira and Omoteso (2013) that assessed accounting students' perceptions of the usefulness of Virtual Learning Environments (VLE) to their learning experiences. It also considered the factors that may influence students' preferences for the VLE compared to face-to-face learning. The study surveyed final-year undergraduate accounting students in two universities, one in Spain and the other in England. The results showed that students from both countries found VLE tools and techniques useful for their learning.

The use of *Second Life™*, a three-dimensional virtual world, to engage students in learning accounting was investigated by Hornik and Thornburg (2010). Their research explains in *Second Life™*, an accounting classroom allows students to watch video lectures, use a message board for students and another for the instructor and view a calendar of due dates. The paper details the use of an interactive accounting equation and T-account model. Results found that student engagement via *Second Life™* was positively related to students' score on their first exam. However, results also indicated a reduction in performance if students had adverse reactions such as dizziness or nausea to this immersive virtual world environment.

The link between the students' use of different forms of online course resources and the final examination performance of students in a second year undergraduate accounting course was investigated by Perera and Richardson (2010). The use of online resources over two semesters was measured by: number of sessions, time spent on the website, number of file views, number of accessed Web links, number of posts on a message board and number of read posts by others. Their findings indicated a positive association between the number of online files viewed by students, the number of online discussion messages posted by them and their examination performance. A significant relationship was not found between examination performance and the amount of time spent on the subject's web site, the viewing of links to web sites that were not core to the course being studied, or the passive reading of discussion messages. These findings support the benefits to be gained by providing course materials online and encouraging students to access the materials posted and to participate actively in online discussion.

The development of a 'Virtual Office Hours' (VOH) platform using Skype to enhance opportunities to engage students in their learning beyond the classroom environment was documented by Lillie and Wygal (2011). The VOH was implemented in auditing and intermediate accounting courses to improve the lines of communication between the student and instructor. Informal feedback indicated that students perceive the use of VOH to be a meaningful indicator that the instructor truly cares about their students and their learning. The authors recommend the VOH approach to be adopted by accounting educators as the rapport established may enhance student learning and teaching effectiveness.

There were several studies on the student perceptions of specific features or functions of WebCT. Student attitudes toward design features and attributes of WebCT was examined by de Lange, Suwardy, and Mavondo (2003) to determine its effect on student motivation in an introductory accounting course. They found that specific features of WebCT, such as the provision of lecture notes, use of bulletin board, online assessment significantly influenced the level of student satisfaction. Research by Love and Fry (2006) and Wells, de Lange, and Fieger (2008) examined the use of Blackboard as a supplement to classroom instruction in accounting courses. Both studies found that lecture notes and content availability and announcements were the strongest predictors of overall perceptions of the course management system.

Rainsbury and Malcolm (2003) conducted research in an intermediate accounting course to determine whether students perceived the use of an online discussion board as beneficial to their learning. Whilst results showed the use of the discussion board contributed positively to students' perception of increased learning, this had an insignificant impact on their final exam performance.The relationship between MBA students' performance and participation in two online environments: a synchronous forum (chat room) and an asynchronous forum (discussion board) was examined by Duncan, Kenworthy, and McNamara (2012). The *quality* and *quantity* of students' participation was used to predict their final examination and course grade performance outcomes. It was found that the total *quality* of students' participation was positively related to final examination performance but the total *quantity* of students' participation was related to overall course performance. It was also found that synchronous engagement with the course (combined *quality* and *quantity*) had twice the examination and grade impact relative to asynchronous course engagement. The study concluded that encouraging high quality and frequent participation in both synchronous and asynchronous forums would help maximise students' performance.

Halabi and de Lange (2011) examined student perceptions of the usefulness of online course materials available through WebCT in an introductory accounting unit. During a single semester, students from a variety of Australian and international campuses and some online distance education students were asked to complete the survey. Two open-ended questions were posed to determine student opinions using WebCT for online learning and for communication. Of particular importance was whether students felt that WebCT provided the key interactive opportunities for effective teaching and learning. Results showed that students overwhelmingly felt that WebCT was useful and provided efficient interactions between the content and the learner. The potential for effective interactions between the instructor and the learner via WebCT was also noted. Findings include estimated time spent on WebCT, most useful features of WebCT and ways to improve use of WebCT.

Czaja and Cummings (2010) provided a template for implementing competitive online case presentations as a means of promoting student interaction in an online course. A template is provided to guide faculty who would like to incorporate a similar strategy. The authors assert that case presentations enable students to apply content knowledge, develop communication skills, and interact with peers. This structured online interaction is used along with competition to produce the engagement that might result from more informal interactions in a face-to-face class.

The use of information and communications technology by undergraduate students and their views regarding Internet use in accounting programs was studied by N. Marriott, Marriott, and Selwyn (2004). Students expressed their preference for a face-to-face educational experience and indicated that they would only endorse Internet usage that supported the traditional delivery of courses. Students acknowledged the value of the social interaction and the communication skills they acquired from the classroom environment. Decreased social contact and the potential isolation of students learning on their own was a primary concern raised in this study.

2.7 Comparison of Face-to-Face and Technology Enhanced Options

Borthick and Jones (2000) reported on their experiences with designing and conducting a synchronously-delivered information systems assurance course. Their findings indicated that student reactions generally were positive but no differences in student performance when compared to a classroom based section of the course were found.

A three-way comparison of student preferences for blended, online only and face-to-face only was conducted by Felix (2001). Distraction combined with the absence of teacher and personal interaction were noted as the key disadvantages of an online oriented approach. It also showed that students had a general preference for blended learning with online facilities used as a supplement to face-to-face activities.

Chen and Jones (2007) and Jones and Chen (2008) compared two blended with two traditional classroom courses in a MBA-level managerial accounting course. In their earlier study, Chen and Jones (2007) found whilst students in the blended courses reported higher levels of learning, the students taught in the classroom thought the course instruction had greater clarity. Although students in the blended course found the format to be less effective than students in the classroom course, they indicated their interest in taking more blended courses in the future. In their later study, K. T. Jones and Chen (2008) found that students in the blended learning format reported better access to and contact with the instructor, but were concerned about instructor presentation of material and student-to-student interaction during online meetings.

Moustafa and Aljifri (2009) examined the effect of a learning approach that combined active learning activities with educational technology tools. The performance of a group of students who were taught using a range of innovative methods was compared with the performance of a control group who were taught using only traditional methods. The experiments employed three different learning environments: the traditional approach (TL), the cooperative learning approach (CL), and the Laptop-Based Active Learning approach (LAL). The study concluded that the LAL approach appeared to have a significant positive effect on students' performance compared with the other two approaches.

Chen, Jones, and Moreland (2012) examined whether the effectiveness of online accounting education relative to traditional in-class delivery was dependent upon the level of the course. Students enrolled in introductory and advanced accounting courses were surveyed regarding their perceptions. Their findings suggested that the course level is important when assessing whether it is advisable to offer online accounting courses. In advanced courses, the outcomes were significantly more favourable for traditional classroom environments than for online, while the delivery mode was not important in principles courses. The results also provide further support for the notion that blended learning may be desirable regardless of course level, but that course level is potentially important when deciding upon the mix of face-to-face versus online instruction.

A study in a financial accounting course taught by two different instructors using two different modes of teaching was conducted by Basile and D'aquila (2002). One group of students were exposed to computer-mediated instruction using WebCT and the other group were taught using only traditional teaching methods Survey results revealed no significant differences between the two groups in attitudes about the course, but found significant differences based on the course instructor. It was also reported that students who used the computer more frequently reported more positive attitudes about course delivery methods in general. Campbell, Floyd, and Sheridan (2002) surveyed accounting principles courses which was also taught by two instructors and found that students in the online class tended to have higher exam scores.

Dowling, Godfrey, and Gyles (2003) analysed whether a hybrid, flexible teaching method, in comparison to traditional face-to-face lectures, improved learning outcomes in an accounting information systems unit. The results suggested a positive change in student grades when the combination of the traditional approach and extensive use of multi-media resources was used.

The transformation of a tax accounting course from a face-to face course to an online course using WebCT was described and analysed by Dunbar (2004). Total time spent on the online class was comparable to the face-to-face version. It was concluded that online instruction can be as effective as face-to-face instruction. Students were surveyed about their preference to have a live instructor or to take the class online. The majority of students responded that they would rather take the online class.

Lusher, Huber, and Valencia (2012) addressed how the use of technology in the classroom affects student performance. This study reported results from a quasi-experiment where student learning was compared in two different classroom settings. One was a traditional 'pen and paper' classroom and the other was a completely 'computerised' classroom. Mean scores on all activities (in-class assignments, a group project, homework assignments, and in-class exams) for both groups were compared to measure the relationship between the learning environment and student performance in an introductory financial accounting class. It was found that students in the computerised classroom scored significantly higher on homework and exam scores, but not on in-class exercises or the group project.

Osgerby (2013) investigated students' perceptions about the introduction of a blended learning approach for three accounting and financial management modules. It was concluded that whilst students appeared to have a positive attitude to the adoption of an organised and well-resourced ICT based learning process, they preferred lectures and step-by-step instruction.

In a study conducted by Kohlmeyer, Seese, and Sincich (2011), US professionals practicing in public accounting were surveyed by to determine their perceptions of online accounting degrees compared to traditional accounting degrees. Their results revealed that public accounting professionals strongly prefer traditional degrees to online degrees, even when the candidate has already passed the Certified Practising Accountant (CPA) exam.

2.8 Interactive Courseware / Multimedia / Internet Resources

Stanley and Edwards (2005) surveyed the impact of an interactive, multimedia CD-ROM featuring real-life companies and case studies to provide an effective learning experience in large learning environments. Responses from Student Evaluations of Teaching and focus groups concluded that students benefited from its use.

The association between student use of a unique, interactive, online learning system, MarlinaLS_, and their learning outcomes was investigated by Potter and Johnston (2006). The results showed that students' use of the new system was positively associated with both their examination performance and the internal assessment result.

The implementation of a web-assisted course enhanced learning in a financial statement analysis course was examined by Abdolmohammadi, Howe, and Ryack (2003). Responses from the Student Evaluation of Teaching found no significant difference in students' level of understanding of the subject matter. It found that students did not find the course website useful and therefore did not use it extensively.

The use of a Computer-Aided Learning (CAL) package and its impact on undergraduate non-accounting majors was assessed by Lane and Porch (2002). Their investigation of students' perception of CAL package and attitudes toward accounting found that age and attitude toward the subject were positively associated with exam score, but there was no relationship between perceptions of CAL and exam score. They also found that attitudes toward ease of use of computers changed positively from the start to end of the course, but attitudes toward computers as a learning tool were lower. McDowall and Jackling (2006) analysed student perceptions of the usefulness of CAL in learning accounting concepts and its influence on their academic performance. Their results showed that positive perceptions of the usefulness of CAL significantly influenced performance. The change in the method of instruction enabled a more effective use of the technology and potentially increased teaching effectiveness and improved academic performance.

The use of interactive courseware was examined by Green, Reinstein, and McWilliams (2000) to assess whether it affected the level of student understanding of procedural material. They found that the students' interest in accounting increased in greater proportion for those students using the interactive courseware than those students that used the traditional lecture problem solving methods. Similar results were reported by McCourt Larres and Radcliffe (2000) from their research in the use of computer-based instruction in promoting student learning in a tax course. This style of instruction was perceived by the students to be more interesting and stimulating than lectures or tutorials.

Survey results indicated that computer-based instruction encouraged students to take responsibility for the own learning and this greater autonomy would facilitate the acquisition of skills that would enhance their lifelong learning.

Jebeile and Abeysekera (2010) conveyed the findings of their study that evaluated the initiation of an interactive online computer-assisted learning module called "WEBLEARN" in an undergraduate introductory accounting course to aid students in a topic that students perceived as difficult. Diffusion of Innovations Theory was utilised as a framework for assessing student responses and providing guidance for further development of other modules within the accounting unit. The majority of students formed favourable perceptions regarding the relative advantage, compatibility and ease of using the module. These findings were regarded as an indication of positive intention toward the prospective use of the module as a learning resource.

B. Greer, Theuri, and Turner (2012) investigated whether the use of a multimedia-based instructional supplement, used as a method of pre-lecture preparation, improved student performance in four areas: remembering, understanding, applying, and analysing. The participants were students in an introductory accounting course. One group of students served as the treatment and the other served as the control group. Both groups were given similar pre-lecture reading assignments, but the treatment group had access to video segments related to the reading material. Student performance was measured by exam scores. The remaining dependent variables were measured by scores on individual exam questions identified as remembering (retrieving information), understanding (determining meaning of instruction), applying (using a procedure) and analysing (differentiating or organising). The treatment group had on average, higher overall performance and higher scores on questions related to understanding, applying and analysing. However, no difference in remembering was found between the groups.

Crandall and Phillips (2002) studied the effect of instructor-generated and student-generated hyperlinks on students' ability to apply concepts in a practical case study. It was found that students who learned from the hypertext enriched instructional material were better able to apply concepts to case studies than those who learned from instructional material without the hyperlinks.

Jones and Wright (2010) explored cognitive style and the effectiveness of a hypertext instructional aid on exam performance. A non-randomised experiment was conducted over three consecutive semesters using students from an advanced financial accounting class. Students in one semester did not use a hypertext aid; in a second semester the students were required to use a basic version of the aid; and in a third semester students were required to use an extended version of the hypertext aid. The materials, assignments and instructor were held constant across all three semesters. Cognitive style was measured

through a combination of transcript records and a cognition assessment instrument. Exam performance was measured by two consolidation questions asked on the final exam: the first question was familiar to students (it followed a pattern that students had already seen) and the second was unfamiliar. Analysis revealed that in the familiar context, only the learning aid was significant. In the unfamiliar context, the learning aid, cognitive style, and the interaction between the two were significant. These results suggest that educators should be careful when designing and using learning aids. An implication is that educators should not assume that all computer-based aids will enhance learning and exam performance. However, properly implemented and applied, the learning aid may encourage individuals to develop a greater capacity for abstract thinking.

Bhattacharjee and Shaw (2001) investigated a project in which accounting students were required to independently analyse a publicly-traded company using text and Internet-based resources. The aim was to develop students' computer-based skills and improve their perceptions toward technology. The results showed that the project enhanced students' internet knowledge and skills to access information from multiple sources.

2.9 Assessment and Student Feedback

The impact of changing the mode of assessment in an introductory financial accounting unit was assessed by L. Greer (2001). Different assessments had been provided to each cohort of students. One of these assessments was formative and provided students with feedback that enabled them to remedy any learning deficiencies prior to the examination. The other assessment did not provide students the opportunity to consolidate their knowledge during the learning period nor provide timely feedback to students. Their results suggest that changing the mode of assessment can improve students' academic performance and the innovative use of computer based assessment may positively impact on learning.

Aisbitt and Sangster (2005) described the implementation and effectiveness of a new online assessment system designed to encourage and reinforce the learning of basic principles in an introductory accounting course. A positive correlation was found between student performance in the online assessments and in their final examination. It identified key issues to be considered; suitable software to support teaching and learning needs, writing suitable questions and ensuring that feedback is used to gauge effectiveness of the online assessment. It was reported that student feedback was quite positive. Students attitude toward computer based exam testing in a Financial Management course was investigated by Peterson and Reider (2002). Whilst students reported an overall positive experience with the computerised exam, there was concern that this type of testing weakened the credibility of the certification.

A qualitative study on the introduction of a series of online summative assessments into a first-year financial accounting course was conducted by P. Marriott and Lau (2008). Feedback from students indicated that assessment played a significant role in the teaching and learning process. Students perceived a beneficial impact on learning, motivation and engagement derived from the regular interaction with the online assessment. The effectiveness of online quizzes and multiple choice tests has been the focus of several studies which report a positive impact on learning outcome. Williams, Birch, and Hancock (2012) explored the relationship between levels of student engagement with online quizzes and their academic performance. The study found that students who attempted the online quizzes multiple times performed much better than those who attempted a fewer number of times.

The impact of online multiple choice questions (MCQs) on students' learning in an undergraduate accounting module was also investigated by Einig (2013). The impact was determined by analysing of how students used the MCQs; surveying students' perceptions and investigating the correlation between MCQ usage and examination performance. The study revealed that students used the MCQs in different ways and were considered suitable for different learning styles. Nearly all students perceived MCQs as being useful to their learning. Statistical analysis showed a significant correlation between regular MCQ usage and higher examination performance. These findings concluded that MCQs were useful in effectively support students' learning and its use in other accounting and business modules was encouraged. Brink (2013) investigated the impact of online quizzing on accounting majors' examination performance in the second intermediate accounting course. Results suggest that using both pre and post-lecture quizzes can lead to improved student preparation, increased student participation during class discussions, more effective use of lecture time, and significant improvement in students' performance on subsequent examinations.

The effectiveness of intelligent online learning and assessment (ILA) software in an introductory accounting course was examined by Baxter and Thibodeau (2011). This ILA software is designed to help students master the fundamentals of financial accounting as it quizzes students and adapts the content based upon their performance. Both the control group and the treatment group were taught by the same instructor in different semesters using all the same materials other than the ILA software. The acquisition of knowledge was measured by the score on the first exam of the semester and score on a cumulative final exam. In the treatment group, use of the ILA software was assigned 10% of course grade for the material on the first exam. This group outperformed the control group on the first exam. However, there was no difference in performance scores between the two groups on the final exam. It was also found that within the treatment group, students who mastered more topics in the software scored higher on both exams.

Different uses of feedback and positive outcomes were reported in two studies. The use of audio and visual feedback using screencast technology was examined by Pru Marriott and Lim Keong Teoh (2012). This new approach was used in addition to traditional written feedback as an assessment tool. The instructor offered feedback in two components; a text file with the comments on the assigned case study, and a short (approximately 2 minutes) screencast video that provided students with personalised comments that included praise, advice, and assistance. The findings revealed that students were very positive about the introduction of audio-visual feedback; however, it was acknowledged that the barrier to institutional use was the cost in instructor time and technology support.

The retention of first-year accounting students at a South African university was investigated by Prinsloo, Müller, and Du Plessis (2010). The university primarily uses distance learning with students dispersed geographically. To help monitor these students, a risk-awareness self-assessment questionnaire, called the 'ToolKit' was used and sent to *repeater* students to alert students if they were at risk of failing. This study found that those students receiving and completing the 'Tool-Kit' questionnaire experienced an improvement in their test scores.

2.10 Areas In Need Of Additional Research in Accounting Education

According to Bryant and Hunton (2000) the existing literature in accounting offered little research on the pedagogical benefits associated with delivering instruction with the use of technology. The need for research in accounting education to be conducted to assess student satisfaction and attitudes toward educational technologies was also highlighted.

A similar view was expressed by Rebele (2002) suggesting that the most significant implication of accounting education's changing environments is that researchers need to begin examining more important research topics and questions that positively impact on accounting education. It is therefore necessary to examine topics and questions that have the potential to improve the quality of education provided to our students. This would include research that identifies effective ways to motivate students to learn accounting, studies that test whether technology improves learning and how learning is improved, papers reflecting attention to the design of technology-based assignments. These examples were indicative of research that would make a unique and important contribution to the accounting education literature. Lane and Porch (2002) conveyed their concern over the lack of research to substantiate the views that educational technology, specifically in accounting education, enhances student learning.

Due to the rapid pace of technological advancements in telecommunications and multimedia, there is a growing need for research and evaluation of their use in an educational context (de Lange et al., 2003). Aisbitt and Sangster (2005) agree with this view and make the point that whilst there are rapid moves towards adopting e-Learning strategies, there is very little evidence that technology can be used effectively. With the increasing prominence of blended learning in higher education , the need for this type of research has become more prevalent (Bonk & Graham, 2006).

In comprehensive reviews of accounting education literature from: 2000 to 2002 by Watson et al. (2003); from 2003 to 2005 by Watson et al. (2007); from 2006 to 2009 by Apostolou et al. (2011) and the most recent review from 2010 to 2012 by Apostolou et al. (2013); continue their on-going call for further empirical studies into the effectiveness of using technology in accounting education.

2.11 Overview of Articles on Educational Technology

An overview of the articles on educational technology in accounting education is shown in Table 2.1.

Table 2.1 Overview of Articles on Educational Technology in Accounting Education Journals

THEME	No. of Articles	Learning Outcomes	Student Perceptions	Both	Other
Comparison of Face-to-Face and Technology Enhanced Options	13	6	6		1
VLE / WebCT	12	3	8		1
Interactive Courseware, Multimedia and Internet Based Resources	12	6	5	1	
Assessment and Feedback	10	7	2	1	
Digital Video Technology	8	1	5		2
Use of Clickers	6	4	1		1
Online Homework Management and Intelligent Learning Systems	5	2	2	1	
Podcasting	2		2		
TOTAL	68	29	31	3	5

From the review of literature on accounting education from 2000 to 2014, it was found that of the 68 articles relating to the use of educational technology, articles that compared traditional teaching formats to technology enhanced options (13) were the most popular category. Of these, there was a similar level of interest shown in learning outcomes and perceptions with 6 articles published under each classification. This was closely followed by research on Virtual Learning Environments (12) which included articles on the specific to the features of WebCT. The majority of these articles focused on student perceptions with only 3 articles on learning outcomes.

The same number of articles was found under the combined category of Interactive Courseware / Multimedia / Internet Based Resources (12) of which 7 of these articles were on learning outcomes. This was also the case with the articles on Assessment and Feedback (10) in which 8 reported students' academic performance resulting from different styles of assessment such as online quizzes and multiple choice questions. The research into the digital video technology (8) was mainly qualitative (5) with only 1 article reporting on its effectiveness on learning. The use of clickers featured in 6 articles, of which 4 articles related to their impact on learning. The potential benefits were reported in the articles relating to Online Homework Management Systems and Intelligent Learning Systems (5) of which 3 discussed their impact on learning outcomes. The last category reflected the one most recent uses of technology, the 2 articles on podcasting both reported on student perceptions of its use as a flexible learning tool.

Of the 68 articles on the use of educational technology featured in six prominent accounting research education journals from 2000 to 2014, 32 articles reported on learning outcomes. Whilst the number of articles in this area has increased, Apostolou et al. (2013) in their most recent review of accounting literature, highlighted the need for more empirical studies into the effectiveness of using technology in accounting education. To provide some context to this statement, an overview of articles published in the aforementioned journals from 2010 to 2012 is presented in Table 2.2. The most prominent area of research is curriculum, assurance of learning and instruction which comprises 59% of the total whilst the area with the least amount of publications is educational technology which represents 8% of the total.

Table 2.2 Articles Published In Accounting Education Journals* 2010 to 2012

CATEGORY	Empirical	Descriptive	Total	Percentage
Curriculum. Assurance of Learning & Instruction	53	119	172	59%
Educational Technology	17	6	23	8%
Faculty Issues	24	28	52	18%
Students	32	12	44	15%
TOTAL	126	165	291	100%

** articles published in six prominent accounting education journals reviewed by Apostolou et al. (2013)*

As can be seen in Table 2.1 and Table 2.2, there were relatively few articles published on the effectiveness of blended delivery. By addressing some of the key issues associated with the implementation of e-Learning and evaluating its impact on learning outcomes, the findings of this thesis aim to make a positive contribution to this much needed area of research.

2.12 Summary

This chapter reviewed the literature relating the use of technology in accounting education from six prominent accounting education journals from the period 2000 to 2014. It was found of the four categories of research published in these journals: curriculum, educational technology, faculty issues and student issues; educational technology was the category that attracted the least amount of research. It was found that the most popular themes which emerged within this category related to the comparison of traditional modes of delivery with technology-enhanced options, virtual learning environments, multimedia, and assessment and feedback. Whilst some of these articles were associated with blended learning, approximately half of these articles focussed on student perceptions rather than learning outcomes. Other minor themes related to digital technology, clickers, online homework management / intelligent learning systems and podcasting. This review confirms that the literature gap in accounting education still exists and this thesis responds to the call for further empirical studies into the effectiveness of using technology in this field of research.

The next chapter will commence with an overview of higher education and the changes that have led to the growing trend toward blended learning. It will then continue with a review of literature on blended learning.

CHAPTER 3
BLENDED LEARNING IN HIGHER EDUCATION

3.1 Introduction

This chapter will address the issues relating to the effective use of technology in higher education as outlined the quote below:

According to Bates and Poole (2003, pp. 18,19),"Technology is indeed a threat to traditional forms of teaching, but the question should not be how do we preserve the past? But how can we best serve our students in today's society. This may mean keeping some of the best or unique features of face-to-face teaching, but it also means looking at how the unique teaching potential of technology can best be developed to meet the needs of students today." .... "One of the major challenges faced by academics is the constant pressure to improve the quality of teaching and learning, it poses the question, how can technology help?" (Bates & Poole, 2003, p. 19).

This chapter will address these issues by providing a brief overview higher education, its function, characteristics and the changes that led to the growing trend toward blended learning. The remainder of the chapter will focus on blended learning. Due to vast amount of literature in this area, the following review will be confined to those aspects considered fundamental to the thesis. These include the potential benefits associated with its use, criticisms associated with the use of technology in education and considerations in the design of an effective blended learning experience.

3.2 Higher Education – Its Function and Characteristics

According to the Review of Australian Higher Education, higher education is described as "the site for the production and transmission of new knowledge and for new applications of knowledge. It is here that the most highly skilled members of the workforce are educated and here too that the intellectual base for new knowledge intensive industries is formed" … "by providing access to higher levels of learning to people from all backgrounds, it can enhance social inclusion and reduce social and economic disadvantage" (Bradley et al., 2008, p. 1).

One of the core functions of contemporary universities is to develop high level knowledge and skills for self-fulfilment, personal development and the pursuit of knowledge (Bradley et al., 2008, p. 1).
To function effectively, the higher education system should be measured by its capacity to:

- meet the needs of the labour market and industry for high level skills
- provide opportunities for all capable students to participate
- provide students with a stimulating and rewarding higher education experience (Bradley et al., 2008, p. 1)

A study from an academic accountants' perspective conducted by Watty (2006, p. 29) revealed that the most often agreed purposes of higher education are :

- the provision of work ready graduates (84%)
- delivering efficient teaching (75%)
- extending opportunities for individuals (62%)
- promoting lifelong learning (59%)
- developing critical reasoning (59%)
- assisting the formation of intellectual abilities and perspectives (58%)

To improve the academic preparation of accountants, the Accounting Education Change Commission (AECC) was appointed in 1989 by the American Accounting Association and supported by the Sponsors' Education Task Force representing the largest public accounting firms in the United States of America. Its objective is to ensure that entrants to the accounting profession possess the requisite skills, knowledge, and attitudes to succeed in accounting career paths. In order to achieve this, the AECC has undertaken a number of initiatives that appear in two Position Statements and six Issues Statements. Those relevant to teaching and learning are summarised and presented accordingly.

The significance of teaching and learning is addressed in Position Statement Number 1 on the Objectives of Education for Accountants (AECC, 1990). This statement highlights the need for training in instructional methods, recognising and rewarding contributions to teaching and curriculum design, and measurement and evaluation systems that encourage continuous improvement of instructional methods and materials. It also addresses the need to change the educational focus from knowledge acquisition to 'learning to learn' by developing the students' motivation and capacity to continue to learn outside the formal educational environment (AECC, 1990).

The priority on teaching and improving its effectiveness is reinforced in the AECC's Issues Statement Number 5 on Evaluating and Rewarding Effective Teaching (AECC, 1993) which aims to establish and maintain the scholarly status of teaching. Five characteristics of effective teaching are listed below:

- Curriculum Design and Course Development
- Use of Well-Conceived Course Materials
- Presentation Skills
- Well Chosen Pedagogical Methods and Assessment Devices
- Guidance and Advising (AECC, 1993)

The first two points are of particular relevance to this thesis and cited in detail below:

Curriculum Design and Course Development

To effectively design curricula and develop courses the teacher must: set appropriate objectives; develop a useful framework for the conduct of courses and programs; conceptualise, organise, and properly sequence the subject matter; integrate courses with other related courses, disciplines, and current research; and *be innovative and adaptive to change* (AECC, 1993).

Use of Well-Conceived Course Materials

Effective course materials enhance presentation skills, fulfil course objectives, *are consistent with current developments and new technology in the field,* create a base upon which continued learning can be built, challenge students to think and give them the tools to solve problems (AECC, 1993).

The importance of the first-year experience is the focus of Position Statement Number Two on The First Course in Accounting. It acknowledges that students' impressions based on their first course has a significant impact on those already considering a career in accounting and those open to the option of majoring in accounting. Their initial course experience shapes their perceptions of the profession, the aptitudes and skills needed for successful careers in accounting and the nature of career opportunities in accounting (AECC, 1992).

Each of these sources highlight the importance of higher education in providing students with high level of knowledge and professional skills within a learning environment that is stimulating, rewarding and proficient.

3.3 Changes in the Higher Education Environment

Although this quote by Swail (2002) originated more than a decade ago, the issues and concerns conveyed are still relevant to the current educational landscape.

> Higher education is going through significant changes stimulated by the rapid growth of the internet, the increasing globalisation of higher education, and the ever-pressing question of institutional quality. New modes of educational delivery through virtual networks are breaking the traditional mould of instructional provision. New players, new pedagogies, and new paradigms are redefining higher education. The rules are changing, and there is increased pressure on institutions of higher education to evolve, adapt, or desist (Swail, 2002, p. 16).

Higher education institutions are facing strong pressures for change. According to Bates and Poole (2003), these pressures are linked to:

- globalisation
- new knowledge society
- changing needs of the workforce

Additional pressures are put forward in the Review of Australian Higher Education (Bradley et al., 2008, p. 10) which states that over the last twenty years, the higher education sector has increased in scale and complexity and has markedly reduced its reliance on government funding. In response to these changes, universities are posed with the dual challenge of dealing with more students with less funding. Coupled with the rapid development in technology, academics are struggling to assess the value of technology for their teaching and to apply it in ways that are manageable and lead to better learning outcomes (Bates & Poole, 2003). With many governments responding to public pressure for more access to higher education and recognising the importance of a highly educated workforce for the economy, the number and range of tertiary institutions rapidly expanded.

The most significant consequence of this expansion was the transition of higher education from an elite system to a mass system (Bates & Poole, 2003). The impacts of this increased access to higher education are summarised below:

Growth in Student Numbers

In Australia and the United Kingdom, due to economic constraints, the incremental growth in student numbers has not always been matched by proportional increases in funding. This has resulted in gradually increasing class sizes (Bates & Poole, 2003).

Greater Diversity

The shift toward higher education of the masses has led to major changes in the student population. There is now a greater diversity in the range of age, ethnic origin, and socio-economic background (Bates & Poole, 2003).

Demand for Greater Flexibility

In order to cope with higher tuition fees and other expenses, even full-time students are often required to seek part-time work. If students are working full-time or part-time out of financial necessity, regular attendance on campus becomes more difficult. Due to these changes, there is a demand for greater flexibility in the delivery of course content (Bates & Poole, 2003). A similar concern was raised by Biggs (1999), whereby students are often required to find a balance between academic success and financial survival. The pressure is placed upon students to attain a *'good'* grade in order to improve their chances of securing a *'good'* job. Students are required to prioritise their academic, social and financial responsibilities and engage with their studies in ruthlessly pragmatic, strategic and tactical ways.

3.4 The Growing Trend towards Blended Learning

Without flexibility in their learning options, students may be limited in their educational choices and the opportunity to pursue and complete their degrees may be compromised. A blended learning environment may provide these students an alternative to the traditional classroom mode of delivery. The literature in the following sections relating to blended learning is mainly drawn from by the prominent researchers in the field: Garrison and Vaughan, Bonk and Graham, and Bates and Poole.

According to Garrison and Vaughan (2008), a blended approach is at the centre of an evolutionary transformation of teaching and learning in higher education. Their research has identified three profound changes in higher education that explain the shift toward greater e-Learning in curriculum design:

- Unprecedented advances in communication technology, the internet and the diversity of teaching and learning innovations associated with accessing educational opportunities and information (Garrison & Vaughan, 2008, p.145).

  New challenges within institutions; tighter budgetary constraints, increasing focus on academic research, growth in class sizes, resulting in less contact time with academic staff (Garrison & Vaughan, 2008, p. 145).

- Recognition and dissatisfaction with the quality of the learning experience. Students feel that traditional methods are unable to address the need for higher-order learning experiences and outcomes demanded by a changing knowledge and communication-based society (Garrison & Vaughan, 2008, p. 145).

"This convergence of these changes has created the conditions under which it is imperative that higher education consider new approaches to teaching and learning. It poses a particularly challenging task, one which must address the financial constraints and quality concerns while maintaining and even enhancing the core values of higher education" (Garrison & Vaughan, 2008, p. 145).

3.5 Distinction between Blended Learning and e-Learning

In times past, learning options were confined to traditional face-to-face delivery. However, due to developments in technology, a diverse range of technologically-enhanced delivery modes are now available. There are, however, many variations of the terminology used to describe the combination of traditional face-to-face teaching methods and online content. Some of the terms used to describe this style of delivery include: *blended learning, e-Learning, flexible delivery, flexible learning, online learning, technology enhanced education, hybrid learning, computer-mediated learning, Computer Assisted Learning (CAL), Computer Assisted Instruction (CAI), Information and Communication Technology (ICT) and Virtual Learning Environments (VLE).*

Before commencing the next section, it is important to make the distinction between 'blended learning' and 'e-Learning' as these terms are often used interchangeably in the literature.

Blended Learning

Blended learning may be formally defined as "the organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies" (Garrison & Vaughan, 2008, p. 148).

e-Learning

e-Learning may be formally defined as "Learning facilitated and supported through the use of information and communications technology. It can cover a spectrum of activities from the use of technology to support learning as part of a 'blended' approach (a combination of traditional and e-Learning approaches), to learning that is delivered entirely online" (JISC, 2014). When e-Learning is combined with face-to-face instruction, the term 'blended learning' is commonly used. For the purpose of this thesis, it is within this is the context in which both these terms are used.

3.6 Definitions of Blended Learning

According to N. Jones (2006, p. 185) that there are "definitional complexities and ambiguities surrounding such terms as e-Learning and blended learning". This view is shared by Stein and Graham (2014, p. 12) that there is no single definition of the term 'blended', as this term refers to the combination of onsite (face-to-face) with online experiences to produce an effective, efficient and flexible mode of learning. Garrison and Kanuka (2004) add further support by suggesting that there is no one single blended model as the approaches vary from one end of the spectrum, in which a face-to-face class uses technology to augment the class, to the other end, in which significant online activities are interspersed with classroom activities. What distinguishes the blended model is the degree to which it integrates the face-to-face component with technology so that is does not appear to simply add to the dominant approach. Littlejohn and Pegler (2007, p. 26) refer to a more specific definition provided by The Sloan Consortium which refers to blended education as course that blends face-to-face and online delivery where 30–79% of content is delivered online (see Table 3.1 Methods of Delivery from Sloan Consortium Report). Blended learning may be regarded as a stage in the adoption of e-Learning, one that is less threatening and less risky than a fully online option (Littlejohn & Pegler, 2007).

Blended learning is perceived by K. Thorne (2003, p. 16) as the most logical and natural evolution of our learning agenda. It represents an opportunity to integrate the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning. According to Ginns and Ellis (2007, p. 55), the "aim of blended learning is to provide a mix of both online and face-to-face experiences which support each other in achieving desired learning outcomes". A blended approach combines the properties and possibilities of both face-to-face and online learning to go beyond the capabilities of each separately (Garrison & Vaughan, 2008).

Garrison and Kanuka (2004, p. 96) perceive blended learning as a concept that is both simple and complex. At its simplest, blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences. There is considerable intuitive appeal to the concept of integrating the strengths of synchronous (face-to-face) and asynchronous (text-based Internet) learning activities. However, there is considerable complexity in its implementation with the challenge of virtually limitless design possibilities that are applicable in numerous different contexts.

3.6.1 Types of Blends

To provide some insight, Bonk and Graham (2006, p. 4) raise the question "what is being blended?" It is acknowledged that whilst there are a variety of responses, most are variations of a few common themes. According to Graham, Allen, and Ure (2003), the three most commonly mentioned definitions are:

- Combining instructional delivery media
- Combining instructional methods
- Combining online and face-to-face instruction

The first and second definition refers to the blending of media and instructional methods, for example, combining a webcast (using audio and video) with printed resources in a face-to-face lecture.

The third definition refers to the blending of online and face-to-face instruction. This may be implemented in three ways: providing online material similar to the written course content, providing online material as a supplementary resource or replacing a proportion of face-to-face content with online material. Sharpe, Benfield, Roberts, and Francis (2006) conducted an extensive review of UK literature and practice that examined the undergraduate experience of blended e-Learning.

It was found that the most common type of blended learning was the provision of supplementary resources for courses that were delivered via traditional modes and supported by a virtual learning environment.

3.7 Models of Blended Learning

According to Hanson and Clem (2006), it is a great challenge to obtain a core set of literature on blended learning framework or model. There is neither a simple stage-like model nor any standard methods to design and to implement blended learning. The practices of blended learning are tailored by different needs and requirements of individual organisations. To highlight this point, three different approaches to classifying blended learning are presented below.

3.7.1 Continuum of e-Learning

As shown in Figure 3.1, the Continuum of e-Learning is perhaps one of the simpler models. It identifies three stages of e-Learning which begins with 'enhanced' classroom with some online content. It advances to 'blended' with more online content and finally to 'online' which provides a fully-online learning experience.

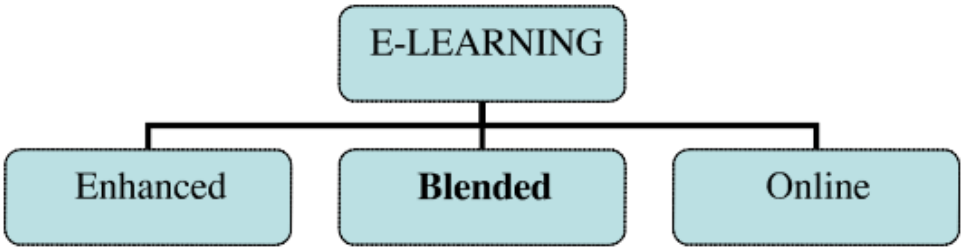


Figure 3.1 Continuum of e-Learning (Garrison & Kanuka, 2004, p. 97)

Garrison and Kanuka (2004) acknowledge that this model is not clear in specifying how much, or how little, online learning is inherent to blended learning. This is regarded as only a rough, indirect measure which may be misleading. The real test of blended learning is the effective integration of the two main components, face-to-face and Internet technology and not just adding on to the existing dominant approach or method. As there will be varying degrees of integration, no two blended learning designs are identical, which adds to the great complexity of blended learning.

3.7.2 Continuum of Blended Learning

To help identify the degree of blending that may occur within these two approaches, reference can be made to the Continuum Of Blended Learning shown in Figure 3.2 which provides a classification based on the level of online resources used. This begins at the most basic level of information and communication technology used to support face-to-face teaching through to intensive use, whereby the whole module is delivered online with minimal or no face-to-face interaction. This continuum identifies various blended learning initiatives and provides scope for the practitioner to decide which options are most suitable in producing a blended learning experience (N. Jones et al., 2009).

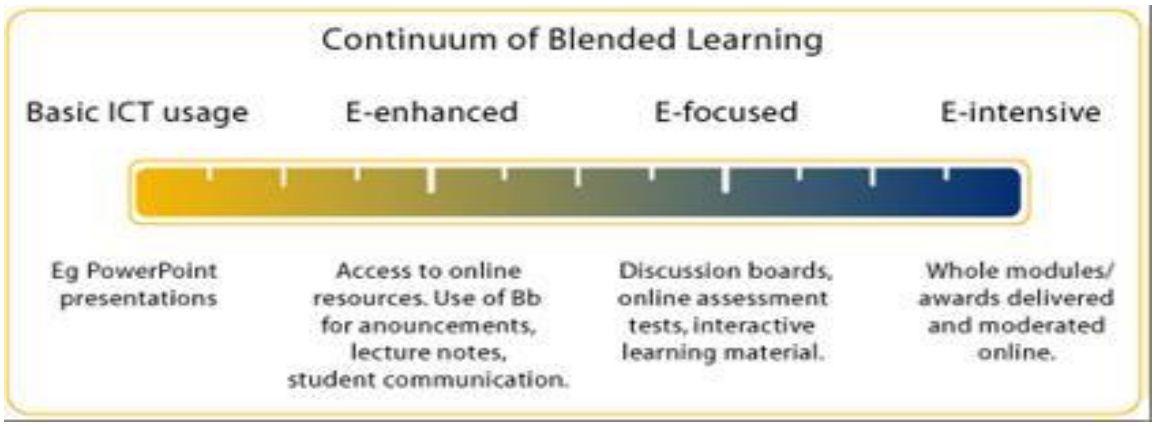


Figure 3.2 Continuum of Blended Learning (N. Jones et al., 2009, p. 15)

A description of the level of technology used within each of stage of the continuum is provided below:

Basic ICT usage

At its lowest level, it contains a mixture of traditional teaching practices combined with basic usage of Information and Communication Technology, which may include PowerPoint presentations, Excel spreadsheets, Word documents and email (N. Jones et al., 2009).

E-enhanced

At the E-enhanced level, traditional teaching practices are used in conjunction with online resources, such as announcements and lecture notes, that are accessible through the Virtual Learning Environment (N. Jones et al., 2009).

E-focused

At the E-focused level, the instructor may include the use of discussion boards, online assessment tests and interactive learning materials alongside face-to-face delivery (N. Jones et al., 2009).

E-intensive

At the end of the continuum, the E-intensive level is where modules or courses are delivered and moderated almost entirely online, but may include some face-to-face interaction (N. Jones et al., 2009).

3.7.3 Methods of Delivery - Sloan Consortium Report

In their report for the Sloan Consortium, Allen and Seaman (2005) used the format shown in Table 3.1 below to help classify the various methods of course delivery. This provides a more detailed account of the proportion of content delivered online to determine the nature of the course which may range between traditional face-to-face methods to mainly online content and delivery.

Table 3.1 Methods of Delivery from Sloan Consortium Report (Allen & Seaman, 2005, p. 4)

PROPORTION OF CONTENT DELIVERED ONLINE	TYPE OF COURSE	TYPICAL DESCRIPTION
0%	Traditional	Course with no online technology used — content is delivered in writing or orally.
1 to 29%	Web Facilitated	Course which uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.
30 to 79%	Blended / Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

3.8 Development of Blended Learning Systems

The progression from traditional face-to-face delivery to computer mediated learning is shown in Figure 3.3. According to Bonk and Graham (2006, p. 5), blended learning "is part of the ongoing convergence of two archetypal learning environments": the traditional face-to-face learning environment and the computer-mediated learning environment. In the past, these two learning environments have remained separate. However, the increased level of integration of information communication technologies into the traditional face-to-face learning environment has led to the convergence of these two approaches. The intersection illustrates the emergence of blended learning and its continued growth in the future. It is acknowledged that whilst it is impossible to predict what the future holds, there is some certainty that the trend toward blended learning systems will continue to increase (Bonk & Graham, 2006).

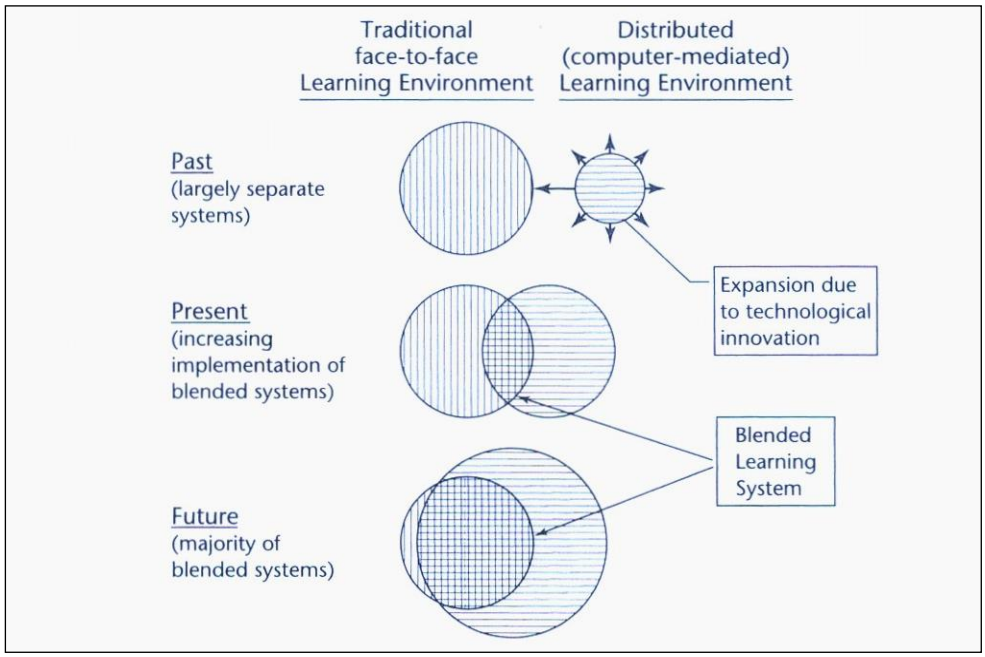


Figure 3.3 Progressive Convergence Allowing Development of Blended Learning Systems (Bonk & Graham, 2006, p. 6)

3.9 Benefits of Blended Learning

Stein and Graham (2014) advise that a blended approach can have a positive impact on efficiency, convenience and learning outcomes. By shifting more of the learning to online delivery, blended courses add flexibility to students' schedules, provide learning support through automated and asynchronous online tools and can use social media Web to help students venture beyond the traditional confines of the classroom.

According to Bonk and Graham (2012), the most common reason provided for blended learning is that it provides the best of both worlds. The authors also caution that it is rarely acknowledged that the blended learning environment can also mix the least effective of both worlds if not designed well. Littlejohn and Pegler (2007, p. 2) provide an insight to the potential of blended learning. It fosters integration of different spaces that allow students the greater choice of learning environments, whether it be on campus, at work, at home or in-transit. It may provide flexibility in the time when learners can participate in courses by reducing the restrictions that can arise from work and family commitments. It can also make available a diverse range of media resources than can be used for learning. This combination of space, time and media offers new possibilities as to the activities that students can be involved in and the way that they are able to collaborate using online resources. According to Garrison and Vaughan (2008, pp. 145,146), blended learning offers an educational experience that avoids the downsides of online and face-to-face experiences as well as a way to extend and to enhance the educational experience in an effective and efficient manner.

Jackson and Helms (2008) refers to previous studies that have cited less time in the classroom, less money on travel, more course availability, decreased student inhibitions through removal of psychological and social barriers to interaction as well as increased flexibility, as online advantages (Beard & Harper, 2002; Carrell & Menzel, 2001; Chamberlin, 2001; Guidera, 2003). Follows (1999) identifies the benefits of blended learning which include providing students with a context within which the learning process can take place, enabling students to control the learning process, developing students' abilities to solve high-level problems, making learning a personal experience for students, presenting information from multiple perspectives, accommodating a wide range of student learning styles, and allowing students to learn using a technology with which they are comfortable.

3.9.1 Instructor Preference for Blended Learning

Osguthorpe and Graham (2003, p. 231) identify six reasons why an instructor may choose blended learning over other options. These are summarised below:

Pedagogical Richness

Instructional designers and teachers may each employ blended learning environments for different reasons, however the central purpose that should drive all other motives is to improve student learning (Osguthorpe & Graham, 2003).

Access to Knowledge

Blended approaches can increase a teacher's pedagogical options to help students understand the content more effectively. Blended environments can also be used to increase accessibility to information for students (Osguthorpe & Graham, 2003).

Social Interaction

As cited in Osguthorpe and Graham (2003), Meiklejohn (1881) once said, "learning is a social act." When students share questions, insights, and perplexities, they not only experience higher levels of mastery, but they open themselves to redefining and repositioning themselves in the world. Purely distance delivery systems limit this kind of social contact, while blended environments enhance the possibilities for social interaction both in class and online (Osguthorpe & Graham, 2003).

Personal Agency

This point focuses on the importance of ‘learner control’ which offers to students a means for directing their own learning rather than submitting themselves to the direction of the teacher or designer (Pask, 1969). The concept of personal agency refers to the notion that if students are to develop a sense of self-directedness in their learning, they need to be given the opportunity to make choices, about what they will study and how they will study it. Blended delivery systems can increase the range of personal choice for learners and to provide students the opportunity to practice exercising their personal agency (Osguthorpe & Graham, 2003).

Cost-Effectiveness

Some emphasise the benefit of cost reduction that blended environments offer. Proponents of this view argue that by reducing time in class, additional students can enter an institution to fill the seats left vacant by those who are spending part of their time learning online. Blended approaches also offer the possibility of replacing full-time faculty involvement with less expensive part-time faculty or graduate teaching assistants (Osguthorpe & Graham, 2003).

Ease of Revision

Most blended learning environments are developed by teachers themselves. This means that the online resources for the course are relatively simple, easy to change, and do not require sophisticated programming, graphic arts, or video and audio production skills. The ease of revising a blended system has the potential to create a learning atmosphere that is flexible, responsive, and spontaneous to student needs (Osguthorpe & Graham, 2003).

3.9.2 Improving Educational Outcomes with Blended Learning

Ross and Gage (2006) explain how blended learning may impact on improving quality and educational outcomes, in particular, boosting student retention and graduation rates. Further details as to how this may be achieved are set out below:

Serve Diverse Student Populations

The student population is becoming more diverse as students come to university with different levels of skills and ways of learning. Blended learning offers new ways of personalising the learning experience and engaging students. It provides the flexibility for instructors to deliver remedial or advanced content to suit the individual needs of their students. This approach may appeal to a broader student population with different learning styles as it can incorporate a variety of instructional modes and supports multiple means of communication (Ross & Gage, 2006).

Reduce Time to Graduation

Due to increasing pressures from work and family commitments, students are not always able to attend lectures and tutorial times that are scheduled at inconvenient times. It is suggested that blended learning may provide greater access and flexibility in providing more scheduling options for students and reduce potential conflict which may cause delay or disruption to their ability to complete required course requirements to graduate (Ross & Gage, 2006).

Gain Greater Insight into Student Progress

Learning management systems have tracking facilities that collect statistical data on student activity and learning behaviour. The availability of this data provides key opportunities for higher education to improve quality and enhance student outcomes. Instructors can track students learning activities to see which students are falling behind or not keeping up with their study requirements and intervene at an early stage. This may help to identify 'at-risk' and provide appropriate support to prevent students from failing or dropping out (Ross & Gage, 2006).

3.10 Disadvantages Associated with Blended Learning

According to Hirschheim (2005), the major disadvantages associated with greater use of technology in education: high frustration levels, lower levels of satisfaction and interest, technical and logistical problems, lack of instructor interaction, difficulty developing student friendships, more attendance lapses, lack of feedback, confusion about class requirements, and the overwhelming volume of email and online discussion.

Mackay and Stockport (2006) add low level of student motivation to complete courses and high initial costs for developing courses to this list. Privacy issues, technological difficulties and the tendency to focus on technology rather than content were of particular concern to Plotrowski and Vodanovich (2000).

McFarland and Hamilton (2005) cautioned that student satisfaction is derived from much more than the course delivery mechanism. An instructor who is able to motivate students in the classroom may not be able to tap into that characteristic when teaching online. Hofmann (2006, p. 35) takes a similar stance in suggesting that "effective classroom facilitators rely heavily on the ability to manage the room by interpreting eye contact and body language. They may also have a physically animated personality that is visually engaging to their audiences. Online instruction takes the physical language of the classroom away and replaces it with many non-verbal and non-physical cues which may diminish the impact of the learning experience".

Bueno-Alastuey and López Pérez (2013) identify further disadvantages which include distractions by the very nature of available technologies used to support student learning. Having additional material within the virtual learning environments may increase the opportunities for learning and reinforcement of content, however, this may make the location of specific content difficult and time-consuming (Bueno-Alastuey, 2009b).

Another disadvantage is that students having problems using virtual learning platforms are generally not proficient computer users. As these students would be heavily dependent on face-to-face interaction with their teacher, they may have a negative attitude towards blended learning (Bueno-Alastuey, 2009a; Burguess, 2003). These disadvantages have been reported to be some causes for drop-out rates in blended learning courses and for many students showing their preference for traditional face-to-face delivery (Trinder, 2009).

3.11 Criticisms of the Use of ICT in an Educational Context

As institutions continue to blend information and communication technology (ICT)s into all aspects of face-to-face teaching and learning with the ever expanding use of virtual learning environments such as Blackboard and Moodle, the concept of the university campus is shifting from a 'bricks and mortar' model to a 'clicks and mortar' model (Selwyn, 2007). The use information and communication technology in education context is not without its critics. R. E. Clark (1983, p. 445) claimed that the choice of media has no effect on enhancing learning outcomes under any conditions: "the best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in nutrition". This is view is supported by Duchastel (1997) suggesting that many institutions are using online learning as a publishing medium rather than "designing novel forms of instruction that can lead to real improvements in student learning and growth".

Bates and Poole (2003) bring attention to one of the most frequent criticisms associated with of the use of technology for teaching: as academics we are driven by a technological imperative that we have to use technology because of a blind belief that it is good for us. If we decide not to use the technology, we will be considered out of touch with technology and face the risk of losing our credibility. Whilst information and communication technology is fast becoming an integral part of university teaching and learning, it seems that many university students and academic staff make only limited use of the computer technology available (Biggs, 1999). This view is shared by Bates and Poole (2003), that whilst many academic staff are aware that the use technology can be beneficial their teaching, their technical knowledge is often less than their students and they are uncertain how best incorporate into to their teaching.

It has also been argued that ICT leads to depersonalised and dehumanised forms of higher education ; an overall 'factory model' of university education that runs the risk of atrophying learning opportunities whilst dehumanising both instructors and students (Cooley, 1999).

It has been suggested that whilst the use of ICT can be potentially powerful in a learning environment, it is often reduced to such a low level of 'mindless activities' that it will have minimal impact on improving expectations and practices of higher education teaching (Moule, 2003). Hirschheim (2005, p. 101) raises the point that if the internet leads to a more standardised, minimalist product targeted for a mass market, this will further 'box in' and 'dumb down' education, resulting in a system that does not support the endeavours of superior scholars and thinkers. These critical views express some of the main concerns relating to the increased use of technology incorporated into higher education teaching and learning.

3.12 Stakeholders in e-Learning

According to Avdjieva and Wilson (2002), higher education institutions are now also required to become learning organisations, where internal stakeholders also interpret and assess the quality of the higher education provided. McPherson and Nunes (2008) identified five fundamental aspects of e-Learning in higher education courses and programmes: organisational setting, technological infrastructure[1], curriculum development, instructional design and e-Learning course delivery. An overview of the key stakeholders and their involvement within each of these aspects is provided is Figure 3.4.

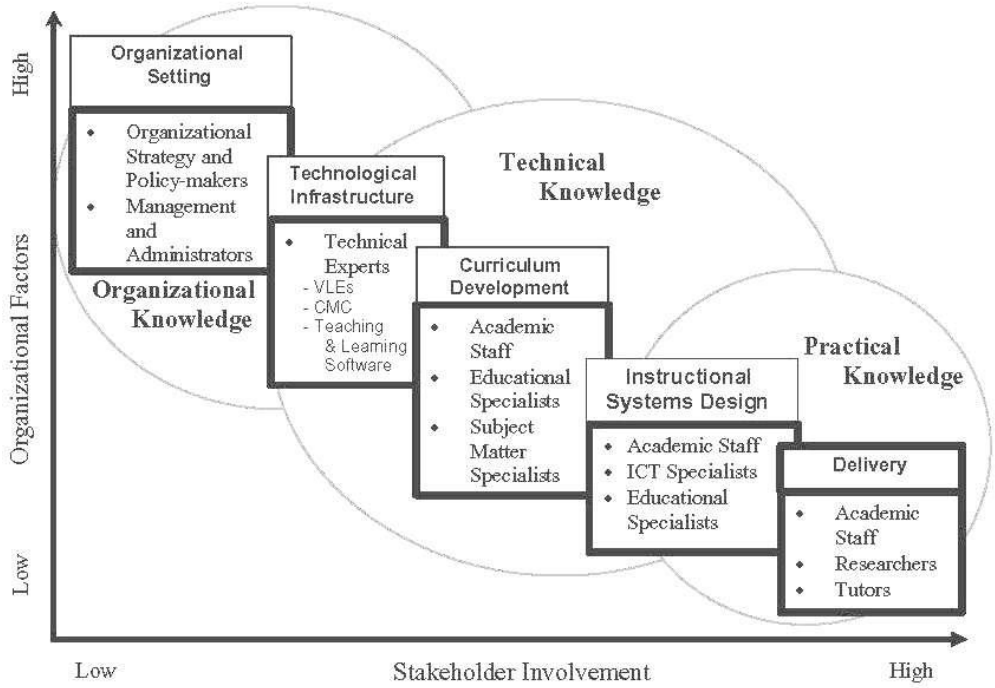


Figure 3.4 Stakeholder Involvement (McPherson & Nunes, 2008, p. 3)

[1] Abbreviations used under Technological Infrastructure: VLE-Virtual Learning Environment, CMC-Computer Mediated Communication

A brief explanation of each of these aspects of e-Learning and the stakeholders within is provided below:

Organisational Setting

The stakeholders within the organisational setting are those involved in the long-term strategic decisions associated with the adoption of e-Learning. This group includes organisational strategy and policy makers, management and administrators.

Technological Infrastructure

The stakeholders associated with the technological infrastructure have a specific interest in technical aspects of the learning management system adopted and teaching and learning software required to support it. This group includes technical experts in virtual learning environments, computer mediated communication and educational courseware.

Curriculum Development

The stakeholders are those who have direct input into the design and development of the curriculum. This group includes academic staff, educational specialists and subject specialists.

Instructional Design

The stakeholders in the instructional design are responsible for transforming the curriculum content for e-Learning and advising on pedagogical issue. This group includes academic staff, ICT specialists and educational specialists.

Delivery

The stakeholders in this final aspect have either an academic or research interest in the delivery of e-Learning content. This group includes academic staff, tutors and researchers.

The focus of this thesis is predominantly on curriculum development, instructional design and e-Learning course delivery. As can be seen from Figure 3.4, these are the three fundamental aspects of e-Learning in which academic staff and tutors have the highest level of stakeholder involvement. They are considered key internal stakeholders in the development, design and delivery of knowledge within an e-Learning context. The next section will discuss the importance of their involvement in these particular aspects of e-Learning.

3.12.1 Curriculum Development

"Technology is changing and developing faster than our capacity as individuals to adapt. Many of the problems faced by academics in higher education in using technology results from the poor techniques and pedagogical support given by their institutions" (Bates & Poole, 2003, p. 18). Similar concerns are raised in a report by Diamond (2005) on academic reform which acknowledged that universities are confronting formidable forces for change. It identifies the area most directly affected by these changes is the one least often discussed, namely the design and delivery of instruction. How will these changes in the teaching environment impact on the roles and responsibilities of academic staff? Is there adequate support and training for staff to provide a sound technical and pedagogical knowledge base to improve design and content of their online teaching materials?

To enhance effective learning outcomes, course aims, teaching and learning materials and provision of peer support needs to be appropriately aligned. Biggs (1999) introduced the notion of "constructive alignment", which encourages teachers to evaluate critically the alignment between their course aims, teaching and learning materials and provision of peer support. The "constructivist approach" to teaching stresses the importance of aims that focus on high quality learning and a 'deep' level of understanding.

The characteristics of a well-designed online learning course are outlined by Clerehan, Turnbull, Moore, Brown, and Tuovinen (2003). It is one that does not impose outcomes on learners; it provides scaffolding that enables learners to build on their existing knowledge or to develop new learning strategies. It can increase student choices of place, time and style of learning support, and enhance opportunities for developing independent self-directed learning and the capacity for critical thought and analysis.

3.12.2 Instructional Design

According to Garrison and Vaughan (2008, p. 11),"The challenge higher education faces is how to merge the distinct approaches and properties of face-to-face and online learning. Blended learning is not simply more of the same, that is, a traditional format with a sprinkling of web-based activities". Levy (2005) refers to this tendency as a "juxtaposition of new technology and old pedagogy." Instead, it requires a rethinking and redesigning of the teaching and learning relationship. If contemplated with some thought, blended learning can transform educational environments, but not without the commitment of instructors to rethink their pedagogical approaches and create an entirely new teaching presence.

N. Jones (2008) shares this view that online instruction is not simply a matter of taking traditional teaching materials and making them available electronically, but an approach that must take into account pedagogical, technological and organisational issues (Jochems, Koper, & Van Merrienboer, 2003).

The needs of the students should take precedence in the instructional design. Laurillard (2002) advocates that higher education should adopt a more constructivist framework to enhance the learning experience, by integrating appropriate use of technology with student and tutor communication. The design and presentation of course material should also consider the student approaches to learning, different learning styles and to identify what will motivate them to engage with online content. Drago and Wagner (2004) are also committed to the view that students have diverse preferred learning styles and effective instructors must design and deliver courses to meet the needs of those students.

The adequacy of staff skills is also integral to the quality of the instructional design. Bates and Poole (2003) make the point that the skills needed to implement technology effectively has increased in complexity and importance. Staff are therefore required to learn new skills in order to design and deliver technology-enhanced teaching. Hennessy, Ruthven, and Brindley (2005) provide a holistic approach to instructional design that incorporates some of the views expressed previously. In their opinion, teachers need specific knowledge and skills that utilise technology for improving education. Effective integration of technology into teaching means considering the needs of the students, the curriculum, available technology, as well as the lesson planning and media design issues, and to somehow combine them into a practice that will enhance student learning. de Vries et al. (2005, p. 220) puts forward the claim that “it is not hard to incorporate technology in teaching and learning” and it adoption does not necessarily lead to more efficient practices. This is perhaps the case if the course is poorly designed. Falconer and Littlejohn (2007, p. 42) acknowledge “the technologies that might enable teachers to meet these various needs are developing and changing rapidly … teachers receive little guidance on how to use these tools to best effect”.

3.12.3 Delivery

One of the major challenges faced by staff in the delivery of a blended approach is highlighted by Bates and Poole (2003, p. xiii), “You cannot possibly keep up with the technology. The paradox of technology enhanced education is that technology changes very rapidly and human beings change very slowly”. However, the quality and the effectiveness of blended learning are significantly influenced by the staff involved in its delivery. An overview of the key issues relating to staff attitudes, aptitude and workloads follows.

3.12.3.1 Staff Attitudes

The success of any initiatives to implement technology in an educational programme depends strongly upon the support and attitudes of teachers involved. It has been suggested that if teachers believed or perceived information and communications technology not to be fulfilling their own or their students' needs, they are likely to resist any attempts to introduce technology into their teaching and learning (Askar & Umay, 2001). Of the significant factors identified as affecting the successful use of computers in the classroom, are teachers' attitudes towards computers. These attitudes, whether positive or negative, influence how teachers respond to technologies. According to Huang and Liaw (2005), no matter how sophisticated and powerful the state of technology is, the extent to which it is implemented depends on teachers having a positive attitude towards it. Salmon (2005) noted that academic staff are naturally reluctant to change their methods of teaching and learning without a deep understanding of why and how and what the impact will be in terms of quality and any resultant benefits.

Ahadiat (2008) found that differences do exist among educators attitudes toward their choices of technology and the extent to which technology is used. This was influenced by teaching area, academic rank, course level, years of teaching experience, age and gender.

As reported in Bauer and Kenton (2005), research has shown computer technology to be an effective means for enhancing educational opportunities, however most teachers neither use technology as an instructional delivery system nor integrate technology into their curriculum. Even though the participants in their study were highly educated and adept with technology, their results found that this group was reluctant to integrate technology into their classrooms. This was attributed to outdated hardware, lack of appropriate software, technical difficulties and student skill levels. These circumstances prevented true technology integration.

Hsu (2010) differentiated between technology integration proficiency from teachers' computer proficiency. Using technology for instructional integration requires knowledge and skills which are different from simply using computers (Angeli & Valanides, 2009). Additionally Hsu (2010) and Swain (2006) concluded that teachers in their studies felt that technology integration was not a valuable use of time and effort, while other teachers felt technology was arduous to use (Hofer & Swan, 2006).

According to J. J. Smith and Greene (2013), change is sometimes slow and often slowest in education. Integration of technology into instruction happens when the teacher is comfortable and competent in doing so, provided that the technology resources are available to the teacher. These aspects of user acceptance are similar to those proposed in the Technology Acceptance Model (Davis, 1989) which will be discussed in Chapter 4.

3.12.3.2 Workload

As most higher education institutions tend to prioritise research over teaching, there is little incentive for academics to be innovative in their teaching. Many academics associate a greater workload to be an inevitable consequence of incorporating technology into their teaching. This is perhaps the most serious barrier to its increased use (Bates & Poole, 2003).

Ng (2007) highlighted the importance of the tutors' role in online teaching. Issues relating to workload and the stress associated with synchronous online interaction needed to be addressed for more effective use of online tutorials. Facilitating learning in real time involves complex and demanding tasks (Finkelstein, 2006). The difficulties encountered in managing online tutorials included the heavy demands of managing multiple tools for communication and presentation. Time and effort was required to prepare material for online tutorials sessions and monitor students' progress in addition to the existing academic workload (L. Anderson et al., 2006). The time required by instructors who implement blended courses will increase because they must develop digital content and moderate online learning. Transforming traditional courses into blended courses will require more instructor time than developing traditional courses because of the necessity of redesigning the course. Instructors and students typically incur an increase in the time they spend on learning new techniques and skills, and on interacting with each other in blended learning environments (McCarthy, 2010).

Although the skills required for online tutoring activities are in many ways similar to face-to-face delivery, e-tutoring may be considered to be more challenging (McPherson & Nunes, 2008). It can be more time-consuming in terms of preparation and delivery (Bernath & Rubin, 2001). According to Tinker (2001), the first time an online course is taught, it is common for tutors to spend 40%–50% more time than their equivalent face-to-face colleagues.

3.12.3.3 Aptitude of Instructor

Hirschheim (2005) identified the teaching skill of the instructor as a strong influencing factor in the quality of the learning experience. If students perceive a particular lecturer or tutor as interesting and entertaining with a sound understanding of the field and real-world experience, they may interpret an online learning option as more of a loss. However, if the instructor does not come across well in lectures, an online delivery format may be preferable. This is supported by Kvavik and Caruso (2005). In their key findings, it was reported that the instructor's skill in using IT in courses made a significant difference on the student's perception of the impact of IT in their learning.

De Laat and Lally (2003) emphasised the importance of having a tutoring team that has appropriate online tutoring skills necessary to explore and maximise the use of newly designed environments otherwise the success of such initiatives is compromised. Whitworth (2006) advised that both the tutoring team and the technical design team need to be aware of appropriate pedagogical approaches to maximise the benefits of tutoring and the use of new learning environments by students. According to McPherson and Nunes (2008, p. 2), if there is uncertainty and unfamiliarity of staff and students with new environments such as e-Learning, its implementation faces a high level of risk.

Ultimately, the quality of the online delivery is determined by its impact on improving student learning outcomes. Naaj, Nachouki, and Ankit (2012) consider student satisfaction to be a key indicator of the quality of the blended learning experience. The impact on the students is often a neglected element of the education technology equation given that students are the ultimate end users and beneficiaries of ICT-based in university teaching and learning (Biggs, 1999).

3.13 Other Considerations for Effective Design and Delivery

As technology becomes more integrated into the learning and teaching process, the challenge is to develop online materials that are appropriate to the diverse needs of our students (Wang, Wang, & Huang, 2006). Some of the key considerations for effective design and delivery are presented in the next section.

3.13.1 Needs of the Net-Generation / Digital Natives/ Millenials / Generation Y

To design an effective blended learning experience, technologies should be implemented more selectively, so that they are better aligned with the needs of our students. Most students currently attending university may be classified as part of a distinct group known as the 'Net Generation' which refers to the population emerging from those students born from the 1980s and the 1990s, which marked the introduction and dissemination of digital technology (Tapscott, 2008). This group is also referred to as 'Digital Natives' (Prensky, 2001) and 'Generation Y' (McCrindle, 2006) and 'Millenials' (Oblinger & Oblinger, 2005).

This generation, born between 1980 and 1994, is said to have been shaped by their experiences of having grown up surrounded by all the "toys and tools of the digital age" (Prensky, 2001, p.1). As this generation of students is so immersed in the use of digital technologies, various assumptions have been made both about their attitudes towards learning and their use of new technologies. They expect immediate answers, fast access to information, and to be assertive information seekers and adept at multi-tasking, which some see as a sign of a short attention span (Barnes, Marateo, & Ferris, 2007).

Other research on this generation of students suggests that their familiarity with digital technologies has influenced their learning preferences: they demand instant access to information, have a low tolerance for lectures and passive forms of learning, and expect technology to be an integral part of their education (Barnes et al., 2007; Lai & Hong, 2014; Oblinger & Oblinger, 2005; Philip, 2007). Garrison and Vaughan (2008, p. 86) explain that this Net Generation are able to move easily between face-to-face and online experiences depending on their needs and that the majority of undergraduates are relatively sophisticated users of communications technology. The findings of C. Jones, Ramanau, Cross, and Healing (2010, p. 2) provide further insights into this younger generation. Having grown up with computers and the Internet, digital natives are said to have a natural aptitude and high skill levels when using new technologies. The authors assert that this generational shift has consequences for approaches to learning because the new generation requires rapid access and quick rewards, is impatient with linear thinking and displays a novel capacity for multi-tasking.

According to Prensky (2001, p. 1),"Our students have changed radically. Today's students are no longer the people our educational system was designed to teach". There is a widening gap between students and their teachers, categorised as 'digital immigrants' those not born into the digital world. Therefore their teaching needs to be aligned with the skills, experiences and expectations of their 'digital native' students. It is generally assumed that students of this particular generation want technology for technology's sake, however, Garrison and Vaughan (2008, p. 142) caution that "higher education students are not totally swayed by technology and do have a discerning perspective about technology". This view is supported by an earlier study by Kvavik (2005, p. 17) in which the findings did not necessarily align with Prensky's view that one would expect to find that Net Generation students would demand greater use of technology in teaching and learning in the classroom. Only a moderate preference for technology was found. From their extensive study with more than 18,000 students and 63 institutions, Kvavik and Caruso (2005) found that this Net-Generation wanted technology to add convenience and connection but they only had a moderate preference for technology. This research found that whilst students value interaction, they were concerned that technology will further reduce communication with their instructors. The students perceived technology in the classroom as supplemental to their course experience but not transformational. It was also found students perceived that the use of technology was improving their learning.

Salaway, Caruso, and Nelson (2008, p. 11) found that age was a significant factor in terms of the usage of communication and collaboration technologies. Their survey reported that students were not looking for extensive use of ICT on their courses and that the use of information and communication technologies needed to be balanced with other activities, in particular face-to-face activity (Salaway et al., 2008, p. 16).

A study by Owston, Garrison, and Cook (2006) concluded that face-to-face contact was necessary for some first-year university students who need more guidance in their learning. As a consequence, a fully online course was transformed back to a blended format.

As cited in Boritz and Stoner (2014, p. 349), 'digital natives' make up almost the entire undergraduate population. It is therefore appropriate to consider the digital learning characteristics of this student cohort in the design of a blended learning environment. An overview of these characteristics is shown in Table 3.2.

Table 3.2 Digital Learning Characteristics of Digital Natives

CHARACTERISTIC	ELABORATION
Digitally Literate	• Able to use intuitively a variety of IT devices and navigate the Internet • Comfortable using technology but may have a shallow understanding • Visually literate • More likely to use the Internet for research than a library
Connected	• The particular device may change but they are always connected
Multi-Taskers	• They move quickly from one activity to another, sometimes performing several simultaneously
Need For Immediacy	• They demand fast responses—more value on speed than accuracy
Need For Experiential Learning	• Prefer to learn by doing rather than being told what to do • Discovery learners
Social	• Gravitate towards activities that involve social interaction • Open to diversity • Social nature aligns with preference for team work
Preference For Group Work	• Prefer to learn and work in teams • Depend heavily on peers
Preference For Structure In Learning / Goal Orientedness	• Prefer structure over ambiguity • Goal oriented
Preference For Images Over Text	• Prefer images over text • Do not like reading large amounts of text
Community Minded	• Prefer to work on 'things that matter' • Believe that science and technology can be used to resolve difficult problems

(Lai & Hong, 2014, p. 3) adapted from (Bullen, Morgan, & Qayyum, 2011)

3.13.2 Guidelines for the Selection of Educational Technology

The SECTIONS Model shown in Table 3.3 was developed by Bates (1995). It outlines the key factors and considerations to be made when universities make decisions about the choice of technology and the appropriate balance between different media. At the strategic level, if an institution is to deliver a course online, it may consider WebCT as the appropriate choice of technology. However, at the tactical level, the instructor will need to decide on the appropriate mix of audio, visual, graphics and text in the online teaching content. An awareness of these factors will provide some guidance in determining which choices of educational technology are most appropriate and financially feasible. By following these guidelines for the selection of educational technology, institutions will be better informed in making the choice that best suits the needs of its staff and students. This is a significant issue as it has direct implications for the level of adoption by staff and students of this new technology.

Table 3.3 The SECTIONS Model

	FACTOR	CONSIDERATIONS
S	Students	What is known about the students and the appropriateness of the technology for this particular group of students?
E	Ease of Use and Reliability	How easy is it for both teachers and students to use? How reliable and well-tested is the technology?
C	Costs	What media must be included to ensure that learning goals are achieved? How much will it cost (including the time and effort of the teacher) to develop teaching materials in this medium?
T	Teaching and Learning	What kinds of learning are needed? What instructional approaches will best meet these needs? What are the best technologies for supporting this teaching and learning?
I	Interactivity	What kind of interaction does this technology enable? Does it facilitate student interaction of the teaching materials? Does it facilitate student interaction between other students and staff?
O	Organisational issues	What are organisational requirements and the barriers to be removed before this technology can be used successfully? What changes to the organisation need to be made?
N	Novelty	How new is this technology? Will it require additional effort to learn and implement? Will it be disruptive to staff and students?
S	Speed	How quickly can this technology be incorporated into the course? How quickly can teaching materials be updated or changed?

Adapted from (Bates & Poole, 2003, p. 79)

3.13.3 Educational Technologies

As an instructional designer, it is important to have an understanding of the many different types of educational technologies that may be used in the design of a blended learning environment. An overview of commonly used technologies is presented in Table 3.4.

Table 3.4 Educational Technologies – Terms and Tools

TERM	DESCRIPTION
Blackboard	Example of a Virtual Learning Environment
Blog	A way of posting educational material online, normally organised by date and topic category. Images, video and audio can be shared in this manner. Blogs typically allow commenting, which can be a useful feature for teaching and learning.
Discussion Forum	A communication tool for posting messages, work, comments and opinions.
Elluminate	Elluminate is an interactive online communication tool which enables web conferencing with web, audio, video, and social networking to facilitate real-time collaboration between students and instructors. It may be used to review recordings of online tutorials.
Elluminate Live	Elluminate Live allows instructors and students to communicate and collaborate in real-time over the internet with their personal computer. Elluminate Live is used to conduct online tutorials that can be recorded and reviewed.
Lectopia / Echo 360	Lectopia is a web-based technology which allows the automated recording of audio and visual elements of face-to-face lectures for web delivery which are processed into a variety of streaming formats.
MOOC	Massive Open Online Course is an online course aimed at unlimited participation and open access via the web.
Mobile Learning	Using mobile phones and other handheld devices to facilitate teaching and learning.
Moodle	An Open Source Virtual Learning Environment
Podcast, Either Video or Audio	A method of delivering multimedia content. The video podcasts are sometimes called vodcasts or vidcasts.
RSS	A method used to push and pull content across the Internet. Particularly useful for subscribing to a podcast
Social Media	Social media tools are used to communicate between people on the web and can be used to support teaching and learning.
Web 2.0	Web 2.0 is the term used to describe websites and applications that allow anyone to create and share online information or material they have created. These include wikis, blogs, social networking, podcasting. Popular Web 2.0 sites include: Wikipedia, YouTube, Facebook and Flickr
Wiki	An editable tool for working with others that has a trackable history of changes (Wikipedia is the most popular example). Much like a blog, it can be used to share multimedia resources.
Virtual Learning Environment	An online space provided by the institution to support e-learning. All forms of digital media can be delivered using its various tools.

Adapted from (JISC, 2014)

Educational technology may be classified into four types of media: text and graphics, audio, video and digital multimedia. Any combination of these technologies can be combined with face-to-face delivery to facilitate a blended approach to learning and teaching.

The structural characteristics of educational technology can be divided into two main categories:

- ***Broadcast applications*** are one way technologies that move information from the producer of the information to the receiver. This would be appropriate for information transmission such as announcements and updates.

- ***Communications applications*** allow for equal communication opportunities among all participants. This would be appropriate for discussion forums and student feedback.

Each of these main categories can be divided into two sub-categories:

- ***Synchronous technologies*** require all participants to participate at the same time.

- ***Asynchronous technologies*** allow participants to access the technology at any time.
  (Bates & Poole, 2003)

Various technologies differ significantly on their key structural characteristics and consideration of these points of differentiation is important for educational purposes. There is evidence that certain technologies have educational advantages over others. Bates (1984) found that students rated recorded formats, such as video are better for learning purposes as the ability to pause and review provided students extra control over the recorded material.

Most subjects could benefit to some extent from a variety of media and that no single medium is likely to be sufficient for any tertiary level subject. It is also important to acknowledge that if there may be some activities and values in education that cannot or should not be replaced by technology (Bates & Poole, 2003).

3.14 Selection of Media and Technology

As can be seen from Table 3.4, there is a broad range of educational technologies available. In determining the appropriate media and technology to be used, Bates and Poole (2003) advise that the following factors should be taken into consideration:

3.14.1 Student Demographics

The increased diversity in the student population has posed major challenges for instructors as a variety of teaching approaches need to be considered to ensure that all students have the opportunity to learn to the best of their ability. First and second year students are less likely to be independent learners so the expectation for them to able to learn entirely through the use of technology would be unrealistic. In this situation, it would be more appropriate to use technology as a support to traditional classroom teaching. Final year students may benefit from a greater online component to the learning (Bates & Poole, 2003).

3.14.2 Accessibility

Regardless of how powerful a particular technology may be, if students cannot access it in a convenient and affordable manner, they cannot learn from it (Bates & Poole, 2003, p. 81). This is a most pertinent point when attempting to incorporate the latest technology into the curriculum. Whilst the use of vodcasts, podcasts or video-streaming of lectures may provide greater accessibility to lecture content, students who do not have a high-speed internet connection will encounter problems in downloading these online resources. Students will need to have access to adequate computer facilities and supporting software either on campus or at home (Bates & Poole, 2003).

3.14.3 Differences in Student Learning Styles

The design of teaching content should take into consideration the preferences for particular types of media and technology based on differences in learning styles. For visual learners, the use of diagrams and illustrations may be beneficial, however for aural learners, lectures or podcasts may have greater impact. Having an understanding of the dominant learning styles within a student cohort can provide guidance in selecting the most suitable media and technology (Bates & Poole, 2003).

3.14.4 Interface Design

One of the critical factors for educational websites is the interface between the student and the computer; it should be well-structured, intuitive to use and easy to navigate. Similarly, the design of online teaching materials should be easy to read and easy to use (Bates & Poole, 2003).

When creating teaching materials the instructor / designer should be mindful of the issues concerning navigation of the materials and screen layout and graphics. To add visual interest, features with webcam and animation can be used but they take up bandwidth. Such features should be only used if they provide an educational benefit, as slow delivery is extremely frustrating for learners and this may impact the level of adoption and use of these teaching materials (Bates & Poole, 2003).

3.14.5 Reliability

It is cautioned that instructors and designers should resist any temptation to incorporate the latest in cutting edge technology. If it is to be used in any significant or regular form of teaching, it should not be implemented until it has been properly trialled and tested (Bates & Poole, 2003).

3.15 What Is The Optimal Blend?

Given the various possibilities of blending face-to-face delivery with a range of educational technologies, it raises the question, what is the 'optimal blend'? From a recent review of literature in blended education, Arbaugh (2014) concludes that this is perhaps the most pressing issue and brings to attention the need for further work in determining optimal blends. Osguthorpe & Graham (2003) define an 'optimal blend' as the combination of classroom-based and online activities that best promotes student learning. According to Bonk and Graham (2006, p. xx), "the ideal blend is a blend of blends". Whilst this offers a seeming simple reply, there are many factors to be considered. Student access and computer skills, as well as the level of experience of teaching and support staff in delivering online course content are considered integral by Littlejohn and Pegler (2007) in determining what constitutes an optimal blend of traditional interface and technology. The blend can also refer to various activity and media blends. In formulating the ideal mix, the designer will have chosen the best approach to each activity and the best medium reflecting the most effective instructional practice (Littlejohn & Pegler, 2007). Napier and Smith (2009) considered the physical presence of the instructor and a course design that makes optimal use of the online resources to be of utmost importance in a blended learning environment.

Reflective practices are considered important to Beatty (2014) in stimulating innovative thinking as the designer combines personal experiences from the past with current practices and new approaches into a design which is a unique blend that fits the learning needs of the students and achieves the goals of the instructor. Evaluating blended designs offers insights and ideas that can lead to continual development toward an optimal mix.

Stein and Graham (2014, p. 9) focus on the increasing immediacy of access to information and connectivity via mobile technology such as smartphones, tablets and laptops. They purposely blend face-to-face and online activities to create optimal experiences by situating learning experiences online or onsite based on the relative strengths and weakness of each mode of delivery. In contrast, Bates (1995) prioritises the importance of essential teaching skills rather than the extent to which technology is used ... "Good teaching may overcome a poor choice in the use of technology, but technology will never save bad teaching; usually it makes it worse" (Bates, 1995, p. 12). Some guidance is provided by D. Clark (2003) toward the design, development and delivery of an optimal blend. He asserts that blended learning does not need to imply more methods of delivery, but merely better methods of delivery.

3.15.1 Criteria for Optimal Blend of Learning Delivery Methods

When deciding on the right blend of learning delivery methods, a number of key factors should be taken into account, these include:

- Does the new approach improve learning outcomes?
- Is the blend appropriate for my students?
- Does the blend fit into the culture of my institution?
- Do we have the resources to cope?
- Can our infrastructure support online components?

  adapted from D. Clark (2003) p.23

The optimal blend may also be influenced by the type of course (compulsory or elective), year level of course, experience of staff and students with the Learning Management System, students' prior knowledge in the subject and their preferred learning style. For example, if the course or unit is compulsory and students have little or no prior knowledge, it may be preferable to have a blend that uses technology to support face-to-face delivery. This approach may be more suited to first-year students who are new to university, not yet independent learners nor familiar with the Learning Management System.

Courses with a focus on numerical content may be more effectively delivered with the greater focus on face-to-face delivery enhanced with online learning options. Having an awareness of these factors will help determine an appropriate mix of traditional and online options that are aligned to the needs of our students. To gain some insight into the progress toward designing and delivering the optimal mix, it may be useful to refer to some critical success factors of e-Learning.

3.16 Critical Success Factors for e-Learning Delivery

McPherson and Nunes (2008) investigated and analysed critical success factors that are required to deliver e-Learning within higher education courses and programmes. Their findings revealed that staffing issues, pedagogically sound delivery models and training of both tutors and students are critical to the success of e-Learning. This research also highlighted a strong relationship between these factors and inspirational institutional leadership which is integral to the successful delivery of e-Learning within higher education. A synopsis of critical success factors for e-Learning delivery is shown in Figure 3.5.

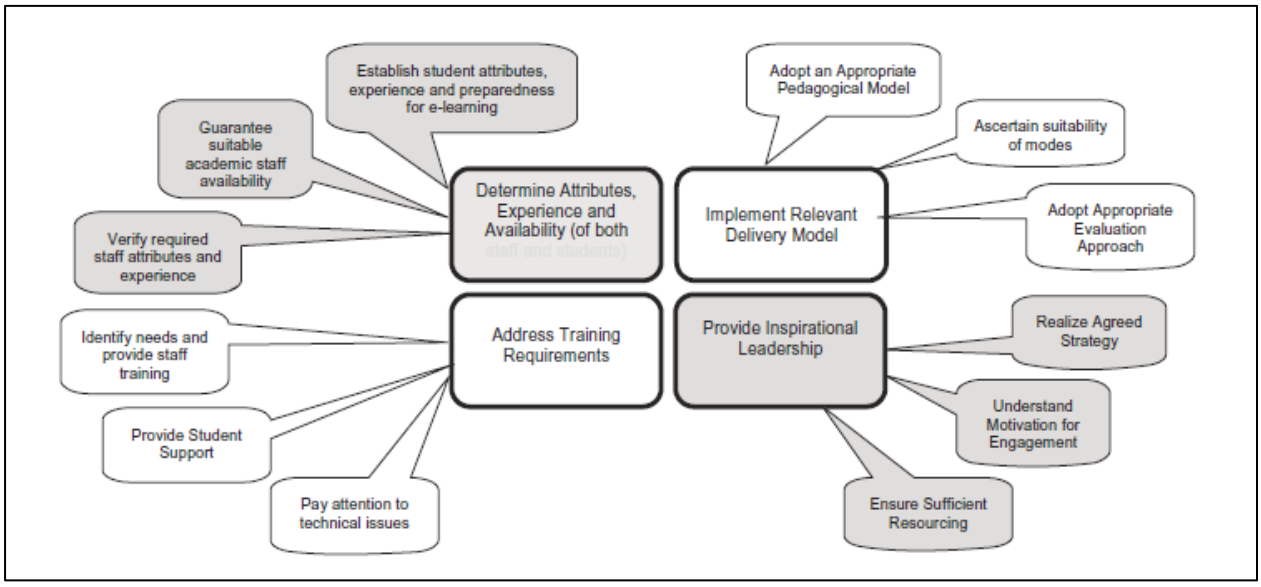


Figure 3.5 Synopsis of e-Learning Critical Success Factors for e-Learning Delivery (McPherson & Nunes, 2008, p. 7)

3.16.1 Attributes, Experience and Availability

Specific staff attributes and experience are critical to the success of e-Learning, in particular the role of the tutor. Suitable staff should be available and be given sufficient time to develop the experience and skills required for online teaching. Students also need to be properly equipped with the basic skills required for a successful transition to a new online learning environment (McPherson & Nunes, 2008).

3.16.2 Adequate Training Requirements

Appropriate training programmes should be provided for staff and students to ensure that both cohorts are adequately trained and ready to engage effectively within an e-Learning environment (McPherson & Nunes, 2008).

3.16.3 Implement Relevant Delivery Model

Detailed specification of learning needs, materials, activities and delivery methods need to be reviewed and matched with a sound pedagogical model that integrates the components of technology according to these learning needs (Nunes, 2003).

3.16.4 Provide Inspirational Leadership

As all formal e-Learning programmes exist within an organisational context, such as universities, it is clear that leadership has the power to facilitate, influence or even impede the development of e-Learning (McPherson, 2003).

3.17 Emerging Trends in Blended Learning

Recent research into the emerging trends suggests a greater use of Web 2.0 technologies. According to O'Brien (2014), one the key trends is to incorporate emerging web technologies into blended learning. The term 'Blend 2.0' has been used to describe the blend that combines mobile learning, gamification, and social media with classroom or instructor-led training. The use of new web technologies, such as gamification and social media can create a greater interactive component to blended learning. It has the potential to increase learner engagement and enthusiasm, increase the level of feedback and improve the overall success rate of the learning experience (O'Brien, 2014). A summary of these emerging Blend 2.0 trends is presented below:

3.17.1 Mobile Learning

Mobile learning (or m-learning) refers to the ability to receive educational content on handheld devices such as mobile phones, ipods, ipads, tablets, notebooks, laptops and other handheld devices to facilitate teaching and learning (JISC, 2014; Kim & Ong, 2005). According to O'Brien (2014), the mobile phone has become the primary resource for accessing information around the world. As this form of delivery enables access to content anytime and anywhere, it increases engagement, as well as providing a greater degree of flexibility and convenience to learning.

In their research on the use of iPods and podcasts in accounting education, P. Richardson et al. (2013) reported that students perceived portability to be the primary advantage of iPods, as it facilitated efficient and effective use of time and study. Similar findings were reported by Martin, McGill, and Sudweeks (2013) in their analysis of students' motivators for m-learning whereby the major motivators were mobility, the ability to study anytime, and accessibility to learning resources.

3.17.2 Gamification

Deterding, Dixon, Khaled, and Nacke (2011, p. 10) define 'gamification' as "the use of game design elements in non-game contexts." This is a relatively new and effective way of engaging users to perform actions in contexts that would otherwise be considered tedious and undesirable. Its application in enhancing student engagement in their learning could lead to improved grades or higher levels of comprehension (Giannetto, Chao, & Fontana, 2013). The integration of gaming elements can make the learning experience more enjoyable and engaging for the user. It has also proven to increase knowledge retention and motivation (O'Brien, 2014).

3.17.3 Social Media

According to Benson and Morgan (2014), social media is on its way in earning a distinctive place amongst educational technologies. Due to its unprecedented popularity amongst students, the adoption of social media for academic purposes has become inevitable (Benson & Morgan, 2014). Social media can be very effective and can be easily integrated into a blended program. Students can show mastery of content through a variety of digital tools such as blogging, Skype or video conferencing. Social media gives students the option to constantly share knowledge and interact with each other well beyond the confines of a traditional classroom (O'Brien, 2014).

3.17.4 Second Life™

Second Life™ is an online virtual world developed by Linden Lab in 2003 and was initially used in a gaming context. Its potential for educational purposes has been recognised more recently as it can provide options for collaborative learning, virtual training, experiential learning and prior learning assessment (Van der Valk, 2008). The application of *Second Life™* to engage students in learning accounting was explored by Hornik and Thornburg (2010). It was found that student engagement via *Second Life™* had a positive impact on their exam performance.

According to Bonk, Kim, and Zeng (2012) blended learning in its present state primarily functions as a replacement for or extension of face-to-face environments. However, as online environments advance into their second decade of extensive use in higher education the forms and formats of blended learning extend beyond these boundaries. Emerging trends and predictions relating to blended learning include:

3.17.5 Greater Visualisation, Individualisation and Hands-on Learning

As learning becomes more mobile, learning will be increasingly individualised, visual, and hands-on. It will have the capability of supporting a greater range of learning styles and individual differences in learning (Bonk et al., 2012).

3.17.6 Self-Determined Blended Learning

As the options for blended learning continue to expand, blended learning will increasingly address individual learning needs. The degree to which a programme is blended as well as the forms of blended learning employed will become increasingly the responsibility of the learner. This Individualised, self-paced style of learning will demand that the learners self-regulate their own learning (Bonk et al., 2012).

3.17.7 Increased Authenticity and On-Demand Learning

Blended learning will focus on authenticity and real-world experiences to supplement, extend, enhance, and replace formal learning. This trend in blended learning will provide a catalyst for advancements in the creation and use of online case learning, scenarios, simulations and role play, and problem-based learning (Bonk et al., 2012).

3.17.8 Greater Flexibility in Learning

The continual expansion of blended learning options will change the notion of when learning occurs. Learners will be less confined to traditional calendars for learning and will able to take advantage of unique learning blends when they become available to complete courses, degrees, and learning experiences when their schedules permit. Learning will take place when the learner feels the need and has the time to study, rather than being bound to an institution's academic calendar (Bonk et al., 2012).

As can be seen from these emerging trends and predictions, the blend will continue to diversify as new, more innovative technologies emerge as instructors discover new ways to deliver enhanced, richer and more engaging learning experience.

3.18 Meta-Analysis of Blended Learning Studies

As explained by Greenland and O'Rourke (2008), meta-analysis comprises statistical methods for contrasting and combining results from different studies with the aim of identifying patterns among study results, sources of disagreement among those results, or other interesting relationships that may be revealed in the context of multiple studies. Since 1990, there have been numerous meta-analyses of studies in blended learning that aim to make some distinction between the impact of technology-enhanced classrooms and traditional classrooms upon students' academic performance (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014).

A recent meta-analysis by Zhao and Breslow (2013) reviewed 42 studies on blended / hybrid learning that span from 1999 to 2013. The majority of these studies related to a range of disciplines within a higher education context. It was found that of these 42 studies: 25 studies showed a significant favourable difference in the academic performance of students exposed to some form of blended / hybrid learning; 7 studies found mixed results and 10 studies found no significant difference between the control group that were confined to traditional formats compared and the blended / hybrid learning treatment group. These findings indicated that in the majority of studies reviewed, a positive outcome associated with blended / hybrid learning was evident.

Another significant meta-analysis was undertaken by Bernard et al. (2014) which is part of a larger meta-analysis by Schmid et al. (2014), which examined all forms and configurations of technology used in higher education from 1990 through 2010, to investigate the impact on student achievement. In this larger study, more than 9,000 abstracts were identified and reviewed. This resulted in the full-text retrieval of about 3,700 primary research studies that were potentially suitable for the analysis, however, after a thorough review of these documents, 674 studies were considered relevant for further analysis (Bernard et al., 2014).

The meta-analysis by Bernard et al. (2014) focuses on blended learning in higher education. This smaller study was confined to the review of 96 relevant studies. The most general conclusion reported from this meta-analysis was that the improvement in student achievement related to blended learning was low but significantly greater than zero (Bernard et al., 2014). The extensive studies by Bernard et al. (2014) and Schmid et al. (2014) compared the presence of technology in the treatment condition to a traditional classroom with little or no technology. Both studies infer from their results that the impact of technology integration in higher education, whether into full face-to-face classrooms or in distributed venues in the case of the blending of class instruction and online instruction, is effective to a modest but significant degree (Bernard et al., 2014). These results appear to dispel R. E. Clark's (1983) claim that technology has a no effect on enhancing learning outcomes under any conditions.

3.19 Summary

This chapter provided a brief overview of higher education and the changes that led to the growing trend toward blended learning. The changes included: public pressure for greater access to higher education, the rapid increase in the number of tertiary institutions and significant cuts in government funding. Universities were required to deal with more students with less funding. This resulted in greater diversity within a growing student population along with a greater demand for greater flexibility. The convergence of these changes combined with the rapid advances in technology led to the emergence of blended learning. To highlight differing interpretations of what constitutes 'blended learning', three models were reviewed: the Continuum of e-Learning, the Continuum of Blended Learning and Sloan Consortium's Methods of Delivery. The major advantages associated with blended learning are generally related to flexibility, access and convenience. The major disadvantages associated with greater use of technology in education include: high frustration levels, lower levels of satisfaction and interest, technical and logistical problems, lack of instructor interaction, lack of motivation to complete studies and high drop-out rates.

The quality and the effectiveness of a blended learning approach are significantly influenced by staff attitudes, aptitude and workloads. As technology becomes more integrated into the learning and teaching process, the challenge is to develop online materials that are aligned to the diverse needs of our students. As 'digital natives' comprise almost the entire undergraduate population, it is appropriate to consider the characteristics of this student cohort in the design of a blended learning environment.

Different types of educational technologies used in the design of a blended learning environment were also reviewed. In the selection of appropriate media and application of educational technologies to be used, important considerations included: student demographics, accessibility and differences in student learning styles. The notion of what constituted an optimal blend of face-to-face delivery with educational technology was discussed. An overview of the four critical success factors to facilitate the effective design and delivery of e-Learning was then presented. These related to: attributes and experience of staff and students, training requirements for staff and students, implementation of a relevant delivery model and inspirational leadership. A summary of emerging trends and predictions for blended learning was provided. This chapter concluded with coverage on recent meta-analyses on blended learning in higher education.

The next chapter will be the third and final chapter on the review of literature for this thesis. It will commence with an overview of fundamental teaching and learning concepts. It will then continue with a review of adoption models relevant to the introduction and usage of new technology.

CHAPTER 4
TEACHING AND LEARNING CONCEPTS & ADOPTION OF TECHNOLOGY

4.1 Introduction

Bates (1995) stresses the point, that regardless of the technology used, it is good teaching that matters. “Good teaching may overcome a poor choice in the use of technology, but technology will never save bad teaching; usually it makes it worse” (Bates, 1995, p. 12).

The selection and use of technology in a blended learning environment is influenced by our beliefs and assumptions about how our subject should be taught and how our students learn. In order to design an effective blended learning environment which addresses these issues, it is important to have an understanding of the basic concepts about teaching and learning (Bates & Poole, 2003). This view is shared by Webster and Sudweeks (2006); that without these fundamentals, it may be difficult for academics to attain the requisite skills to be a good teacher in order to promote good e-Learning practice.

This chapter is initially divided into two distinct sections: Teaching and Learning Concepts, and the Adoption of Technology. The first section will review some fundamental educational concepts and their influence on the quality of student learning outcomes. These include: special needs of a first-year accounting unit, models of student learning, student approaches to learning, styles of learning and constructive alignment. The second section will review models of adoption relevant to the introduction and usage of technology into a blended learning environment. This final section of this chapter will commence with a summary of the literature review and conclude with the development of conceptual framework used in this thesis.

4.2 How First-Year Accounting Differs From Other Accounting Units

One of the primary aims of this research is to improve the learning experience of students in their introductory accounting unit at Victoria University. As a compulsory first-year unit in a business degree, it generally attracts a large number of students which comprise both accounting and non-accounting majors, locally and internationally. As reported in Mintz and Cherry (1993) earlier studies have suggested that changes in accounting education should begin with the very first unit in accounting as it not only sets the tone, but also provides the foundation for further interest in accounting studies. This principle is not confined to accounting, but applicable to all compulsory first-year units. This is an important consideration as many of these students will have no prior knowledge in accounting and it will be their first exposure to a new learning environment. The content and design of the curriculum, content and teaching materials needs to take into account the diverse nature and needs of first-time users to effectively engage students in the learning process. Nelson et al. (2006) make the point that students in their first year have special learning needs that arise from the social and academic transition they are experiencing. From multiple starting points, all students are on a journey to becoming self-managing and self-directed learners and the first-year curriculum must help get them there.

It is essential for students to have a positive experience in the very early stages of their tertiary education to reinforce the benefits to be gained, by providing an incentive and motivation to learn and interact with the new technology in future studies. In an investigation of students' perceptions of introductory accounting, Mladenovic (2000, p. 135) makes reference to previous research which show that students come to their study of introductory accounting with many negative stereotypical perceptions of accounting (J. Cohen & Hanno, 1993; Cory, 1992; Fisher & Murphy, 1995; Friedlan, 1995; Saudagaran, 1996). It is important to change these negative perceptions as students' perceptions are integral to the learning process because they influence students' learning approaches, which in turn, impact upon their learning outcomes (Biggs, 1993b; Ramsden, 1992).

4.3 Models of Student Learning

It has been found that student perceptions of their learning context are closely associated with the quality of their learning outcomes. How students perceive the key aspects of the learning context, such as assessment, workload, independence, the quality of the teaching and the clarity of the goals and standards are closely related to the quality of learning experienced by students (Entwistle & Ramsden, 1983; Ramsden, 1991, 2002).

In a review of key researchers in the field of higher education teaching and learning, Kandlbinder (2013) identified the most commonly referenced researchers in this field were: Ference Marton, John Biggs, Noel Entwistle, Paul Ramsden. This was the basis for the selection of models of student learning presented in the following section.

4.3.1 Ramsden's Model of Student Learning in Context

Prior research into the approaches-to-learning literature emphasises the contextual nature of learning (Biggs, 1993b; Entwistle, 2003; Marton & Säljö, 1984; Prosser & Trigwell, 1999; Ramsden, 2002). This aspect is featured in Ramsden's (2003) Model of Student Learning in Context which also uses a systems approach to describe how students experience learning. Learning is not viewed in isolation, but viewed in relation to the many factors in the learning environment. Ramsden identifies five key factors that affect student learning outcomes: previous educational experiences, orientation to studying, context of learning, perception of task requirements and approach to study (Ramsden, 2003).

The inter-relationship between these various factors is depicted in Ramsden's Model of Student Learning in Context in Figure 4.1.

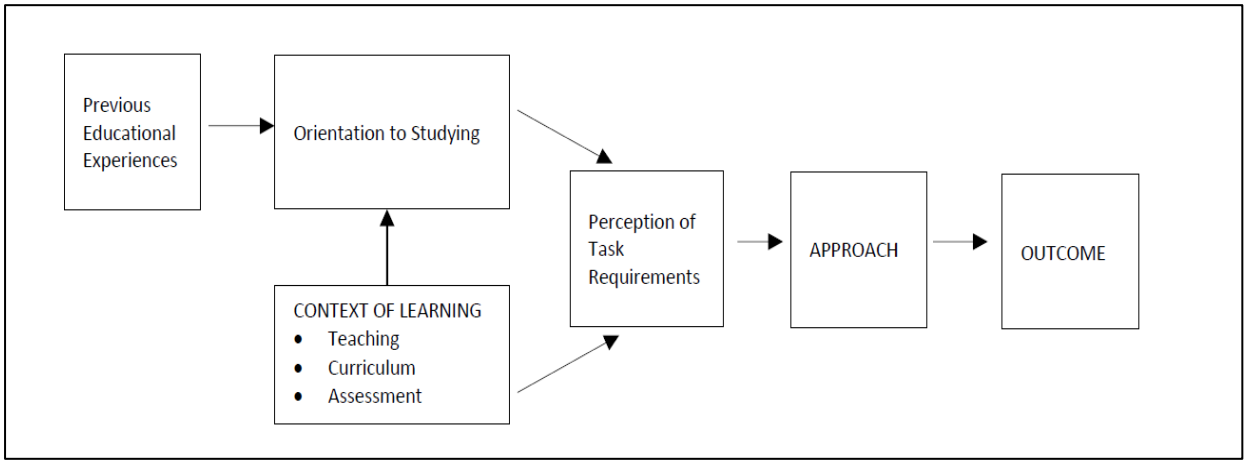


Figure 4.1 Model of Student Learning in Context (Ramsden, 2003, p. 83)

The factors affecting the students' orientation to study are separated into two sections: previous educational experiences and the context of learning. The context of learning includes teaching methods, curriculum and assessment. Each factor in this preliminary stage of Ramsden's (2003) Model of Student Learning in Context can interact and influence the students' preferred approach to learning and ultimately impact upon the success of the learning outcome.

4.3.2 Biggs' 3P Model of Teaching and Learning

A more detailed approach is undertaken in Biggs' 3P Model of Teaching and Learning. As shown in Figure 4.2, Biggs' (1993) model comprises three separate stages at which learning-related factors occur: firstly, the Presage stage which exists before learning takes place, secondly, the Process stage which occurs during learning, and thirdly, the Product stage which relates to the learning outcomes achieved (Biggs, 1993a).

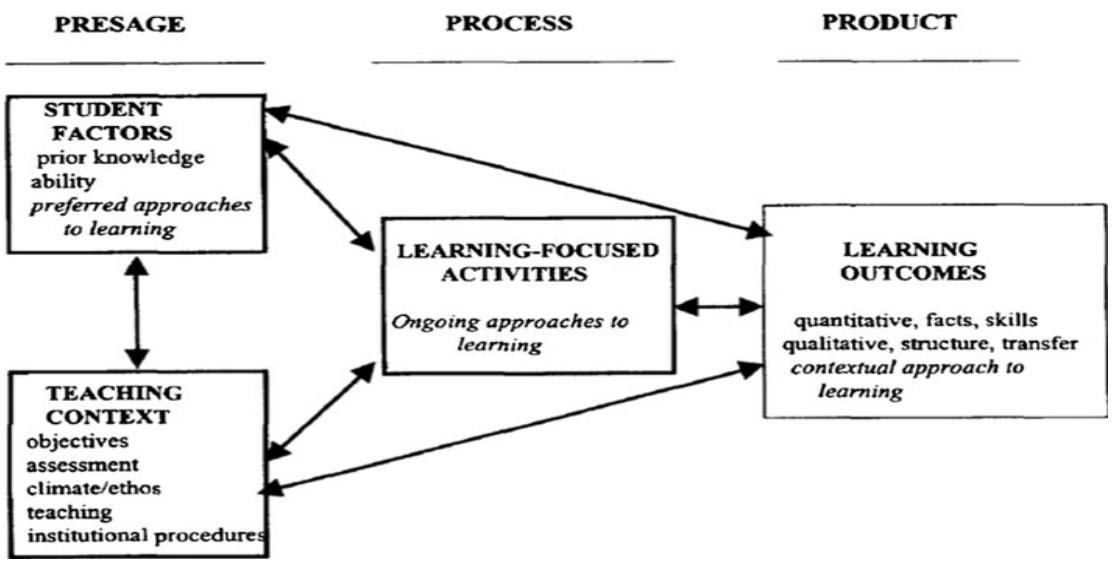


Figure 4.2 The 3P Model Of Teaching And Learning (Biggs, Kember, & Leung, 2001, p. 136)

The factors affecting the Presage stage are divided into two sections: student factors and teaching context. Student factors include: prior knowledge, ability and their preferred approaches to learning. The teaching context factors include: the nature of the content being taught, methods of teaching and assessment and the institutional procedures. These factors interact and lead to the Process stage which determines the students approach to learning a particular task, which in turn leads to Product stage which determines the learning outcome (Biggs et al., 2001, p. 136).

Each stage in the 3P model can affect the other two stages, so that a student's preferred approach to learning will adjust to the particular teaching context and course being taught, and eventually impact upon the success of the learning outcome. This model demonstrates the interaction between these various components and that high quality learning outcomes can be best achieved when there is alignment amongst these components. In the 3P model, all these factors mutually interact to form one dynamic system of teaching and learning (Biggs et al., 2001).

4.3.3 Entwistle's Conceptual Framework Indicating Influences on Student Learning

Entwistle's Conceptual Framework combines the key elements from Biggs (1993) 3P Model of Teaching and Learning and Ramsden's (2003) Model of Student Learning in Context. The focal concept is the quality of learning achieved and the surrounding concepts refer to the various influences affecting learning outcomes (Entwistle, 2003). The interaction between these factors is shown in Figure 4.3.

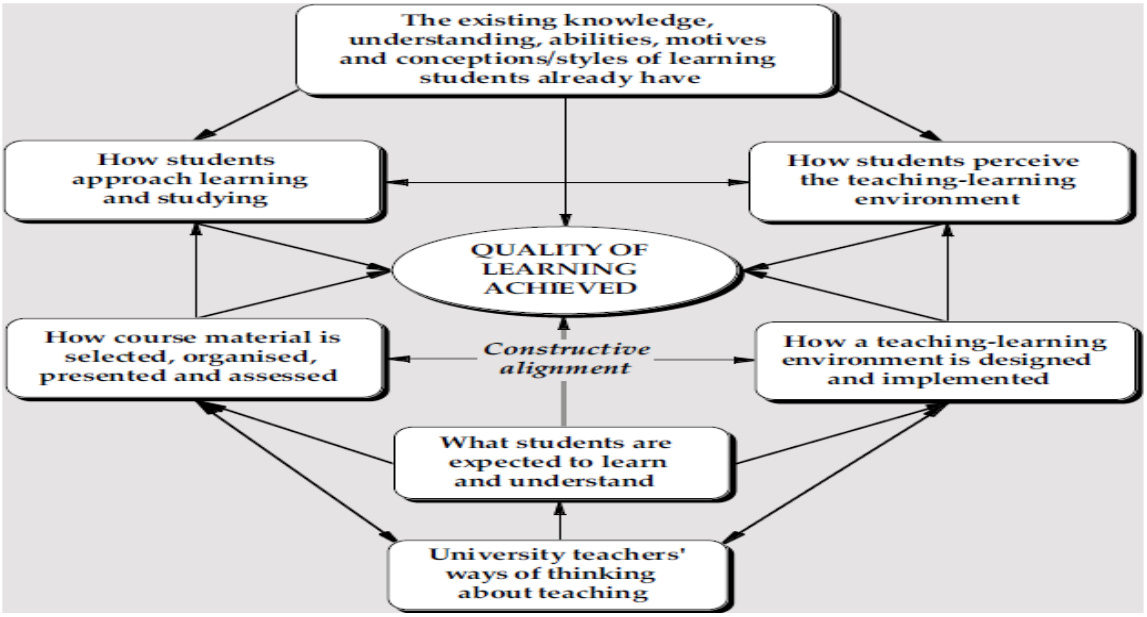


Figure 4.3 Conceptual Framework Indicating Influences On Student Learning (Entwistle, 2003, p. 1)

It may be seen from Figure 4.3 that the influences affecting learning outcomes and the quality of learning achieved are divided into two sections. The upper section of this conceptual framework identifies the factors that relate to the students' approach to learning and their perceptions of the teaching-learning environment. These factors include: prior educational experience, level of understanding and ability and styles of learning.

The lower section considers those influences that are attributable to teachers. These include: the selection, organisation, presentation and assessment of course material, the design and implementation of the teaching–learning environment, and the constructive alignment between these two factors. Their ways of thinking about teaching and their expectations about what students should learn and understand are also acknowledged. Each of these teaching related influences affect students' learning and ultimately impact upon the quality of learning achieved.

4.4 Student Approaches to Learning

According to Garrison and Vaughan (2008), the blend of face-to-face and online learning approaches can only be integrated successfully with an understanding of fundamental teaching and learning processes. They assert that the challenge is to design a teaching and learning environment that engages students in a deep and meaningful manner. Research into student approaches to learning was first instigated by Marton and Säljö (1976b) with their work on qualitative differences in learning. Their studies identified that the way students approached reading and analysing texts was closely related to the level of learning outcomes. When students were asked to describe how they learned when they read, two distinct approaches to learning were found. Those students who tried to memorise the material were classified as '*surface'* learners and those who tried to understand the material were classified as '*deep*' learners. The contribution of Marton and Säljö (1976b) is acknowledged by Biggs (2003) as influential among the key researchers in the study of learning and its implications for teaching, namely, Entwistle and Ramsden (1983) and Biggs (1979).

4.4.1 Surface Approach

Surface learners tend to have unreflective, rote and fragmented learning strategies. This approach is generally undertaken when the quantity of learning is rewarded rather than the quality of understanding (Garrison & Vaughan, 2008).

4.4.2 Deep Approach

Deep learners have the intention to comprehend the meaning and significance of the subject at hand. Students undertaking this approach tend to purposefully organise content is into meaningful structures. From an educational perspective, a deep approach is encouraged (Garrison & Vaughan, 2008). Entwistle (1987) agrees that deep learning is more desirable than surface learning as deep learners are more likely to go beyond the memorisation of facts to understand the principle being applied.

4.4.3 Strategic / Achieving Approach

Ramsden (1979) identified and named a third approach, a '*strategic*' approach. Students adopting this approach use both deep and surface approaches, as appropriate, and have a competitive and vocational motivation. Strategic approach learners are those students with the intention of achieving the highest possible grades by using organised study methods and effective time-management (Entwistle & Ramsden, 1983). The term '*achieving*' is used by Biggs (1987) to describe this approach.

The motives and strategies for these three approaches are provided in Table 4.1.

Table 4.1 Motive and Strategy in Approaches to Learning and Studying

APPROACH	MOTIVE	STRATEGY
SA: SURFACE	Surface Motive (SM) is instrumental: main purpose is to meet requirements minimally: a balance between working too hard and failing.	Surface Strategy (SS) is reproductive: limit target to bare essentials and reproduce through rote learning.
DA: DEEP	Deep Motive (DM) is intrinsic: study to actualise interest and competence in p articular academic subjects.	Deep Strategy (DS) is meaningful: read widely, inter-relate with previous relevant knowledge.
AA: ACHIEVING	Achieving Motive (AM) is based on competition and ego-enhancement: obtain highest grades, whether or not material is interesting.	Achieving Strategy (AS) is based on organising one's time and working space: behave as 'model student'.

(Biggs, 1987, p. 11)

The defining features of these three approaches to learning are summarised in Table 4.2.

Table 4.2 Defining Features of Three Approaches to Learning

DEEP APPROACH	• Intention to understand • Vigorous interaction with content • Relate new ideas to previous knowledge • Relate concepts to everyday experience • Relate evidence to conclusions • Examine the logic of the argument
SURFACE APPROACH	• Intention to complete task requirements • Memorise information needed for assessments • Failure to distinguish principles from examples • Treat task as an external imposition • Focus on discrete elements without integration • Unreflectiveness about purpose or strategies
STRATEGIC APPROACH	• Intention to obtain highest possible grades • Organise time and distribute effort to greatest effect • Ensure conditions and materials for studying appropriate • Use previous examination papers to predict questions • Be alert to cues about marking schemes

(J. T. E. Richardson, 1994, p. 451) Source: adapted from (Entwistle, 1987, p. 16)

Ginns and Ellis (2007) assert that the quality of student approaches to learning is closely associated with the quality of their learning outcomes. Prior research involving students in a variety of disciplines has found that students adopting a deep approach to learning generally have more successful learning outcomes. These students achieve higher exam scores and course grades as well as experience a higher level of satisfaction from learning. In contrast, students adopting a surface approach to learning are generally associated with poorer learning outcomes and a lower level of satisfaction from learning (Biggs, 2003; Ramsden, 2003). Whilst literature on student approaches to learning maintains that the distinction between surface and deep learning is applicable to all disciplines, Ramsden (2003) makes the point that this distinction may need to be reinterpreted for different subject areas. As students learn differently in different situations, what may be classified as a deep or surface approach may vary according to the academic task as ‘‘learning is always the learning of some particular context’’ (Ramsden, 2003, p. 49). In accounting, the initial competencies that students must learn, for example, terminology and basic concepts can be learned using surface strategies such as rote learning and paraphrasing. Students must learn these competencies before they can progress to higher levels of understanding, which involve application and analysis.

This demonstrates the use of a surface strategy as part of a deeper approach to learning (English, Luckett, & Mladenovic, 2004; Hall, Ramsay, & Raven, 2004). The approach to learning adopted may also be influenced by the level of student engagement. According to Bates and Poole (2003), an engaged student will feel more involved in the learning process. The term 'engagement' is defined by Newmann (1992) as a student's 'psychological investment' in learning. If the student feels part of the learning process, this is more likely to motivate and enhance their learning. A higher level of engagement with course materials increases the chances of a deeper level of learning attained by the student.

Student engagement can also be affected by the students' sense of connection with their place of learning (Bates & Poole, 2003). In a study of Australian university students, McInnes and Hartley (2002) reported that engagement with one's institution is on the decline as students are required to spend considerable hours in paid employment that takes them away from student life on campus. This situation is still current in 2014 with the Australian Government's reforms to higher education that could result in students paying higher fees and greater interest on loans for their degrees (Lee, 2014). The Australian Federal Budget 2014 aims to reduce funding to higher education by $2.3 billion. This will lead to a reduction in course offerings, less staff, overcrowded classrooms and more units delivered online (Curtin Student Guild, 2014).

The level of student engagement is increased when students feel a sense of control over their own learning and that they are more likely to engage in the material if it is perceived to be meeting their needs (Alderman, 2013). Therefore, the design of online teaching resources requires creative use of technology and content should be constructively aligned to enhance the level of student engagement (Bates & Poole, 2003).

4.5 Learning Styles

Sarasin (1998, p. 3) defines learning styles as "the preference or predisposition of an individual to perceive and process information in a particular way or combination of ways." As the student population has become more diverse, differences in student learning styles has become a significant issue in higher education. Bates and Poole (2003) acknowledge the difficulty in accommodating a diverse range of learning styles and reinforce the importance of having an understanding that our students learn in a variety of ways. The course and content should be equally varied to take into account these differences (Bates & Poole, 2003). Students experience a higher level of satisfaction and learning outcomes when the teaching style is aligned to students' learning style (Eom, Wen, & Ashill, 2006). A similar view is shared by Corno and Snow (1986). Achieving successful learning outcomes is dependent on the ability to adapt teaching to individual differences of students. A teacher must create an environment where the needs of a variety of learners can be accommodated (Corno & Snow, 1986).

As explained by Drago and Wagner (2004), studying may viewed as a process that involves taking information and processing that information. How a student processes and learns from this information can be impacted by several factors. These factors may be perceived as dimensions to the study of learning styles (Drago & Wagner, 2004). According to Dunn, Beaudry, and Klavas (1989), learning styles should be seen as having at least four general dimensions. These are shown in Table 4.3.

Table 4.3 Four General Dimensions of Learning Styles

COGNITIVE	how individuals typically process information as they perceive, think, solve problems, remember and relate to others
AFFECTIVE	views learning as it relates to a person's personality, considers such characteristics as attention, emotion, motivation, incentive, curiosity, boredom, anxiety and frustration
PHYSIOLOGICAL	views learning as it relates to biological characteristics, for example, what senses (auditory, visual or kinesthetic) are used for learning
PSYCHOLOGICAL	views learning as it relates to the inner strength and individuality of the individual

(Drago & Wagner, 2004, p. 2)

Learning styles have important implications on the choice and use of technology for teaching. Students differ considerably in how they learn and in their need to use technology for learning. Their mode of learning, full-time or part-time, their attitude and aptitude toward the use of computers, level of computer literacy, as well as navigation and keyboard skills are all factors which may influence the student's willingness to use technology for learning (Bates & Poole, 2003).

There are many different learning styles. In their extensive review of literature on learning styles Coffield, Moseley, Hall, and Ecclestone (2004), over 70 different styles are identified. However, for the purpose of this research, an overview of the three prominent and distinct styles is provided in the following section.

4.5.1 Myers-Briggs Type Indicator

According to Bates and Poole (2003) the Myers-Briggs Type Indicator (MBTI) is one of the more widely used assessments of learning styles. This model profiles an individual's personality traits using a series of forced-choice questions relating to four bi-polar scales as shown in Figure 4.4

Figure 4.4 The Four Bi-Polar Scales Of The MBTI (Coffield et al., 2004, p. 47)

The standard version of the MBTI contains 93-items (Coffield et al., 2004, p. 47) and the personality traits of the 10 most common MBTI types are presented in Figure 4.5.

Type	Positive traits	Negative traits
INFP	Artistic, reflective, sensitive	Careless, lazy
INFJ	Sincere, sympathetic, unassuming	Submissive, weak
INTP	Candid, ingenious, shrewd	Complicated, rebellious
INTJ	Discreet, industrious, logical	Deliberate, methodical
ISTJ	Calm, stable, steady	Cautious, conventional
ENFP	Enthusiastic, outgoing, spontaneous	Changeable, impulsive
ENFJ	Active, pleasant, sociable	Demanding, impatient
ENTP	Enterprising, friendly, resourceful	Headstrong, self-centred
ENTJ	Ambitious, forceful, optimistic	Aggressive, egotistical
ESTJ	Contented, energetic, practical	Prejudiced, self-satisfied

Figure 4.5 Summary of the 10 Most Common MBTI Types (A. Thorne & Gough, 1999)

A study conducted by Okike (2014) investigated the role of personality traits and study habits in students' academic achievements in the computing sciences. It concluded that distinctive personality types may enhance academic achievement. The best achievers from this study were students who possessed personality types ENFJ, INFJ, ENTJ, INTJ.

4.5.2 Kolb's Learning Styles Inventory

One of the most influential models of learning styles developed by Kolb is based on his theory of experiential learning and the instrument devised to test the theory, the Learning Style Inventory (LSI) (Coffield et al., 2004, p. 60). According to Kolb (1984, p. 41), "learning is the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping experience and transforming it".

Effective learners need four kinds of ability to learn: from concrete experiences (CE); from reflective observations (RO); from abstract conceptualisations (AC); and from active experimentations (AE). Kolb describes the process of experiential learning as a four-stage cycle which involves these four adaptive learning modes (Coffield et al., 2004, p. 61).

These four capacities; CE, RO, AC and AE are presented as structures along two independent axes as shown in Figure 4.6.

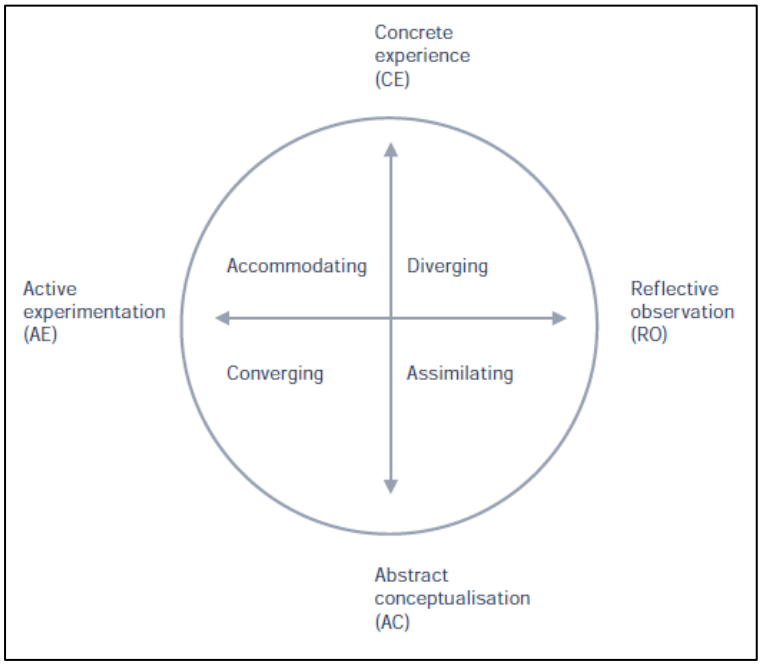


Figure 4.6 Kolb's Four Learning Styles (Coffield et al., 2004, p. 62)

From this structure Kolb identified four corresponding learning styles. In Kolb's revised version of the LSI (Kolb, 2000, p. 5), these are identified as converging, diverging, assimilating and accommodating. The main characteristics of Kolb's four learning styles of are summarised below in Table 4.4.

Table 4.4 Main Characteristics of Kolb's Four Learning Styles

TYPE 1: The Converging Style (abstract, active)	Relies primarily on abstract conceptualisation and active experimentation; is good at problem solving, decision making and the practical application of ideas; does best in situations like conventional intelligence tests; is controlled in the expression of emotion and prefers dealing with technical problems rather than interpersonal issues.
TYPE 2: The Diverging Style (concrete, reflective)	Emphasises concrete experience and reflective observation; is imaginative and aware of meanings and values; views concrete situations from many perspectives; adapts by observation rather than by action; interested in people and tends to be feeling-oriented.
TYPE 3: The Assimilating Style (abstract, reflective)	Prefers abstract conceptualisation and reflective observation; likes to reason inductively and to create theoretical models; is more concerned with ideas and abstract concepts than with people; thinks it more important that ideas be logically sound than practical.
TYPE 4: The Accommodating Style (concrete, active)	Emphasises concrete experience and active experimentation; likes doing things, carrying out plans and getting involved in new experiences; good at adapting to changing circumstances; solves problems in an intuitive, trial-and-error manner; at ease with people but sometimes seen as impatient and 'pushy'.

(Coffield et al., 2004, p. 61)

4.5.3 Fleming's VARK model

According to Eom et al. (2006), the design of online content to engage students should consider the physiological dimension of the study of learning styles which identifies the senses used for learning. A popular model that addresses this aspect of learning is the VARK model which refers to Visual, Aural, Read / Write and Kinesthetic (Drago & Wagner, 2004, p. 2). A description of each of these physiological dimensions is provided in Table 4.5.

Table 4.5 Overview of VARK

VISUAL	Visual learners like to be provided demonstrations and can learn through descriptions. They like to use lists to maintain pace and organise their thoughts. They remember faces but often forget names. They are distracted by movement or action but noise usually does not bother them.
AURAL	Aural learners learn by listening. They like to be provided with aural instructions. They enjoy aural discussions and dialogues and prefer to work out problems by talking. They are easily distracted by noise.
READ / WRITE	Read / Write learners are note takers. They do best by taking notes during a lecture or reading difficult material. They often draw things to remember them. They do well with hands-on projects or tasks.
KINESTHETIC	Kinesthetic learners learn best by doing. Their preference is for hands-on experiences. They are often high energy and like to make use of touching, moving, and interacting with their environment. They prefer not to watch or listen and generally do not do well in the classroom.

(Drago & Wagner, 2004, p. 3)

(Fleming, 1987)developed this model to help students and others learn more about their individual learning preferences. Learners are identified by whether they have a preference for visual learning, auditory learning, reading and writing, or kinesthetic learning. Having an understanding of these different learning preferences enables instructors to design their content and delivery to address each of these areas (Cherry, 2014). Students can also use this model to identify their preferred learning style and maximise their educational experience by focusing on what benefits them the most (Cherry, 2014). This view is supported by Eom et al. (2006), that different styles learning may apply to different styles of delivery. Their research suggests that students with visual learning preferences and read / write learning preferences may do better in online courses than students in face-to-face courses.

The three styles featured in this section highlight diverse and distinct approaches to learning. The Myers-Briggs Type Indicator (MBTI) associates learning style with the profile an individual's personality, In contrast, Kolb's Learning Styles Inventory is based on experiential learning whereby knowledge is created through the transformation of experience. The VARK model focuses on physiological dimensions and aligns a learning style according to which of the senses is predominantly used for learning. The variations within this small sample demonstrate the complexities involved in the consideration of different learning styles into the design of a blended delivery.

4.6 Seven Principles for Good Practice in Undergraduate Education

This chapter so far, has discussed different models of student learning, student approaches to learning and learning styles. However, to design an effective blended learning environment, it is important to have an understanding of the basic concepts about teaching and learning. Chickering and Gamson (1987) offer seven principles on good teaching and learning.

Good practice in undergraduate education:

- encourages student-faculty contact
- encourages co-operation among students
- encourages active learning
- gives prompt feedback
- emphasises time on task
- communicates high expectations
- respects diverse talents and ways of learning

Bates and Poole (2003) confirm that these principles are just as relevant for technology-enhanced teaching as they are for traditional face-to-face teaching.

4.7 Constructive Alignment

Each of the models of student learning discussed earlier in Section 4.3: Ramsden's Model of Student Learning in Context, Biggs' 3P Model of Teaching and Learning and Entwistle's Conceptual Framework Indicating Influences on Student Learning, have the common objective of improving learning outcomes. To achieve this, the concept of "constructive alignment" should be applied.

The underlying theory of constructive alignment draws together a constructivist view of education with a desire to promote a quality teaching environment in which "there is alignment between what we want, how we teach and how we assess" (Biggs, 1999, p. 26). The term constructive implies "a constructivist approach to teaching and stresses the importance of aims that focus explicitly on high quality learning and a deep level of understanding" (Love & Fry, 2006).

The notion of "constructive alignment" is best explained by Biggs (2003):

Learning is constructed as a result of the learner's activities. Activities that are appropriate to achieving the curriculum objectives result in a deep approach to learning. Good teaching supports those appropriate activities, thereby encouraging students to adopt a deep approach. Poor teaching and assessment result in a surface approach, where students use inappropriate and low-order learning activities. A good teaching system aligns teaching method and assessment to the learning activities stated in the objectives, so that all aspects of this system act in accord to support appropriate learning. This system is called constructive alignment, based as it is on the twin principles of constructivism in learning and alignment in teaching (Biggs, 2003, p. 11).

These principles are applicable and highly relevant within an online teaching and learning environment. As noted by Garrison and Vaughan (2008, p. 32), "education is a structured learning experience designed to achieve intended outcomes effectively and expeditiously. The role of the educator is to provide structure, support and shape a meaningful and worthwhile learning experience. Hence, considerable thought and care must be devoted to the design, facilitation and direction of the learning experience".

To encourage students to engage with online content, it is important to ensure that the content is constructively aligned to ensure that it is relevant and informative to facilitate the learning process. An effective online learning experience may be achieved if goals, approaches, strategies, techniques, tools, audience and context are considered in the design (Garrison & Vaughan, 2008).

4.8 Assessment and Student Feedback

Assessment is acknowledged as a significant driver of student learning (Biggs, 1996; Crooks, 1988; Elton & Laurillard, 1979). It has a powerful influence on students' approaches to learning, which in turn, affects the quality of their learning outcomes (Ramsden, 1985). The importance of appropriate assessment practices is emphasised by Biggs (2003), ''what and how students learn depends to a major extent on how they think they will be assessed. Assessment practices must send the right signal to students about what they should be learning and how they should be learning it'' (Biggs, 2003, p. 140).

Student perceptions of the demands of the assessment are acknowledged as a crucial in determining the learning approach adopted (Boud, 1995; Entwistle & Entwistle, 1991; Scouller & Prosser, 1994; Tang, 1994; Thomas & Bain, 1984). This view is confirmed by Bates and Poole (2003), claiming that the method of assessment is one of the most important factors in determining the extent to which students will engage in deep learning. According to Biggs et al. (2001, p. 138), the methods of assessment will ''encourage a surface approach when they are not aligned to the aims of teaching the subject.'' In their review of student perceptions about evaluation and assessment, Struyven, Dochy, and Janssens (2005) found that those students adopting a surface approach to learning preferred assessment methods which supported this approach. Multiple-choice and short-answer tests are examples of assessments which encourage this style of learning (Tang, 1994; Thomas & Bain, 1984).

Assessment procedures perceived by students as inappropriate also encourage surface approaches to learning (Struyven et al., 2005). Garrison and Vaughan (2008) also raise the issue of inappropriate techniques and make the point that excessive workloads can also negate student inquiry and deep approaches to learning. To overcome these problems, a diversity of assessment modes should be considered to spreading out of assessment deadlines to ensure that student workloads are seen to be fair and achievable in the time available (Race, 2005).

Students adopting a deep approach to learning preferred more challenging assessment procedures which allowed them to demonstrate their understanding (Struyven et al., 2005). More comprehensive types of assessments, such as essays or problem-based questions that require demonstration of personal understanding, encourage a deep approach to learning (Entwistle, 1997). As the preferred approach to learning, a student's course grade should reward accordingly for adopting a deep approach to learning (Dochy, Segers, Gijbels, & Struyven, 2007).

The amount of content in the assessment is also an important element in shaping student approaches to learning. Students will approach learning in the way that it is rewarded. If students are tested for recall only, a surface learning approach will be adopted. If the amount of content is overwhelming, students will have little chance to approach learning in a deep and meaningful way (Ramsden, 2003).

According to Garrison and Vaughan (2008), assessment is essential to any educational experience. Ramsden (2003) shares this view by explaining that assessment informs both teaching and learning as it diagnoses misunderstanding, judges achievement and provides feedback on the effectiveness of teaching methods. Nicol and Macfarlane-Dick (2006, p. 205) assert that good feedback is defined as "anything that might strengthen the students' capacity to self-regulate their own performance".

For feedback to influence students' future behaviour it must be timely so that they have a chance to act on it. This may provide students a stronger sense of progression (France & Ribchester, 2008). The point is also made that even the most carefully constructed feedback will be scrutinised by only a minority of students, as the students' main concern is their assessment mark (France & Ribchester, 2008).

4.9 Learning Outcomes

According to Trigwell and Prosser (1991), the major aim of higher education is to produce high quality learning outcomes among students. A learning outcome may be defined as a "specific skill, behaviour, or level of knowledge that students are expected to demonstrate after a period of instruction" (The World Bank Group, 2011). "Learning outcomes are typically measured to assess the degree to which students have mastered what they are expected to have learned. These measurements in turn provide evidence of an institution's success in achieving its instructional goals and targets" (Murphy, 2013).

Assessment performance is the commonly used term used to refer to evaluating student learning outcomes (Michlitsch & Sidle, 2002). Examples of different learning outcomes used in educational research include: examination results (Byrne, Flood, & Willis, 2002), student retention rates (Hughes, 2007), course completion rates, student attitudes toward the subject matter, student satisfaction with the mode of instruction (Heterick & Twigg, 2003), online assessments (P. Marriott & Lau, 2008), and multiple choice tests (Einig, 2013).

Garrison and Vaughan (2008, p. 148) assert that "the primary measure of the impact of blended learning will be the qualitative shift in the process and outcomes of learning itself. The results will be most readily determined by the satisfaction of our students and the success of our graduates".

The transformative potential of blended learning in improving learning outcomes is reinforced by Garrison and Kanuka (2004), asserting that this technology-enhanced delivery has the potential to be more effective and efficient than a traditional classroom model. As there is a growing expectation for more technology to be incorporated in the design and delivery of course content, it is appropriate to have an understanding of the issues associated with adoption of new technologies. The next section will discuss four different models of adoption.

4.10 Adoption Models

The value of an innovation may be compromised unless it is fully adopted. There are many theories, models and frameworks which address the adoption of innovations. This section will provide an overview of models applicable to e-Learning. These include the Theory of Reasoned Action, Technology Acceptance Model, Rogers' Diffusion of Innovations Theory, The Lewin / Schein Change Model and the e-Business Indicator Framework.

4.10.1 The Theory of Reasoned Action

The Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen (1975) has its origins in social psychology and considered a well-known theory of human behaviour (Davis, 1989). As explained by Davis (1989, p. 983), the underlying principle of TRA is that "a person's performance of a specified behaviour is determined by his or her behavioural intention (BI) to perform the behaviour and BI is jointly determined by a person's attitude (A) and subjective norm (SN)" (Davis, 1989, p. 983). The behavioural intention refers to the strength of an individual's intent to perform a specified behaviour. The person's attitude is defined as the positive or negative feelings toward executing the requisite behaviour. The subjective norm refers to "the person's perception that most people who are important to him or her think he or she should or should not perform the behaviour in question" (Davis, 1989, p. 984). A diagram depicting the model of the Theory of Reasoned Action is presented in Figure 4.7.

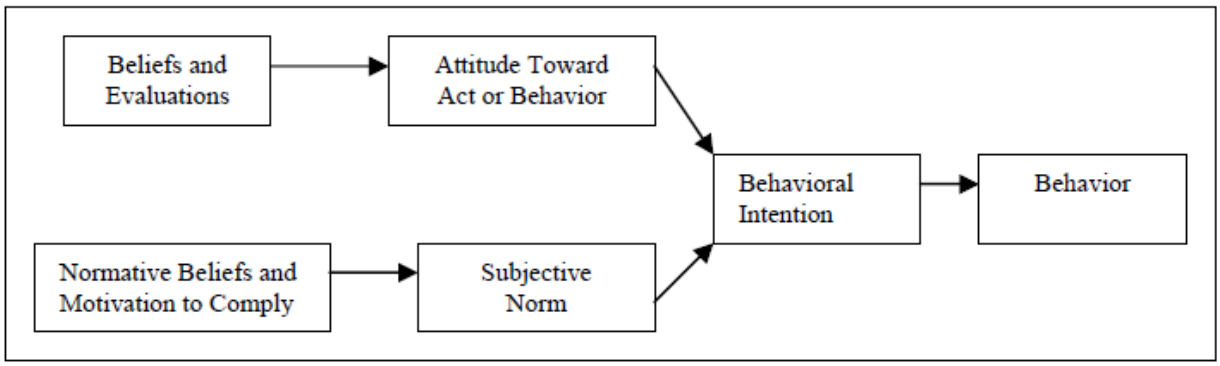


Figure 4.7 The Theory of Reasoned Action Model (Davis, Bagozzi, & Warshaw, 1989)

4.10.2 Technology Acceptance Model

The Technology Acceptance Model (TAM) is an adaption of the Theory of Reasoned Action for the purpose of modelling user acceptance of information systems (Davis, 1989). The initial concept was developed in 1986 as part of his doctoral thesis. A diagram of the original version of the Technology Acceptance Model is shown in Figure 4.8.

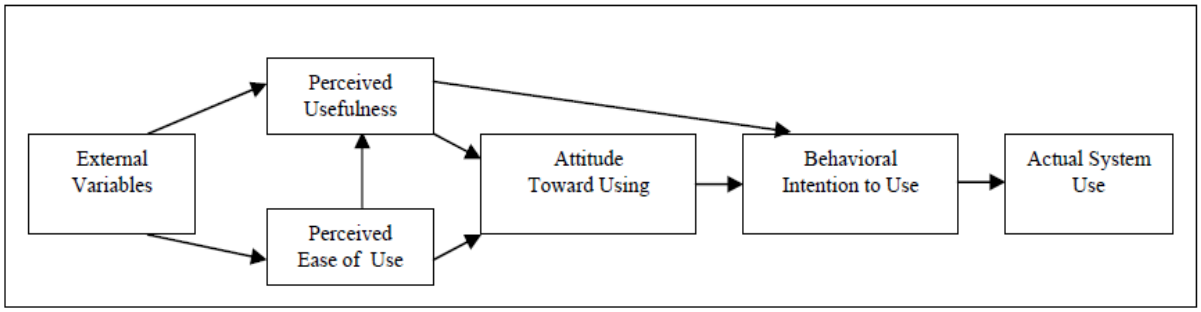


Figure 4.8 Technology Acceptance Model (Davis, 1989)

It is one of the most utilised models for surveying user attitudes of information technologies (Svendsen, Johnsen, Almås-Sørensen, & Vittersø, 2013). TAM theory suggests that two specific behavioural beliefs, perceived ease of use and perceived usefulness, determine an individual's behavioural intention to use technologies (Liaw, Huang, & Chen, 2007). It explains the causal links between the belief (based on its usefulness and ease of use) and the actual attitudes and intentions (Szajna, 1996). In order for e-Learning to be effective, the technology must actually be used (Leidner & Jarvenpaa, 1993). The effective use of technology in the delivery of e-Learning is of critical importance to the success and student acceptance of e-Learning (Masrom, 2007).

4.10.3 Rogers' Diffusion of Innovations Theory

The Diffusion of Innovations Theory was first introduced by Rogers (2003) in the 1960s. The Innovation Diffusion model provides a general explanation of how new ideas are disseminated through social systems over time.

The term 'innovation' is defined by Rogers as:

An idea, practice, or object that is perceived as new by an individual or other unit of adoption. … This perceived newness of the idea for the individual determines his or her reaction to it. If an idea seems new to an individual, it is an innovation (Rogers, 2003, p. 18).

Rogers' theory appears to have relevance to the implementation of new technologies within an educational context. As Rogers (2003) explains:

Getting a new idea adopted, even when it has obvious advantages, is difficult. Many innovations required a lengthy period of many years from the time when become available to the time when they are widely adopted. Therefore a common problem for many individuals and organisations is how to speed up the rate of diffusion of an innovation (Rogers, 2003, p. 1).

According to Rogers (2003), the adoption rate of an innovation has four elements:

- the innovation itself
- communication channels as an information-exchange relationship about the innovation
- time dimension since the innovation is introduced
- social system in which the innovation is diffused

The Innovation Decision Process is a five-stage process which explains the diffusion of an innovation. It identifies the processes of information seeking and information use as an individual / organisation seeks to reduce uncertainty about implementing an innovation (Rogers, 2003). A diagram of the Innovation Decision Process is shown in Figure 4.9.

Figure 4.9 The Innovation Decision Process (Rogers, 2003, p. 170)

The process passes through five sequential stages: gaining knowledge about the innovation, forming an opinion about the new idea, making a decision to adopt it, implementing the decision and finally confirming the decision (Rogers, 2003).

4.10.4 The Lewin / Schein Change Model

The Lewin / Schein Change Model characterises its implementation through three phases of change as shown in Figure 4.10.

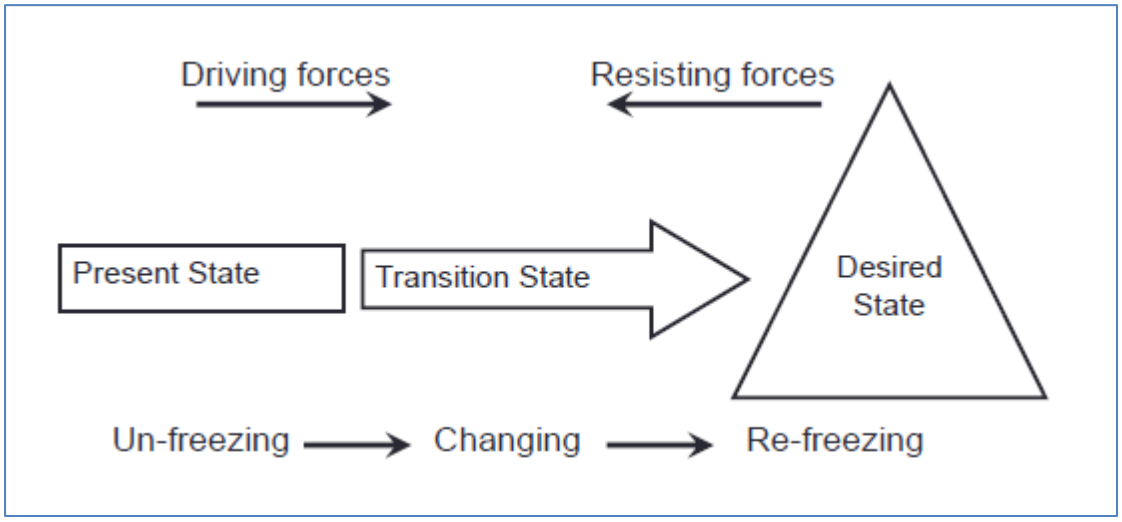


Figure 4.10 The Lewin / Schein Change Model (Schein, 1961)

The first phase involves un-freezing of the organisational environment to create a climate for change. This is achieved by removing the old ways of doing things to create a climate conducive to change and convincing people that the change is 'safe'.

The second phase involves changing from the present state to the transition state which is achieved by implementing the change and learning the new system.

The final phase involves re-freezing to reinforce and institutionalise the changes for stability (Schein, 1961).

4.10.5 e-Business Indicator Framework

When businesses use online technologies to support their activities, such as production, marketing or sales, this is often known as *e-Business* (Tohidi, 2012). When education institutions use similar technologies to support their teaching activities, it is often called 'e-Learning' (Sangrà, Vlachopoulos, & Cabrera, 2012). The technologies used in both are virtually identical. When considering the adoption and use of e-Business technologies, the Organisation for Economic Co-operation and Development (OECD, 2005, 2012) uses a model of Readiness, Intensity and Impact as shown in Figure 4.11.

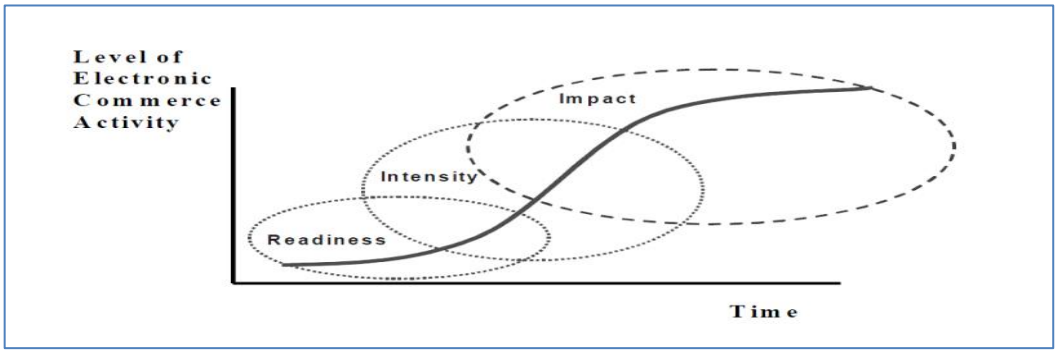


Figure 4.11 e-Business Indicator Framework (OECD, 2005, p. 10)

The e-Business Indicator Framework takes into account the inter-relationship between three integral factors: Readiness, Intensity and Impact. These are summarised in Table 4.6.

Table 4.6 The Process of Adoption and Use of e-Business Technologies

READINESS	involves preparing the technical, commercial and social infrastructures necessary to support e-Business
INTENSITY	refers to the state or level of adoption and use of e-Business, its volume, value and the nature of the transactions
IMPACT	refers to the added value that is potentially created

(OECD, 2005)

According to this framework, the higher the level of *Readiness* and *Intensity* of the adoption of a new technology, the greater the *Impact* it will have on its overall effectiveness over time. Whilst in universities the aims of eLearning are quite different to e-Business, there are some parallels in that key stakeholders such as university administration, academics and students must be ready to adopt new technologies and the level at which they adopt may vary. The resultant impact then depends on the readiness and intensity of adoption for each of the aforementioned stakeholders.

4.11 Summary

This chapter has reviewed key educational concepts which impact upon the quality of student learning outcomes achieved. It examined the underlying principles and theories relating to three different models of learning: Ramsden's Model of Student Learning in Context, Biggs' 3P Model of Teaching and Learning and Entwistle's Conceptual Framework Indicating Influences on Student Learning. The motives and strategies associated with the three main approaches to learning: Surface Approach, Deep Approach and Strategic / Achieving Approach. The dimensional aspects of different learning styles were discussed to provide insight into the relevance of personality, experiential learning and physiological factors in influencing a student's preferred style to learning. In the final section, the fundamental ideologies and characteristics four models of adoption were reviewed: The Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Rogers' Diffusion of Innovations Theory and the e-Business Indicator Framework.

This final section will provide a summary of the literature reviewed in Chapters 2, 3 and 4 and then conclude with the development of the conceptual framework used for this thesis.

4.12 Summary of the Literature Review

The last three chapters have outlined and reviewed the literature related to this thesis which investigates the e-Learning experience in the first-year introductory accounting unit at Victoria University and its impact on learning outcomes. Chapter 2 provided an overview of Research in Accounting Education 2000-2014. Chapter 3 provided an overview of Higher Education and Blended Learning. Chapter 4 provided an overview of Teaching and Learning Concepts and the Adoption of Technology.

Chapter 2 reviewed the literature relating to the use of technology in accounting education with the aim to establish a gap in the literature to justify the validity of the research to be undertaken in this thesis. This review was confined to the literature on educational technology published in the six most prominent accounting education journals: *Journal of Accounting Education, Accounting Education: An International Journal, Advances in Accounting Education, Global Perspectives on Accounting Education, Issues in Accounting Education and The Accounting Educators' Journal*. From the review of this literature on accounting education from 2000 to 2014 it was found that much of the focus was on the application of new technology.

The journal articles were classified according to their applications of technology to identify the key themes emerging from the literature, these included: podcasting, online homework management systems, use of clickers, digital video technology, virtual learning environments, assessment and feedback. The majority of these articles related to applications of technology and focused on student perceptions toward them rather than their impact on academic performance. There is still ample scope for further research relating the use of a specific technology and its impact on learning outcomes. The call for more research in this area is made by Apostolou et al. (2013) in their most recent review of accounting literature which emphasises the need for more empirical studies into the effectiveness of using technology in accounting education. By addressing some of the key issues associated with the implementation of e-Learning and evaluating its impact on learning outcomes, the findings of this thesis aim to make a positive contribution to this specific gap in the existing in the current literature in accounting education.

Chapter 3 provided an overview of Higher Education and Blended Learning. In response to public pressure for greater access to higher education, the number of tertiary institutions rapidly increased over the past twenty years. Due to a substantial reduction in government funding, universities were posed with the dual challenge of dealing with more students with less funding. This increased access to higher education resulted in significant growth in student numbers, greater diversity in the student population and greater demand for greater flexibility. The convergence of these changes led to the emergence of blended learning. A comparison of three models: Models of Blended Learning, the Continuum of E-Learning, the Continuum of Blended Learning and Sloan Consortium's Methods of Delivery, highlighted the varying interpretations of what constitutes blended learning. The major advantages associated with blended learning are generally related to flexibility, access and convenience. It has the potential to accommodate a diverse range of student learning styles and provides students greater control over their learning. The combination of all these factors may also improve retention rates and learning outcomes. The major disadvantages associated with the greater use of technology in education include: high frustration levels, lower levels of satisfaction and interest, technical and logistical problems, lack of instructor interaction, difficulty developing student friendships, more attendance lapses, lack of feedback, lack of motivation to complete studies and high drop-out rates. The quality and the effectiveness of a blended learning approach are significantly influenced by staff attitudes, aptitude and workloads. As technology becomes more integrated into the learning and teaching process, the challenge is to develop online materials that are aligned to the diverse needs of our students. As '*digital natives'* comprise almost the entire undergraduate population, it is appropriate to consider the characteristics of this student cohort in the design of a blended learning environment.

However, there was research which cautions that higher education students are not totally swayed by technology and do have a discerning perspective about technology. The choice of technology and the appropriate balance between different media in the design of a blended learning environment involves many considerations which include: student demographics, accessibility and differences in student learning styles. A checklist of considerations in determining an optimal blend of face-to-face delivery supported with the appropriate choice of educational technologies was reviewed. Reference was made to the four critical success factors to effectively design and deliver e-Learning: attributes and experience of staff and students, adequate training requirements for staff and students, implementation of a relevant delivery model and inspirational leadership. The chapter concluded with the findings of recent meta-analyses on blended learning in higher education.

This current chapter reviewed key educational concepts which impact upon the quality of student learning outcomes achieved. It examined the underlying principles and theories relating to different models of learning: Ramsden's Model of Student Learning in Context, Biggs' 3P Model of Teaching and Learning and Entwistle's Conceptual Framework Indicating Influences on Student Learning. This was followed by a discussion on the motives and strategies associated with the three main approaches to learning: Surface Approach, Deep Approach and Strategic / Achieving Approach. Various dimensional aspects were covered under learning styles which provided an insight into importance of personality, experiential learning and physiological factors in influencing a student's preferred style of learning. This chapter also considered the fundamental ideologies and characteristics of four models of adoption relevant to the introduction of technology into a blended learning environment: The Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Rogers' Diffusion of Innovations Theory and the e-Business Indicator Framework. The rationale underlying the TRA is that a person's behaviour is determined by his or her intention to perform the behaviour, which is determined by a person's attitude and the subjective norm for the behaviour. The TAM is an adaption of the TRA to determine the level of user acceptance of technology within an information systems context. Rogers' Innovation Diffusion Model uses five sequential stages to explain of how new ideas are disseminated through social systems over time: Knowledge, Persuasion, Decision, Implementation and Confirmation. The final model reviewed, the e-Business Indicator Framework contains elements of the aforementioned models of adoption such as: ease of use, perceived usefulness, persuasion, confirmation, and integrates them into three phases of adoption: Readiness, Intensity and Impact.

This section has summarised the review of literature from Chapter 2, 3 and 4. The following section will conclude with the development of the conceptual framework for this thesis.

4.13 Development of the Conceptual Framework

This final section of Chapter 4 explains the development of the conceptual framework for this thesis. Relevant concepts will be extracted from the review of literature on blended learning from Chapter 3 and educational concepts and adoption models from Chapter 4. This section will conclude with discussion on the developmental process used to adapt and integrate these concepts to form the conceptual framework for this thesis, the Blended Learning Assessment Framework.

4.13.1 Blended Learning

N. Jones, Chew, E. Jones & Lau's (2009) Continuum of Blended Learning (previously discussed in Chapter 3), has been modified so that the 'enhanced' version begins the traditional face-to-face approach with no ICT support. It then progresses through the most basic level of information and communication technology used to support face-to-face teaching, to intensive use, whereby the whole module is delivered online with minimal or no face-to-face interaction. The Enhanced Continuum of Blended Learning is shown in Figure 4.12.

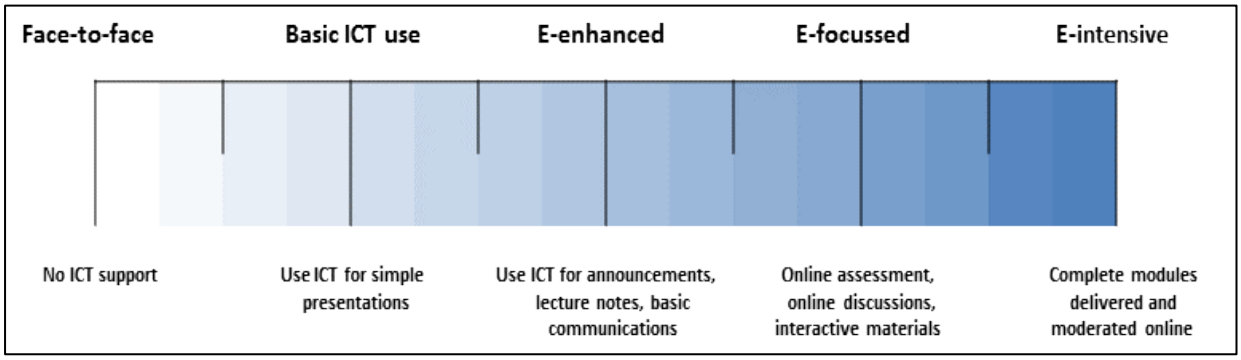


Figure 4.12 Enhanced Continuum of Blended Learning adapted from (N. Jones et al., 2009, p. 15)

The idea behind the Continuum was that it was perceived as a way in which institutions could move from traditional face-to-face approaches to an 'E-intensive' approach by gradually introducing ICT as part of the delivery. It may be contended that the Continuum could also be viewed in another way. As educators assemble the tools for a blended learning package, they could 'select' from different options across the Continuum. For instance, a learning module may include the use of presentation software in lectures (basic ICT use), online discussions (E-focused) and face-to-face tutorials that involve no ICT use.

4.13.2 Quality Student Learning In Higher Education

Of the three models of student learning reviewed, Entwistle's Conceptual Framework Indicating Influences on Student Learning (2003) was considered the most appropriate as it aligned well with the aims of this thesis. The primary objective was to improve the learning experience and academic outcomes in Victoria University's first-year introductory accounting unit. This connection is evident with reference to Entwistle's Conceptual Framework in which the central focal point is the quality of learning achieved and its inter-relationship with various concepts affecting learning outcomes (Entwistle, 2003).

Six concepts which influence the quality of learning achieved have been extracted from Entwistle's Conceptual Framework and presented in Figure 4.13. These have been colour coded to identify which of the concepts are relevant to students and which are relevant to staff. The green coded concepts in the upper section relate to students and will be discussed in Chapter 6 Findings from Student Survey. The purple coded concepts in the lower section relate to staff and will be discussed in Chapter 7 Findings from Staff Survey.

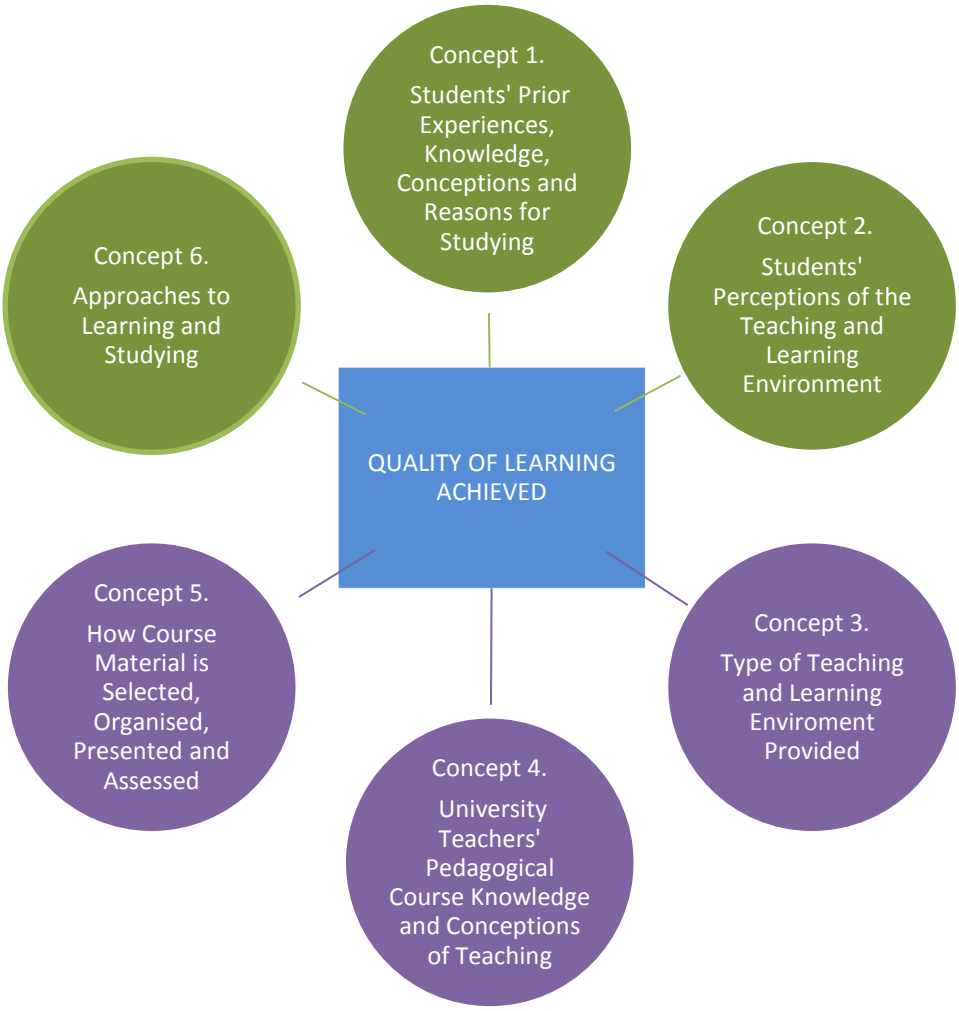


Figure 4.13 Concepts Related to the Quality of Learning Achieved extracted from (Entwistle, 2003, p. 1)

This diagram on Concepts Related to the Quality of Learning Achieved identifies the significant factors to be investigated in this thesis on the e-Learning experience in first-year introductory accounting and its impact on learning outcomes. These concepts are listed below:

Concept 1 students' prior experiences, knowledge, reasons for studying

Concept 2 students' perceptions of the e-Learning experience

Concept 3 type of blended learning environment provided

Concept 4 staff perceptions and impact on the e-Learning experience

Concept 5 design and delivery of online course material presented on WebCT

Concept 6 approaches to learning and studying

Concepts 1 and 6 remain unchanged, whilst Concepts 2, 3, 4 and 5 have been adapted for e-Learning.

4.13.3 Adoption Model

Of the four models of adoption reviewed, the e-Business Indicator Framework was deemed the most appropriate as it takes a holistic approach to the adoption of process. Each stage of the process: Readiness, Intensity and Impact can be evaluated from the perspective of the staff and the students. Table 4.7 shows this aspect of the conceptual framework based on the OECD e-Business Indicator Framework that has been adapted for use in higher education institutions to provide an overview of the e-Learning experience.

Table 4.7 e-Business Indicator Framework adapted for e-Learning

READINESS	taking into consideration institution readiness, staff readiness and student readiness
INTENSITY	intensity of the level of adoption of the e-Learning options by staff and students
IMPACT	the added value potentially created in terms of the quality of learning achieved

Adapted from (OECD, 2005)

According to this framework, the higher the level of *Readiness* and *Intensity* of the adoption of a new technology, the greater the *Impact* it will have on its overall effectiveness over time. This framework aligned well with the introduction of e-Learning into the first-year accounting unit. As the focus of this thesis is to improve the student experience and learning outcomes in this unit, it became evident that there was a possible link between the e-Business Indicator Framework and Concepts Related to the Quality Of Learning Achieved (Entwistle, 2003) shown in Figure 4.13. The level of readiness may affect the perceptions the e-Learning experience, this may have a consequential effect on the level of adoption of the new online learning options and its potential impact on quality of learning achieved.

4.13.4 Conceptual Framework for Blended Learning, Adoption and Quality of Learning

By integrating these facets of blended learning, adoption and quality of learning discussed in the previous section, a new conceptual framework can be developed to examine different stages of adoption of blended learning packages. When considering the initial adoption of blended learning it would be useful to concentrate upon the 'Readiness' aspect of the framework. When examining the section of blended learning options, the 'Intensity of Adoption' section of the framework would be considered with reference to staff and student readiness. With regard to the quality of learning achieved, the 'Impact' section of the framework will be considered in conjunction with the intensity of adoption of the different blending learning options. A diagrammatical representation of these three sectors and the inter-relationship within and between each of these sectors is shown in Figure 4.14 Blended Learning Assessment Framework: Readiness, Intensity of Adoption of Blended Learning and its Impact on Quality of Learning Achieved.

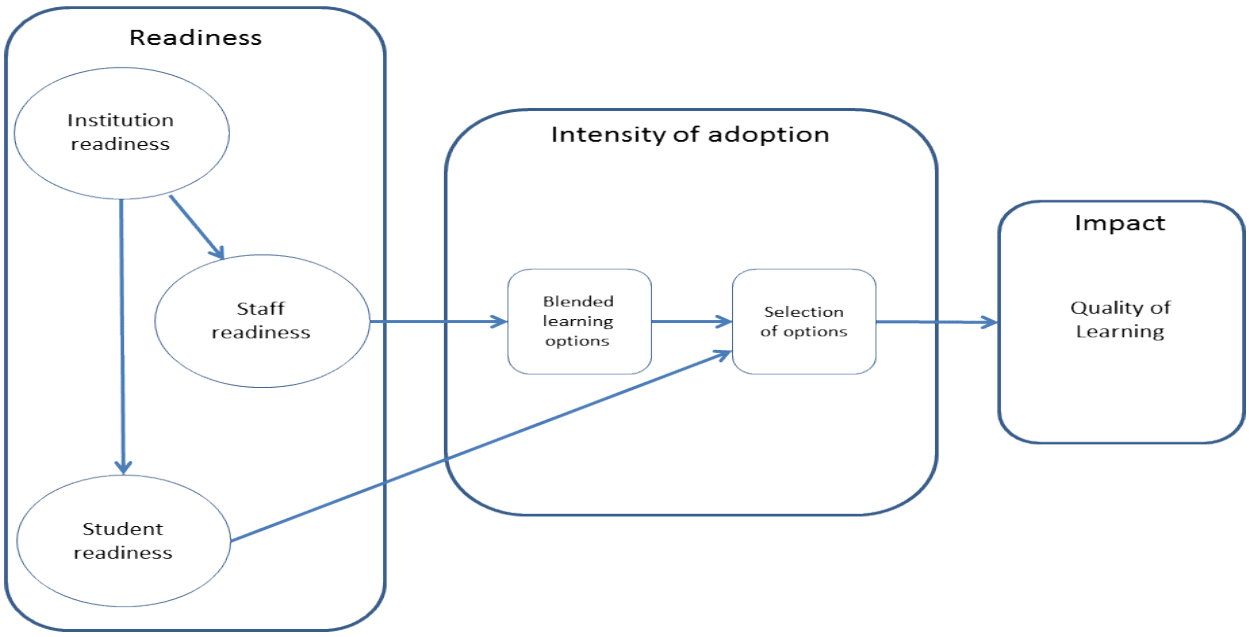


Figure 4.14 Blended Learning Assessment Framework: Readiness, Intensity of Adoption of Blended Learning and its Impact on Quality of Learning Achieved

The first sector, 'Readiness' shows the potential impact that institutional readiness may have on staff and student readiness. The second sector, 'Intensity of Adoption' shows the link back to staff and student readiness. The level of staff readiness may influence the type and quality of blended learning options made available. This may also have an effect on the level of student readiness, their willingness to adopt new blended learning options, and how many aspects they may adopt. The third sector, 'Impact' summarises the potential or perceived benefits associated with the use of the blended learning and its effect on the quality of learning achieved. This may be assessed from both a staff and student perspective.

4.13.5 Practical Application of the Research Framework

In considering the usefulness of the framework for assessing the new blended learning initiatives in the delivery of the first-year accounting unit, there was a need to develop an *operationalised* version of the framework that allowed for an assessment of the intensity of adoption and impact of the blended learning initiatives. As such, it was considered that it would be useful to separate existing approaches to delivery from new approaches that are added to form a new blended learning environment. Additionally, these should be reflected in the 'Intensity of Adoption' section of the framework so that different approaches can be assessed separately, with an overall assessment of the blended learning experience. This final stage of the development, the operationalised implementation of the Blended Learning Assessment Framework is presented in Table 4.8

Table 4.8 Operationalised Implementation of Blended Learning Assessment Framework

<table>
<tr><td colspan="2">BLA FRAMEWORK STAGE</td><td colspan="6">BLENDED LEARNING APPROACH</td></tr>
<tr><td rowspan="3">READINESS</td><td>Institution</td><td colspan="6"></td></tr>
<tr><td>Staff</td><td colspan="6"></td></tr>
<tr><td>Student</td><td colspan="6"></td></tr>
<tr><td rowspan="5">INTENSITY OF ADOPTION</td><td rowspan="2">Blended Learning Options</td><td colspan="3">Existing Approaches</td><td colspan="3">New Approaches</td></tr>
<tr><td>Approach A</td><td>Approach B</td><td>Approach C</td><td>Approach D</td><td>Approach E</td><td>Approach F</td></tr>
<tr><td>Blended Learning Continuum</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Selection Of Options</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">IMPACT</td><td>Effectiveness</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Overall Effectiveness</td><td colspan="6"></td></tr>
</table>

The value of this theoretical contribution lies in the development of a unique framework to assess the impact of blended learning approaches. It considers student and staff readiness, and the intensity of adoption of each of style of delivery in its evaluation of the overall effectiveness on improving the quality of learning achieved.

4.13.6 Summary of Blended Learning Assessment Framework

The operationalised version of the Blended Learning Assessment Framework incorporates the key elements extracted from the blended learning models, educational concepts, adoption models and conceptual frameworks reviewed in literature from Chapters 3 and 4, which contribute to the quality of learning achieved. These aforementioned elements have been modified for e-Learning to fit within a higher education context. This framework will be used in Chapter 8 Application of the Blended Learning Assessment Framework. It will integrate the Chapter 6 Findings from Student Survey and Chapter 7 Findings from Staff Survey into the Blended Learning Assessment Framework to evaluate the e-Learning experience in the first-year accounting unit at Victoria University.

This section concludes Chapter 4 and the next chapter will discuss the research methods and methodology used in this thesis.

CHAPTER 5
RESEARCH METHOD AND METHODOLOGY

5.1 Introduction

This chapter discusses the research method and methodology used in this thesis. It will explain the research problem as well as review research philosophies and research methods relevant for this study. Details of the data collection and the approach to the analysis for each phase of the data collection will then be addressed. This chapter will conclude with the confirmation of ethical approval and acknowledgement of the limitations of this research.

5.2 The Research Problem

In order to remain globally competitive, there has been increasing pressure for universities to incorporate a greater use of technology and innovation into their curriculum. This has placed academic staff in a sometimes difficult situation with expectations of significant change within a very short and often unrealistic time-frame. One of the key objectives of this research was to produce a conceptual framework for the effective delivery of e-Learning in first-year accounting education.

From an academic perspective, it is of significant interest to determine whether the increased use and availability of online teaching resources have made a positive impact on students' performance and whether this is reflected in improved learning outcomes. As much time and effort is required to design, develop and implement suitable online materials, validation of its value to an educational context is sought. As the coordinator of this first-year accounting unit, this generates my professional interest in the issues associated with e-Learning. These include questions which arise as to how well academic staff and students have responded to these technological advances, the nature of the e-Learning resources available, the extent to which they are used and how effective they are in the teaching and learning environment.

In order to develop a conceptual framework to investigate the e-Learning experience in first-year introductory accounting and its impact on learning outcomes, the key questions and sub-questions to be addressed this study are outlined below:

The key research question is two-fold:

1. What is the perception of the e-Learning experience in first-year accounting?
2. How has the e-Learning experience impacted upon learning outcomes?

To answer each of these key research questions, the following sub-questions will be addressed:

1. **What is the perception of the e-Learning experience in first-year accounting?**
   - *What are the student attitudes towards e-Learning?*
   - *What are the teaching staff attitudes towards e-Learning?*

2. **How has the e-Learning experience impacted upon learning outcomes?**
   - *What is the level of engagement with the technology used in first-year accounting?*
   - *How does the level of engagement affect student learning outcomes?*
   - *How has the use of technology improved learning outcomes?*

These are the key research questions that have been identified in the preliminary literature review as areas in need of further investigation, particularly in the area of accounting education. Investigating how educational technology contributes to improvement of accounting education and examining the context in which the application of the technology results in more effective and efficient learning, these are areas of research that would make a valuable contribution to existing literature (Apostolou et al., 2013; Apostolou et al., 2011; Rebele, 2002).

5.3 Research Philosophy

Different research paradigms and models are based on varying philosophical foundations and conceptions of reality (L. Cohen, Manion, & Morrison, 2000; Olivier, 2004). Each paradigm is implemented by associated methodological approaches and strategies (De Villiers, 2005). There are various research approaches used in education research which include, positivism, interpretivism, constructivism and action research. Two of the most utilised paradigms in educational technology are the positivist and the interpretivist paradigm. The primary difference between the positivist and the interpretivist paradigm is the method of inquiry, as well as the way in which the results and conclusions are reported.

5.3.1 Positivist Paradigm

De Villiers (2005) explains that the positivist paradigm assumes that knowledge is absolute and objective and that a single objective reality exists. This approach is predominantly linked with the scientific method of inquiry using numerical data, whereby knowledge is discovered by controlled empirical means such as experiments. The aim of positivist research is to produce an exact representation of reality. Results from this type of research should be reliable, consistent, and free from any perceptions or biases of the researcher. The positivist approach is mainly associated with quantitative research and statistical methods are used to analyse the numerical data (De Villiers, 2005).

5.3.2 Interpretivist Paradigm

The interpretivist paradigm aims to find new interpretations or underlying meanings and adheres to the assumption of multiples realities which are time and context dependent (L. Cohen et al., 2000). Interpretivism lends itself mainly but not exclusively to qualitative studies. This approach investigates research questions by using verbal data with a focus on understanding phenomena that occur within an ethnographic setting. Qualitative data collection and analysis produce findings related to intricate details where values and human experiences are relevant (De Villiers, 2005, p. 110). Interpretivists tend to look for a local understanding (Willis, 2008, p. 258) as it places an importance on people providing an explanation on their own situation or event (Veal, 2011) .

5.3.3 Constructivist Paradigm

The constructivist paradigm is based on the notion that realities are constructed by individuals rather than objectively. Both the researchers and the participants in their studies construct particular views of reality based on their beliefs and experiences that are used to interpret objects and events (Jonassen, 1992). Reconstructing the perspectives and meanings that individuals create is the fundamental goal of qualitative research. This enables researchers to acknowledge their own subjective contributions to the process (Springer, 2010).

5.3.4 Action Research

According to Mertler (2012, p. 4), action research is defined as “any systematic inquiry conducted by teachers, administrators and others with a vested interest in the teaching and learning process, or environment for the purpose of gathering information about how their particular institutions operate, how they teach and how their students learn”. Johnson (2008) describes this method of research as a truly systematic inquiry into one’s own practice to improve the overall quality and effectiveness. Schmuck (1997) adds that it facilitates the study of a real situation with the aim of improving the quality of actions and results within it. Through action research, one’s sense of professional judgement may be honed to provide greater insight into more effective ways of achieving desirable educational outcomes Mertler (2012).

There are various action research models but many possess a number of common elements: they begin with a central problem or topic, involve some observation or monitoring of current practice; followed by the collection and synthesis of information and data, finally, action is taken, this then serves as the basis for the next stage of action research (Mills, 2011).

In Figure 5.1, Riel's Action Research Model (2007) is used to demonstrate the application of these elements. It is a progressive problem solving approach with four steps in each cycle: planning, taking action, collecting evidence and reflecting.

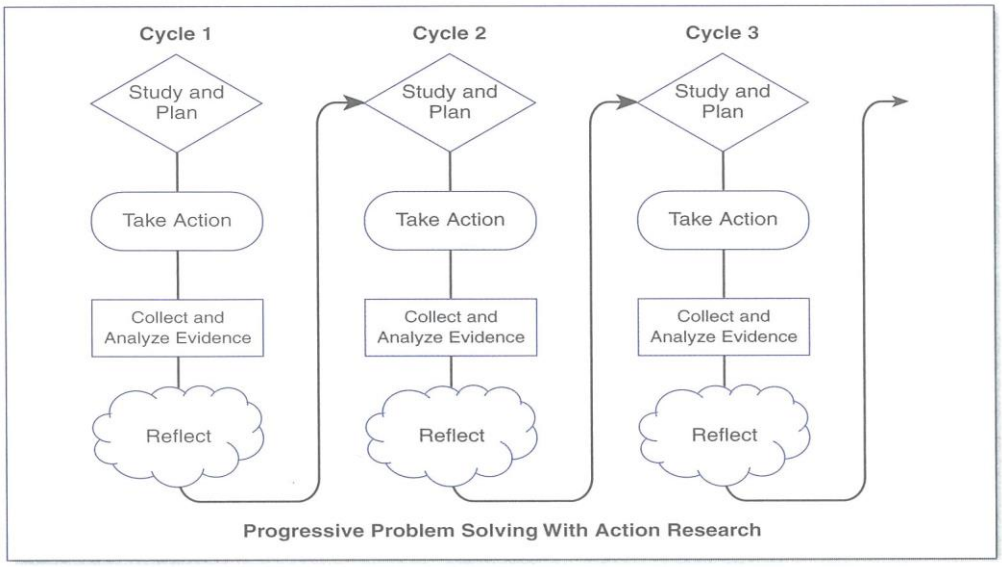


Figure 5.1 Riel's Action Research Model (Mertler, 2012, p. 18)

5.4 Qualitative or Quantitative Research

From a philosophical perspective, quantitative and qualitative methods are grounded in quite different epistemological assumptions (Springer, 2010). Qualitative research tends to reflect "constructivism" which is based on the assumption that realities are constructed by individuals rather than objectively observed. In contrast, quantitative research tends to reflect "positivism" which is based on the assumption that reality consists of facts and causal processes that are independent of observers and can substantiated through scientific observation (Springer, 2010).

5.4.1 Qualitative Research

Qualitative research takes into account the studied use and collection of a variety of empirical materials which include: case study, personal experience, interview, observational and visual texts which describe routine and problematic moments and meanings in the individual lives (Denzin & Lincoln, 2000, p. 3). Qualitative data is collected and analysed to gain insight into the participants' perceptions, feelings, knowledge and behaviour (Guest, MacQueen, & Namey, 2012).

5.4.2 Quantitative Research

Quantitative research uses data that is obtained either in numerical form or converted into numerical form and then analysed. This type of research requires the scientific method to be used, whereby research questions are posed, hypotheses are formulated to guide the collection of data and conclusions may be drawn from analysis of data (Springer, 2010).

5.4.3 Qualitative versus Quantitative Research

Qualitative and quantitative methods are not mutually exclusive. Studies may require diverse methods of inquiry to adequately cover the extent of the research and provide the necessary data for triangulation. Qualitative research may be exploratory in nature to provide a foundation for quantitative research. The findings from this initial research can then be used to formulate hypotheses and research questions for quantitative analysis. The empirical results from quantitative analysis may then be used to test, verify and extend the qualitative hypotheses (De Villiers, 2005). Figure 5.2 shows prominent research methods positioned on a Positivist-Interpretivist axis, tending from the quantitative to the qualitative with some degree of overlap (De Villiers, 2005).

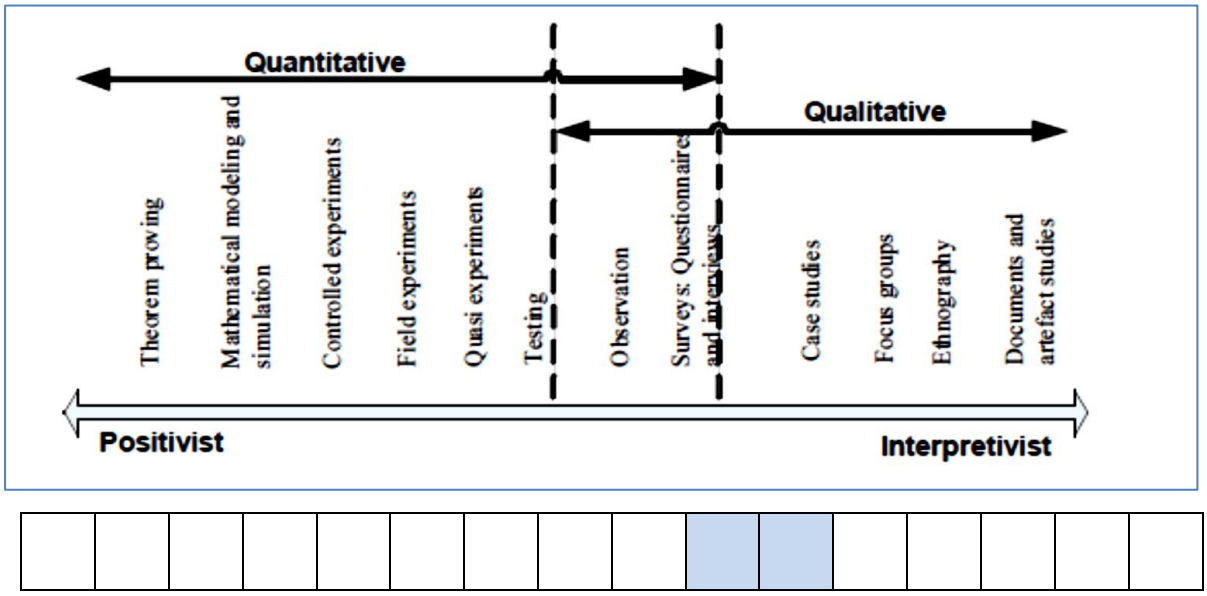


Figure 5.2 Research Methods (De Villiers, 2005, p. 112)

To determine the best fit in classifying the nature of this thesis, an indicator bar has been added to the diagram to identify the approximate position on this axis. The philosophical perspective undertaken in this thesis tends toward interpretivist in nature with elements of constructivism and action research.

5.5 Mixed Methods Research

Mixed methods may be described as a type of research whereby the researcher collects and analyses data, integrates the findings, and draws inferences from both qualitative and quantitative approaches in a single study or program of inquiry (Creswell & Tashakkori, 2007). The use of mixed methods is becoming more prevalent in research. Furthermore, Teddlie and Tashakkori (2009) assert that mixed methods have particular value in trying to solve a problem in an educational or social context. There is much debate amongst researchers about the relative merits of qualitative versus quantitative research. This debate suggested two things; firstly, that many researchers now accept the idea of two different but equally legitimate approaches to inquiry; secondly, in the final analysis of the research, the differences in the approaches does not really matter (J. K. Smith & Heshusius, 1986).The demand that a researcher be 'either / or' has been replaced with employing both approaches in combination, or to: "draw on both styles at appropriate times and in appropriate amounts" (Cronbach et al., 1980, p. 223).

As reported by Gorard and Taylor (2004), the combined methods approach and the combination of data derived through the use of different methods has been acknowledged as integral in the improvement of social science including education research. One of the key reasons for this is that the research claims are stronger when based on a variety of methods (National Research Council, 2002). Niglas (2004) in an evaluation of the combined use of qualitative and quantitative methods in educational research concluded that combined designs enrich the methodology of educational research. Veal (2011) and Yin (2006) argue that the use of mixed methods in a single study can produce more compelling and converging evidence than any single method alone.

Another reason for its justification is that the use of a mixed method approach has the potential to enhance the trustworthiness of an analysis as it provides a more comprehensive account, that reduces the bias, and helps compensate for any weakness of one method through the strength of another (Perlesz & Lindsay, 2003).

5.6 Descriptive Research

Descriptive research provides numerical characterisations of phenomena drawn from survey responses. This type of research is appropriate where educational researchers are concerned about developmental change. In this case, descriptive research may be used to examine differences in population over time, changes in the availability of educational resources, and the emergence and consequences of new policies and curricula (Springer, 2010).

To document time-related change, two types of descriptive research designs can be used: cross-sectional and longitudinal. Cross-sectional refers to collection of data at one point in time. Longitudinal refers to the repeated collection of data over time, which enables any changes in key dimensions to be identified (Springer, 2010). Depending on the type of change to be documented, there are three types of longitudinal designs which can be used: a panel study, a cohort study and a trend study. An overview of each of these designs is provided in Table 5.1.

Table 5.1 Time Related Designs in Descriptive Research

DESIGN	TYPE OF STUDY	APPROACH
CROSS-SECTIONAL		collection of data at one point in time
LONGITUDINAL	Panel Study	collection of data from the *same sample* at different points in time
	Cohort Study	collection of data from the *same population* at different points in time
	Trend Study	collection of data from the *same population* at different points in time *as membership of population changes*

Adapted from Springer (2010, p. 255)

The research period for this thesis spanned over four consecutive semesters and data was collected from the same population, namely the first-year accounting students at the end of each semester. Due to the change in membership of this population each semester, the descriptive research design would be categorised as a longitudinal trend study.

To enable a comprehensive study of the relevant issues, a mixed methods approach incorporating both qualitative and quantitative methods was adopted. The value of using both quantitative and qualitative methods has been recognised as having the advantage of methodological triangulation in educational research (P. Marriott & Lim Keong Teoh, 2012). Data was drawn from various sources of data collection to the represent viewpoint of the key stakeholders, namely students and teaching staff involved in the teaching and learning process.

5.7 Research Method

A research method is a strategy that incorporates underlying philosophical assumptions, research design and data collection techniques (Myers & Avison, 2002). The research method influences the way in which researchers collect and analyse data. Different research methods encompass different skills, assumptions and research practices. An overview of research methods considered for this study is presented below:

5.7.1 Grounded Theory

Grounded Theory may be described as an approach to information gathering of qualitative research (Springer, 2010). It is defined by Glaser and Strauss (1967, p. 1) as "the discovery of theory from data" with the aim of generating or discovering a new theory.

As explained by Springer (2010, p. 405), "Grounded Theory research proceeds as inductively as possible, with no preconceived ideas at the outset of the study. As data is collected, the results guide the development of tentative explanations that are explored through further data collection. It is a cyclical process in which data is collected in order to evaluate and refine the emerging theory".

It may be argued that this research did theorise about tentative relationships between the data collected. However, as this research is based on a conceptual framework adapted from Entwistle's Conceptual Framework Indicating Influences on Student Learning (Entwistle, 2003) shown earlier in Figure 4.13, Grounded Theory was not considered a suitable approach.

5.7.2 Ethnography

Ethnography is a method of qualitative research that attempts to provide rich, narrative descriptions of social or social groups based on extensive fieldwork (Springer, 2010). The main difference between ethnographic and quantitative research is that ethnographic research aims to reconstruct the behaviours, perspectives and experiences of people from particular cultural groups In ethnographic studies, there are three main approaches to gathering information: observation, interviews and content analysis (Springer, 2010).

Hammersley (2006) acknowledges that data may be gathered from various sources, but notes that observation and informal conversations are considered integral to an ethnographic approach. According to Yin (1994), ethnographic research does not always involve case studies and case studies do not always involve ethnographic research.

There was some qualitative data collected from students and surveys for this research. However, due the low number of responses to the open-ended questions and the brevity of some of these responses, it was not deemed appropriate undertake an ethnographic approach for this study.

5.7.3 Case Study

The technical definition of a case study according to Yin (2009, p. 18) is described as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident".

This definition can be applied to this current research. The *contemporary phenomenon* refers to the use of e-Learning by first-year accounting students. Its *real-life context* is satisfied by the phenomenon impacting upon these students' perceptions of the effectiveness of e-Learning and its potential effect on their learning outcomes. For this study, *the boundaries between phenomenon and context are not clearly evident* as there are various factors that may influence the students' level of adoption and engagement with the e-Learning resources available.

The case study approach has been used on a number of occasions to examine blended learning in higher education institutions. For instance, Motteram (2006) examined the role of blended learning in a Master's program at a UK university. So and Brush (2008) examined student perceptions and level of satisfaction within a blended learning environment in a health education course in a US university. More recently, Taylor and Newton (2013) conducted a case study that examined blended learning practices at an Australian regional university faced with the challenges of delivering both on-campus and distance learning programs. It identified students' perceptions of traditional and online methods of delivery.

5.7.4 Justification of Case Study Approach

From the factors outlined above, the case study approach was considered the most appropriate for analysing and explaining the phenomena in this study. The research method adopted is a single case study with multiple instances of data collection and multiple forms of data collection over four consecutive semesters commencing from Semester 1/2010 through to Semester 2/2011. This is a longitudinal trend study using descriptive research. This approach is considered appropriate in addressing the phenomena relevant to the nature and context of this research.

5.7.5 Unit of Analysis

Yin (2009, p. 32) explains “the unit of analysis in a case study is usually the phenomena that form the boundary of the case, the actual source of information”. For this study, the unit of analysis is Victoria University’s first-year core introductory accounting unit.

5.8 Conduct of Study

The study was conducted in a number of stages as outlined in Figure 5.3.

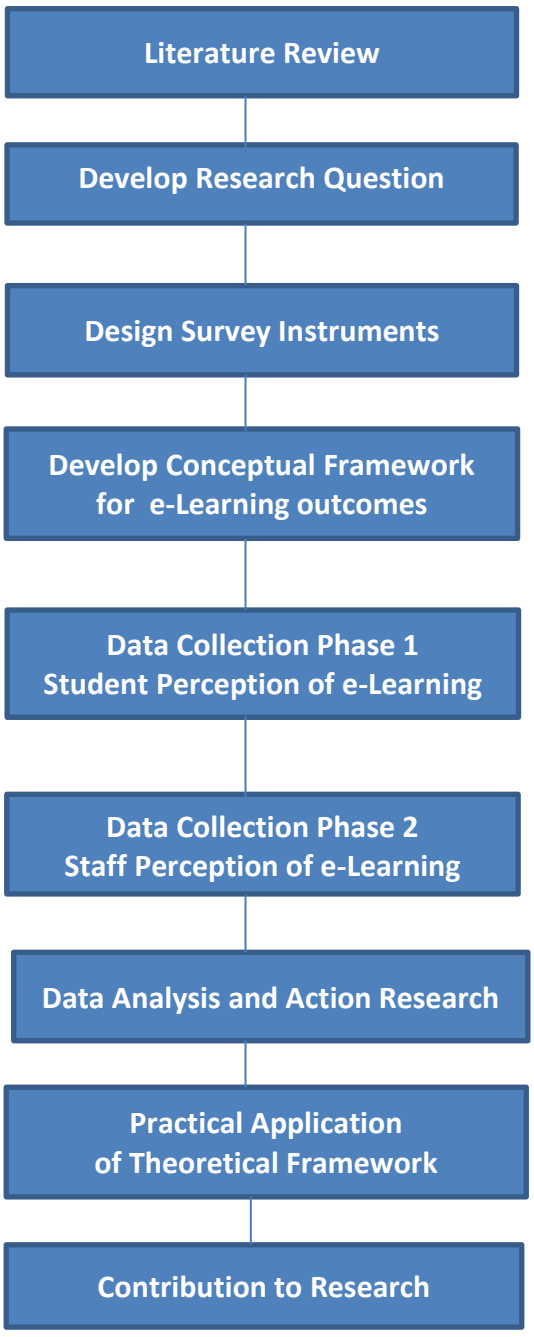


Figure 5.3 Conduct of Study

The first stage was to review the literature specific to the area of research. There was a vast amount of literature related to technological advances, teaching and education. For the purpose of this study, the review was confined to literature considered relevant to the research. This included educational concepts, e-Learning with a particular focus on the use of technology used in accounting education from 2000 to 2010, which formed the basis of the research proposal. The next stage was to develop research questions and design appropriate survey instruments to collect the required data. An initial version of the conceptual framework, the Blended Learning Assessment framework was developed.

Data collection from the Phase 1 Student Survey was conducted over four consecutive semesters. The research period commenced in Semester 1/2010 and ended after Semester 2/2011. The data collection from the Phase 2 Staff Survey was administered at the end of the research period. This data was analysed to produce the findings of this thesis, and then practically applied to the Blended Learning Assessment framework to assess the overall effectiveness of e-Learning in this unit.

The final stage concludes with a summary of the contribution of this research in extending the existing literature on the use and effectiveness of e-Learning in accounting education, in particular, in enhancing the first-year experience.

5.9 Data Collection Techniques

Data can be collected from primary or secondary sources. As explained by Sekaran and Bougie (2010), primary data refers to information collected by the researcher on variables of interest for a specific study, whereas secondary data refers to information used by the researcher which has been previously collected and published. There are numerous techniques to collect data, an overview of the most utilised is provided below.

5.9.1 Interviews

Interviews enable the researcher to gain a more comprehensive understanding of the respondent's impressions or experiences. They may also be used to learn more about a response to an answer in a questionnaire (Mc Namara, 2008). Interviews may be structured, semi-structured or unstructured. This method of data collection is one of the most frequent used in case studies and may be used as a supplemental source of data (Williamson, 2002). The main advantage of interviewing participants is having access to a greater range and depth of information. However, conducting interviews are time-consuming and expensive to administer, particularly if a large sample size is required.

5.9.2 Focus Group

Krueger (1994, p. 6) provides a detailed definition in which focus groups are described as a "carefully planned discussion designed to obtain perceptions on a defined areas of interest in a permissive, non-threatening environment … conducted with approximately 7 to 10 people by a skilled interviewer". Focus groups may be regarded as a type of group interview that provides the opportunity to explore in depth the research topic through group interaction (Kitzinger, 1994). This method of collecting qualitative data aims to provide a greater understanding of the attitudes, perceptions, motivations, concerns and opinions of the participants (Krueger, 1994). Focus groups can be effective in getting a range and depth of information within a short time period. However, the need to schedule all participants to one common time and place, as well as the need to have a skilled facilitator to conduct the session may be prove to be challenging with this approach (Mc Namara, 2008).

5.9.3 Surveys

They are commonly used in educational and psychological research (Mertens, 2010). This method of data collection is highly utilised to collect quantitative data and with the addition of open-ended questions, qualitative data may also be gathered. Surveys are used as they "describe a particular phenomenon; its current situation, its properties and conditions" (Williamson, 2002, p. 91). They are an efficient way of collecting factual and attitudinal data from a group (Willis, 2008). Surveys are a popular method of data collection as they can be completed anonymously and are inexpensive to administer to a large group in order to gather a substantial amount of data relatively quickly (Mc Namara, 2008). The drawback with this approach is that the quality and quantity of the data may be compromised with incomplete or inappropriate responses from the respondents.

Each of these techniques had aspects that were considered relevant for the collection of data in this study. However, due to time and budget constraints, the survey method of data collection was selected. Surveys were deemed the most appropriate as it was the most efficient way to collect a considerable amount of information within a limited time-frame.

Structured surveys were used in this study to collect subjective data such as opinions or preferences as well as factual data such as age, gender, level of education and experience. Data collected also provided a means of taking an inventory of the ways that staff and students were using the online resources available in this unit.

5.10 Sources of Data Collection

This research involved two forms of data collection to identify staff and student perceptions of e-Learning and its impact on the teaching and learning experience. A summary of the sources of data collection is provided in Table 5.2.

Table 5.2 Sources of Data Collection

			ESTIMATED SAMPLE SIZE	FREQUENCY
PHASE 1	Student Surveys	Student Attitudes towards e-Learning Evaluations of Teaching and Unit	200 students each semester	4 semesters
PHASE 2	Staff Surveys	Staff Perceptions toward e-Learning	12 staff	Once at end of research period

5.10.1 Student Survey – Student Attitudes toward e-Learning

This required the design and implementation of a student survey questionnaire to identify:

- demographic variables
- attitudes toward the perceived usefulness and effectiveness of traditional and online options
- learning and teaching issues and investigate the usage levels of the online resources

In order to achieve this, the student survey was divided into three distinct sections to address each of the aforementioned areas. An overview of each section is provided below:

Section One - Demographic Overview

The initial section requested information related to the socio-economic and educational background of the respondents to provide a demographic overview of the student sample.

Section Two - Ways of Studying, Perceptions, Recommendations and Preferences

There are numerous self-report inventories available for identification of student approaches to learning. These include: the Approaches to Study Inventory (Ramsden & Entwistle, 1981) which is a 52 item questionnaire that measures Deep, Strategic and Surface learning; the Course Experience Questionnaire (Ramsden, 1991) which consists of 24 statements relating to aspects of the students' learning experience; the Learning and Study Strategies Inventory (Weinstein, Schulte, & Palmer, 1987) which is an 80-item assessment of students' awareness about, and use of learning and study strategies; and the Revised Study Process Questionnaire (Biggs, Kember, & Leung, 2001) which contains 20 statements relating to strategies and motivation for learning.

However, due to the extensive inventory of statements or questions involved in each of these approaches, this would require a substantial amount of time to complete. This was an important consideration in the survey design as this may deter participation and minimise the number of respondents. The survey questions were designed to be short and simple to reduce the overall length of the survey whilst still providing useful information. Therefore, elements from self-report inventories and other relevant sources, as well as their justification for inclusion, were incorporated into Section Two and Three of the student survey.

Questions 1 to 3 were devised to address the focus of this research, to provide an overview of students' perceptions of the e-Learning experience and its impact their learning outcomes. Students were requested to respond to four statements relating to learning options to identify their preferences toward the traditional face-to-face lectures and tutorials, as well as new online teaching options. Each of the options were listed and students were asked to rate the effectiveness of each option in assisting their learning in this unit. Question 4 requested students to respond to three statements to gain some insight into the importance of face-to-face interaction and routine in the learning process. These statements were extracted and adapted from a student survey conducted by (Gosper et al., 2008) in their report on the impact of web-based lecture technologies on learning and teaching.

Question 5 sought information on what students perceived to be the most useful features on the unit's website. Students were asked to evaluate the usefulness and the quality of the website using the aforementioned rating scale. These aspects of the website were considered relevant and relate to perceived usefulness, one of the key determinants of the Technology Acceptance Model (Davis, 1989).

Question 6 was an open-ended question asking students' recommendations for any other features that they would like to be included on the website to help with their learning in this unit.

Question 7 contained seven statements that evaluate students' preferred usage of technology in this unit and their level of satisfaction with the level of technology used in the teaching of this unit. These statements are also based on the Technology Acceptance Model (Davis, 1989) which suggests that self-predicted future usage is determined by a positive attitude towards the technology, which itself is determined by the perceived ease of use and perceived usefulness of the system (Davis, 1989). Questions 8 and 9 were open-ended questions relating to uses of technology that should or should not be used in this unit.

For Questions 1, 2, 3, 4, 5 and 7, students were asked to respond using a 4 point rating scale with 1=lowest score and 4=highest score. By omitting the neutral option, this abridged scale 'forced' students to select a negative or positive position. As it was important to establish students' perception on issues pivotal to this research, this approach was utilised to minimise the number of responses attributed to uncertainty. Clayton, Blumberg, and Auld (2010) justified the use of a 4 point rating scale in their study that examined how students' learning strategies influenced their choice of an online, hybrid or traditional learning environment. Another study conducted by O'Bannon, Lubke, and Britt (2013) also considered this approach to be appropriate for their research on the integration of technology in teaching. A 4 point Likert scale was used to evaluate student perceptions of the technology used and its overall usefulness.

Section Three - Student Learning Experience and Attitudes Towards Study

This final section comprised two questions:

Question 10 contains a selection of fifteen statements extracted from the Course Experience Questionnaire (Ramsden, 1991). As informed by Ginns, Prosser, and Barrie (2007), the CEQ is designed as a performance indicator of teaching and learning. For this study, these statements were used to provide an overview of the students' perception of teaching, assessment and workload in the first-year introductory accounting unit.

This approach was considered appropriate as it is derived from previous studies on student learning (Biggs, 1999; Marton & Säljö, 1976a) that supports the notion that students' approaches to study are contingent upon both their prior experiences of teaching and learning and their perceptions of current learning contexts, which in turn affect learning outcomes (Ginns et al., 2007).

Question 11 consists of four statements extracted from the Revised Study Process Questionnaire (Biggs et al., 2001) that relate to strategies and motivation for learning. For this study, these statements were used to gain some insight into student attitudes towards study to determine whether a deep or surface approach was adopted.

Students were asked to respond to both questions using a 5 point Likert scale with 1=strongly disagree and 5=strongly agree, as required in the format of the Course Experience Questionnaire and Revised Study Process Questionnaire.

Administration of Student Survey

The survey was distributed to students in the last lecture at the end of each semester and student participation was voluntary. It was personally administered by the lecturer, who in most instances was the unit coordinator. Survey data was collated and entered into IBM SPSS Statistics 20 software for statistical analysis. Additional sources of information were retrieved from the university's student database, the Victoria University Student Information System (VUSIS), and analytical tools were available on the WebCT course management system for statistical tracking of the usage of the online resources. Academic performance measures and learning outcomes were calculated from comprehensive records kept on Microsoft Excel spreadsheets detailing each component of student assessment. The length of the survey was limited to three pages to encourage greater student participation and required approximately 10 to 15 minutes to complete. A copy of the Student Survey is included in Appendix C.

5.10.2 Student Evaluation of Teaching and Student Evaluation of Unit

At the end of each semester, formal student evaluations are conducted by the university to gauge the level of student satisfaction with the teaching and the quality of each unit of study, including the first-year accounting unit.

5.10.3 Staff Survey – Teaching Staff Perceptions of e-Learning

To gain a more detailed insight into the use of e-Learning, the teaching staff were encouraged to express their views in the staff survey. The format of the staff survey was similar to the student version but the focus was on *staff perceptions* of e-Learning and whether it was beneficial to their *teaching* in the first-year accounting unit. The staff survey comprised three sections:

Section One - Staff Profile

The initial section requested information related to the gender, age, employment status, teaching experience and level of responsibility of the respondents. This information was required to create a general profile of the staff teaching in this unit.

Section Two - Ways of Studying, Perceptions, Recommendations and Preferences

Questions 1 to 4 were similar to the student version described previously. Questions 1 to 3 provided an overview of staff perceptions of the e-Learning experience and its impact on student learning outcomes. Staff were requested to respond to four statements relating to learning options to identify their preferences toward the traditional face-to-face lectures and tutorials, as well as new online teaching options.

Question 4 requested staff to respond to three statements to gain some insight into the importance of face-to-face interaction and routine in the student learning process. Staff were asked to rate the effectiveness or importance of each option by using a 4 point rating scale.

Question 5 sought information on what staff perceived to be the most useful features on the unit's website in supporting their teaching. Staff were asked to evaluate the usefulness and the quality of the website in their teaching using the aforementioned 4 point rating scale.

Question 6 was an open-ended question asking staff recommendations for any other features that they would like to be included on the website to help with their teaching in this unit.

Question 7 contained seven statements that identified preferred usage of technology in this unit from a staff perspective and their degree of satisfaction with the level of technology used in the teaching of this unit. Questions 8 and 9 were open-ended questions relating to uses of technology that should or should not be used in this unit.

Question 10 asked staff to evaluate the usefulness of social media such as SMS, Twitter, Facebook, YouTube and Skype in the teaching of this unit.

Section Three - Additional Open-Ended Questions from Focus Group Questions

This final section provided the opportunity to gather additional qualitative data to provide further insight into the staff teaching experience in this unit. Staff were asked to respond to open-ended questions relating to online resources, factors that would encourage staff to use more technology in their teaching, as well as any barriers to and concerns about using more technology. Staff were also given the opportunity to comment on the adequacy of training, and the expectation of using more technology in their teaching.

Administration of Staff Survey

All staff who had taught in this unit during the research period were invited to participate and staff participation was voluntary. The initial intention was to survey staff at the end of each semester, as with the student survey. However, the sample size would have been considered too small with only 3-4 staff responding, as in some instances, the same staff were involved in teaching over the four semesters under review. A decision was made to conduct the staff survey at the end of the research period. This increased the potential sample size to 12 respondents. To encourage a high response rate, staff had two options to complete this survey.

The first option was to complete a paper version of the survey and send back to the coordinator in a sealed envelope to maintain anonymity. The second option enabled staff to complete an online version and email back to the coordinator if anonymity was not a concern. The length of the survey was limited to four pages to encourage staff participation and required approximately 30 minutes to complete. Staff survey data was collated and entered into IBM SPSS Statistics 20 software for statistical analysis. A copy of Section One and Section Two of the Staff Survey is included in Appendix D. A copy of the Section Three additional open-ended questions from the Focus Group Questions is included in Appendix E.

5.11 Data Collection Phase 1- Student Surveys

Student Attitudes Towards e-Learning

This initial data collection phase provided a benchmark for assessing the students' perception of the existing level of e-Learning used in this first-year accounting unit and its impact on teaching and learning outcomes. This phase involved the collection of quantitative and qualitative data to evaluate student perceptions of the effectiveness of the technology used in the teaching of this unit and its potential impact on learning outcomes. This included student evaluation of the e-Learning resources provided in this unit and to identify which resources were most beneficial in supporting their learning needs.

Student recommendations were sought at the end of each semester through the student survey questionnaire. This provided regular student feedback on how the existing e-Learning resources could be improved or expanded to support their learning in this unit. This student survey questionnaire was conducted over four consecutive semesters.

Student Evaluation of Teaching and Student Evaluation of Unit

Two formal evaluations are conducted by Victoria University to monitor the quality of the teaching and the quality of the unit delivered: Student Evaluation of Teaching (SET) and Student Evaluation of Unit (SEU). Both are conducted toward the end of semester and participation is voluntary. The results of the SET and SEU are made available to staff after academic results are released to students. The data collected from these evaluations provide and additional source of quantitative and qualitative data for this research.

5.12 Data Collection Phase 2 - Staff Survey

The second phase of data collection was used to establish a group view of e-Learning. This provided a basis of comparison to examine whether the staff and student views were aligned in their perceptions of the usefulness of online options in enhancing their teaching and learning experience in this unit. As the staff version of the survey on e-Learning was similar to the student version, the main difference was the greater focus on teaching and the additional open-ended questions in the last section of the survey. The collection of quantitative and qualitative data was used to evaluate staff perceptions of the effectiveness of the technology used in the teaching of a first-year accounting unit and its potential impact on learning outcomes. Staff were asked to evaluate the e-Learning resources provided in this unit and to identify which resources were most beneficial to their teaching. Staff recommendations were sought on how the existing e-Learning resources could be improved or expanded to support their teaching in this unit. The staff survey was distributed after the research period. There were 12 staff who had taught during this period, of which 10 staff participated in the survey. The input from Phase 1 - Student Surveys and Phase 2 - Staff Surveys was combined in the final stage of the data collection to provide a more detailed analysis of the educational issues arising from the surveys.

5.13 Data Analysis

Phase 1 - Quantitative Data Analysis

IBM SPSS Statistics 20 was used to identify and analyse any significant relationships that may arise within the quantitative data collected. This included correlations, variances and frequencies that were used to address the key research issues identified. The statistical tools from WebCT via Blackboard's Learning Management System were used to track levels of student engagement with the online resources on the unit website.

Phase 2 - Qualitative Data Analysis

IBM SPSS Statistics 20 was also used for the analysis of qualitative data collated from students and staff responses to open-ended questions from their respective surveys. These questions related to their perceptions and feelings about the use of technology in the first-year accounting unit. Frequency tables were used to identify emerging themes to facilitate themed analysis of the information gathered.

This mixed methods approach enables opportunities for the triangulation of the qualitative and quantitative data collected. As defined by Denzin (1978, p. 291) triangulation is "the combination of methodologies in the study of the same phenomenon". Jick (1979, p. 602) explains that researchers can improve the accuracy of their judgements by collecting different types of data relating to the same phenomenon.

In this study, a multiple methods approach is used to examine the same dimension of the research problem. The effectiveness of e-Learning was evaluated from the viewpoint of the students and the teaching staff involved in this unit.

Data was collated from various sources. These include data from surveys, academic records, WebCT statistical tools, as well as evaluations of the quality of teaching and unit delivery. The combination of quantitative and qualitative data from these sources provided multiple viewpoints that allow for greater accuracy in the analysis and interpretation of the data.

The data analysis was both investigative and developmental in nature. It provided a greater insight into the student and staff perceptions of the effectiveness of the technology used in the teaching of this unit and helped identify issues that emerged from its use. Feedback from students during the research period in conjunction with the findings from teaching staff at the end of the analysis period was used to improve the quality of the teaching and learning experience. Further details are provided in the next section relating to Action Research.

5.14 Cycle for Action Research

According to Mc Taggart et al. (1982), the essence of action research is to try out new ideas in practice as a means of improvement and increasing knowledge about the curriculum, teaching and learning. From the perspective of coordinator of the university's largest accounting unit, this approach enabled important issues relating to the students' e-Learning experience to be identified and addressed.

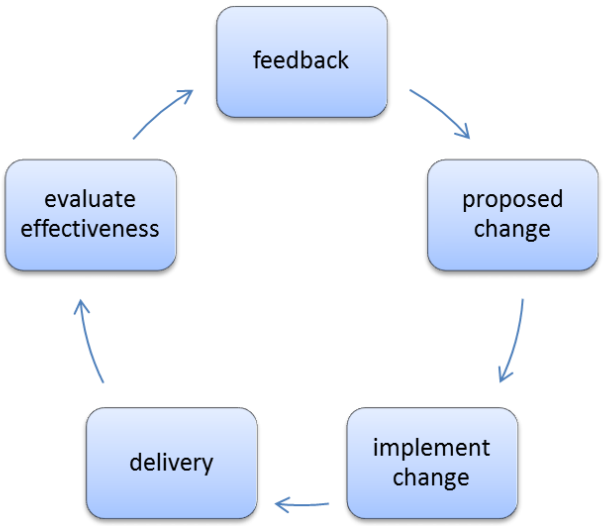


Figure 5.4 Action Research Cycle for e-Learning in First-Year Accounting

Action research avails the opportunity to systematically reflect on teaching practices, seek feedback from staff and students to identify ways to improve the quality of the learning achieved in this unit. Feedback relating to improvements or suggestions for enhancing the teaching and learning experience provided the basis of the action research cycle shown in Figure 5.4.

This proactive approach was found to be helpful in improving the student perception of this unit and may have had some influence in improving student learning outcomes. Further details are discussed in Chapter 6 Findings from Student Survey.

5.15 Ethics Approval

As this research project required interaction and data collection from teaching staff and students, ethics approval was sought from the Committee of Victoria University Human Research Ethics Committee. This was attained by the first semester of 2010.

5.16 Summary

This chapter discussed the research method and methodology used in this thesis. This is a longitudinal trend study using descriptive research. It may be considered interpretivist in nature with elements of constructivism and action research. It uses a single case study approach with multiple instances of data collection. Structured surveys were used in this study to collect quantitative and qualitative data from staff and students. Due the nature of this data, a mixed methods approach was adopted. Details relating to the phases of data collection, analysis of data and ethical approval were also provided. This chapter concluded with the limitations of this research.

The next chapter will report on the findings from the student survey on attitudes toward e-Learning.

CHAPTER 6
CASE STUDY AND FINDINGS FROM STUDENT SURVEY

6.1 Introduction

This chapter will outline the case study and report on the findings from the student survey to gain an insight into this sample and their perceptions of the e-Learning experience. It is divided into two key parts.

The first part commencing from Section 6.2 to Section 6.7 will provide the background details and characteristics of the case study. This will include an overview of the student cohort in the introductory accounting unit, the development of blended learning online resources and the unit website. It will conclude with the introduction of WebCT and a review of the blended learning options.

The second part commencing from Section 6.8 will focus on the results from the student survey on attitudes toward e-Learning. This will commence with the demographic profile of the student participants, followed by the findings on student perceptions toward the use of these options in assisting their learning. It will conclude with discussion of the impact of these blended learning initiatives on some key learning outcomes in this unit.

CASE STUDY

6.2 Overview of Introductory Accounting Unit Student Cohort

The introductory accounting unit examined in the study introduced students to the real-life application of accounting principles and practices within a business context. With approximately 700 to 800 local students each semester, it is Victoria University's largest accounting cohort. All students enrolled in the Bachelor of Business degree are required to undertake seven mandatory first-year units of study. Regardless of their specialisation, all students undertake the same first-year units: Accounting, Information Systems, Economic Principles, Business Statistics, Marketing, Business Law and Management and Organisation Behaviour. This represents a diverse mix of accounting and non-accounting students from a broad spectrum of business majors that range from music through to marketing. Only a minority of these students are accounting majors. This is one of the key challenges in engaging these students in the learning of accounting as it is an area of study in which there is sometimes little or no interest.

6.3 Teaching Mode and Delivery

Students are supported through regular face-to-face contact in lectures and tutorials conducted over a twelve week semester. This unit is delivered as two hours of lectures with a one hour tutorial each week. Lectures are conducted in a formal lecture theatre with the capacity to seat between approximately 200 to 300 students, however average attendance would range between approximately 80 to 200 students, depending on the time of the lecture stream. Tutorials are conducted in an informal classroom setting with a maximum class size of 25 students. The majority of tutorials would comprise of an average class size greater than 20 students, this was also influenced by the time of the tutorial.

The first three weeks of lectures and tutorials are predominantly theory based. This provides students confidence in understanding key accounting concepts before applying the more challenging practical, numerical content covered in the remainder of the semester.

6.4 Assessment

To be eligible for a pass in this unit, students are expected to attempt all components of assessment and attain a satisfactory mark on final examination as shown in Table 6.1 below.

Table 6.1 Components of Assessment

COMPONENT	WEIGHTING	FORMAT
Group Assignment	15%	Sharemarket analysis of a share portfolio of three companies listed on the Australian Securities Exchange
WebCT online assessment	10%	Weekly Multiple Choice Test conducted online
Mid Semester Test	10%	Multiple Choice Test conducted in tutorial
Group Presentation	5%	Oral presentation applying key accounting concepts
Final Examination	60%	Practical and theoretical questions from five key topics

Students are encouraged to attend all lectures and tutorials to enhance their learning and maximise their academic results for each of these assessments.

6.5 Estimated Student Hours Necessary To Succeed

As a general guide, students are advised that they are expected to spend around 6 hours per week on this unit. This includes: attendance of lectures and tutorials, preparing tutorial work, revising lecture materials, completing weekly online tests, preparing for the mid-semester test, working on their group assignment and presentation, as well as studying for their final examination.

6.6 Development of Blended Learning Online Resources

This section will provide an overview of the online content provided in this introductory accounting unit with the aim of improving student learning outcomes for each component of assessment.

6.6.1 Online Resources Provided via WebCT

Table 6.2 illustrates the gradual increase in the technology used to support student learning in this unit. It shows the nature and extent of online resources provided on the unit's website. This has been guided by Biggs' (2003) notion of constructive alignment to improve learning outcomes. These resources support student learning as they are relevant to the unit's curriculum objective, to attain an understanding of accounting principles and their application in a real-life business context. Objectives, content and assessment are aligned to enhance student learning outcomes in this unit. The shaded columns for 2010 and 2011 highlight all of the online resources available for the period of this research.

Table 6.2 Inventory of Online Resources Provided via WebCT

	2006	2007	2008	2009	2010	2011
INTERACTIVE RESOURCES						
online quizzes and solutions	❍	❍	❍	❍	❍	❍
budgeting module	❍	❍	❍	❍	❍	❍
franchising module	❍	❍	❍	❍	❍	❍
email	❍	❍	❍	❍	❍	❍
discussion boards			❍	❍	❍	❍
INFORMATIONAL RESOURCES						
updates on home page	❍	❍	❍	❍	❍	❍
unit study guide	❍	❍	❍	❍	❍	❍
staff contact details	❍	❍	❍	❍	❍	❍
lecture notes	❍	❍	❍	❍	❍	❍
PowerPoint presentations	❍	❍	❍	❍	❍	❍
tutorial material	❍	❍	❍	❍	❍	❍
assessment details	❍	❍	❍	❍	❍	❍
assignment marking scheme	❍	❍	❍	❍	❍	❍
sample mid-semester test and solutions	❍	❍	❍	❍	❍	❍
past exam papers and solutions	❍	❍	❍	❍	❍	❍
supplementary resources	❍	❍	❍	❍	❍	❍
links to relevant websites	❍	❍	❍	❍	❍	❍
textbook online support	❍	❍	❍	❍	❍	❍
video on differing roles in accounting	❍	❍	❍	❍	❍	❍
video on peer mentoring program		❍	❍	❍	❍	❍
video on study skills and plagiarism		❍	❍	❍	❍	❍
updates via announcements			❍	❍	❍	❍
instructional videos using Captivate				❍	❍	❍
BLENDED LEARNING RESOURCES						
recorded lectures via Lectopia				❍	❍	❍
recorded tutorials via Elluminate Live					❍	❍
participation in online tutorial via Elluminate Live					❍	❍

6.6.2 Interactive Resources

The first section of Table 6.2 lists the interactive resources: online quizzes, a budgeting module and a franchise module, which enables students the opportunity to actively engage with custom-designed teaching materials to reinforce the key concepts taught in this unit. With the WebCT email and discussion tools, online communication and access to all instructors and students within the unit was readily available. The use of the discussion board was introduced in 2008 to encourage a greater level of communication than that received via email in previous semesters.

6.6.3 Informational Resources

The second section of Table 6.2 itemises the informational resources that provide students with important details relevant to the unit, lectures, tutorial and assessment. These materials are updated and improved each semester so that students are fully informed from the outset of the content to be covered. All the supporting resources are provided to help students keep on track with their learning activities throughout the semester. New resources are added as they become available. In 2007, two in-house videos with unit-specific content were included; one informed students of a peer mentoring program to support students experiencing difficulties in the unit and the other featured study skills and issues about plagiarism. To enable direct access to important updates, the announcements feature was used more frequently in 2008 to convey information relating to assessment and other relevant details. In 2009, a series of instructional videos were developed on Captivate to help explain to students how to access share-market information from the internet and to graph sharemarket prices using Excel.

6.6.4 Unit Website

As coordinator of Victoria University's largest accounting unit, one of the major challenges constantly faced in the teaching first-year accounting is the diversity of the student cohort. The majority of these students are non-accounting majors with little or no prior knowledge of accounting. They are also from a range of different academic and cultural backgrounds. The combination of these factors may place many of these students in the high risk category of failure in this unit. To assist these students, a comprehensive website was created with appropriate online resources to support their learning needs. According to Bates and Poole (2003), educational websites should be well-structured, intuitive to use and easy to navigate and the design of online teaching materials should be easy to read and easy to use. As advised by Corno and Snow (1986), differences in learning styles should also be factored into its design to create an environment where the needs of a variety of learners can be accommodated. To address this issue, four types of media: text and graphics, audio, video and digital multimedia are used in the creation of these online resources.

A screen-capture of the unit website is shown below in Figure 6.1.

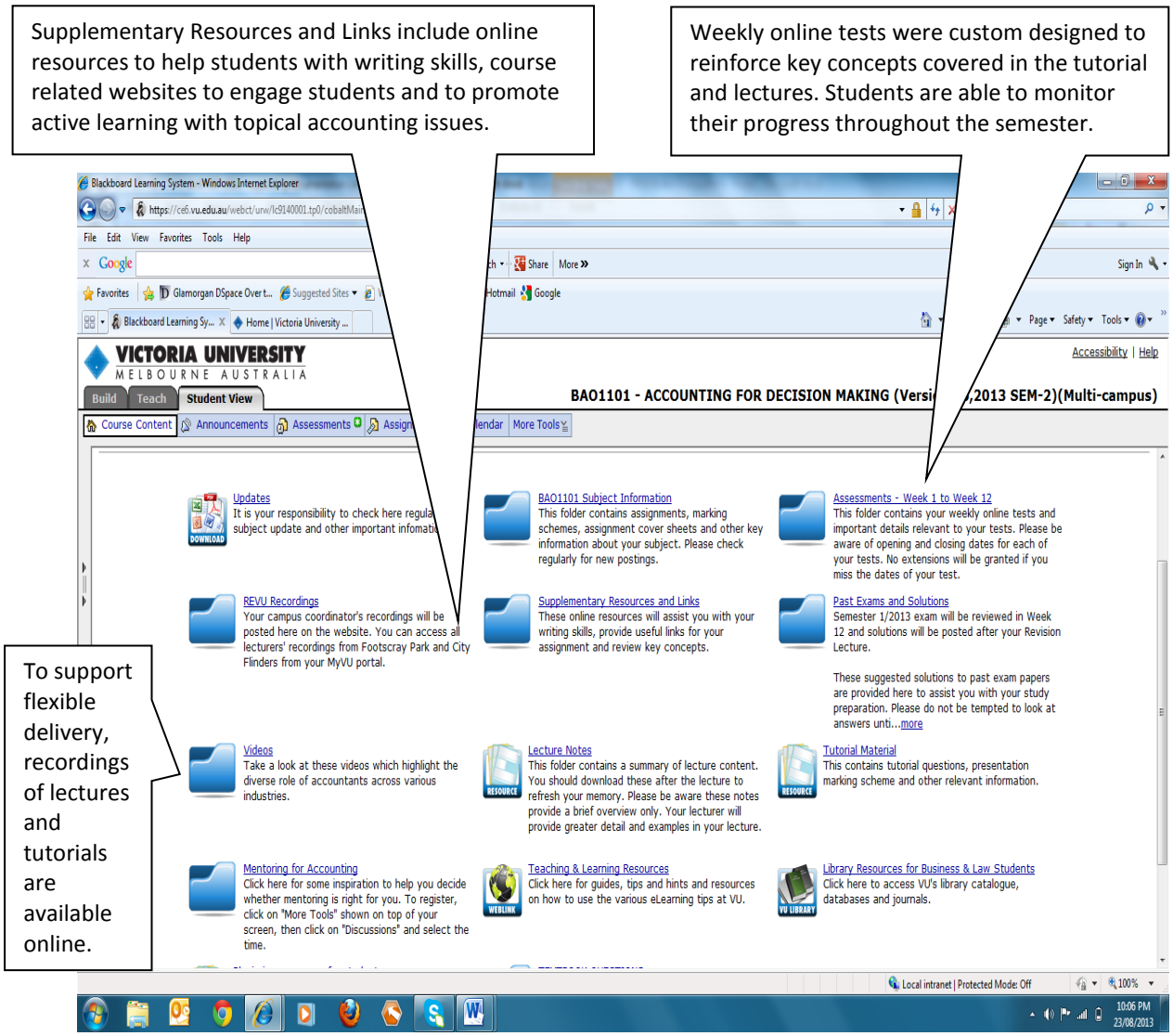
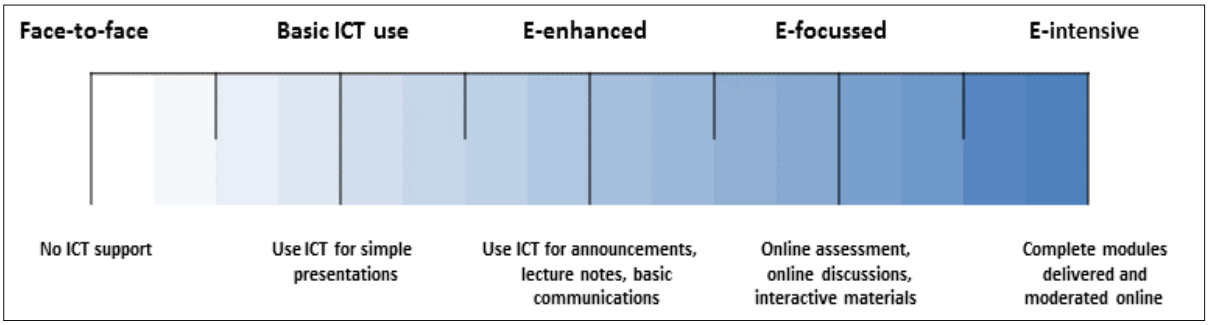


Figure 6.1 Screen-Capture of the Unit Website

6.6.5 Blended Learning Resources

During 2009, the first of the online options was introduced. Lectures were recorded using 'Lectopia' a software package that enables an audio-visual screen capture. By managing and publishing these lectures on the unit's WebCT site, students are able to review recordings anytime and anywhere, as many students have access to mobile technology. This provides greater access to lecture materials for revision and concept review. By 2010, students were provided the opportunity to actively participate in online tutorials or to view the recordings of these online tutorials via Elluminate.

These options are shown as the last three items in Table 6.2 Inventory of Online Resources Provided via WebCT under the shaded columns for 2010 and 2011. With reference to the Enhanced Continuum of Blended Learning shown in Figure 6.2, it is possible to track the gradual increase in the use of technology and online options from 2005 to 2011.



2005		2006 to 2009	2010 to 2011

Figure 6.2 Enhanced Continuum of Blended Learning adapted from N. Jones et al. (2009, p. 15)

In 2005, students were limited to face-to-face learning with no ICT support. By 2006, a considerable amount of interactive and informational resources were available online. The number of online resources continued to increase and the quality of resources improved by implementing suggestions provided by student and staff feedback. This level of online resources may be categorised as 'e-enhanced'. By 2010, another significant shift forward along the continuum toward 'e-focused' was attained with the introduction of Lectopia recorded lectures and the option for students to either view or actively participate in the Elluminate online tutorials.

6.7 Introduction of WebCT

WebCT was introduced into the first-year accounting unit in Semester 1/2006. There was a decision made at the institutional level that each unit would at least have a WebCT web page and an expectation that WebCT would be used 'in some way' by staff in relation to the delivery of all units. With regard to readiness, staff were provided with a basic level of training for use of WebCT and support areas were made available within the university to support development of curriculum around various WebCT features. Students were provided with a basic level of online teaching resources which included lecture notes and examination solutions. In each of the following semesters, additional resources were made available. There was also greater use of communication tools, in particular online chat and discussion boards for students to communicate with each other and their lecturers via WebCT.

In Semester 1/2010, students were introduced to three new online learning options to complement traditional face-to-face lectures and tutorials. This is the most common type of blended learning, the provision of supplementary online resources for courses delivered via traditional modes and supported by a virtual learning environment (Sharpe et al., 2006). These new online options are discussed in the next section.

6.7.1 Option 1 Viewing of Recorded Lectures Via Lectopia

The first of these options was the viewing of recorded lectures via Lectopia, an automated lecture recording and web publishing tool. Students had immediate access to an audio-visual recording of a lecture which generally comprised lecture slides, commentary and illustrations using links to websites where relevant. Whilst this could be downloaded and viewed at their convenience, it did not however provide for any student interaction via discussion board or any other online chat facilities. A screen capture of a recorded lecture via Lectopia is provided in Figure 6.3.

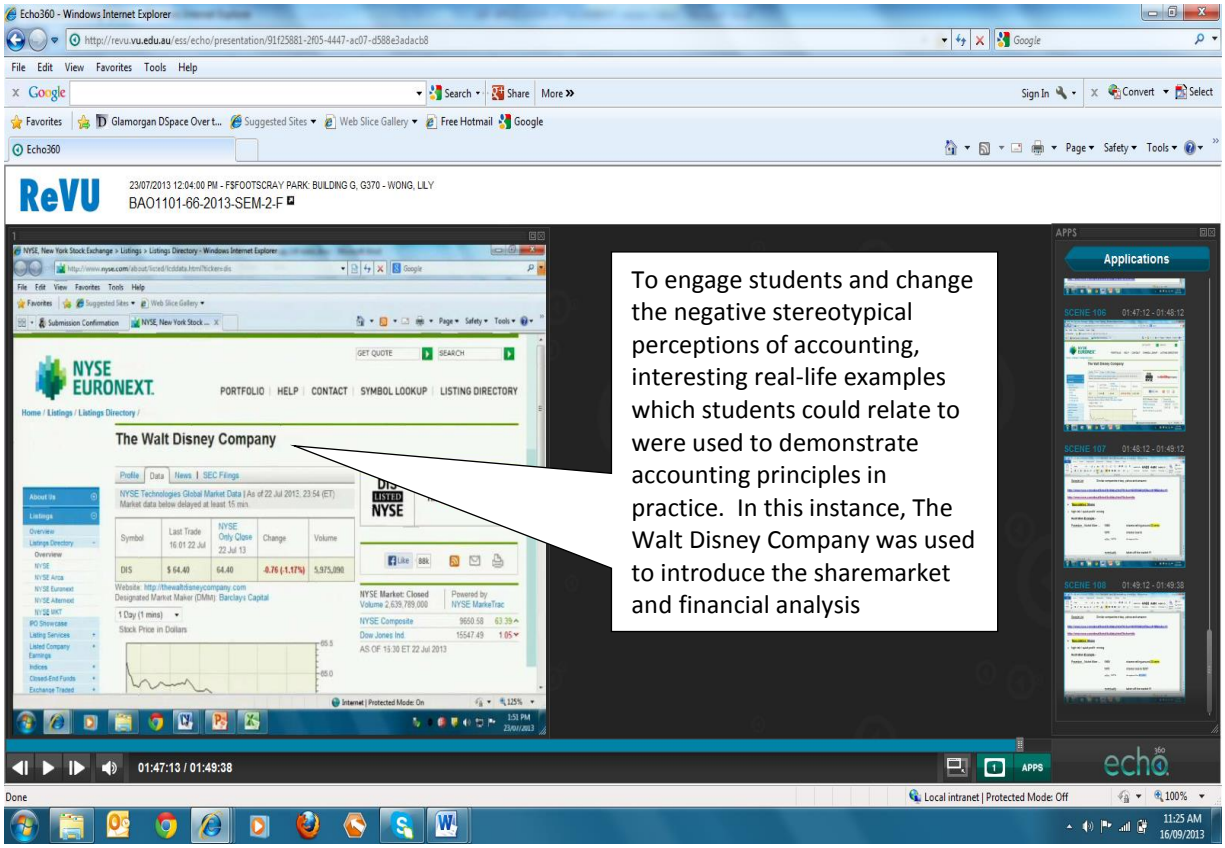


Figure 6.3 Screen Capture of Recorded Lectures Via Lectopia

6.7.2 Option 2 Participate In Online Tutorials Via Elluminate Live

The second option enabled students the opportunity to enrol and actively participate in online tutorials via Elluminate Live which is an online collaborative session. To join the online tutorial they were required to log in to the Elluminate Live website each week at a regular designated time. These sessions were conducted and moderated by the unit coordinator.

Elluminate Live software contains several visual tools which include a whiteboard, application sharing, file transfer, emoticons and a webcam. The transfer of knowledge and review of tutorial content was facilitated through application sharing, file transfer and a shared whiteboard where students could take control of the screen for direct input. Interaction between the online tutor and students was through an onscreen dialogue sidebar or speaking directly via microphone or headset. A screen capture of an Elluminate Live session highlighting these particular features is provided in Figure 6.4.

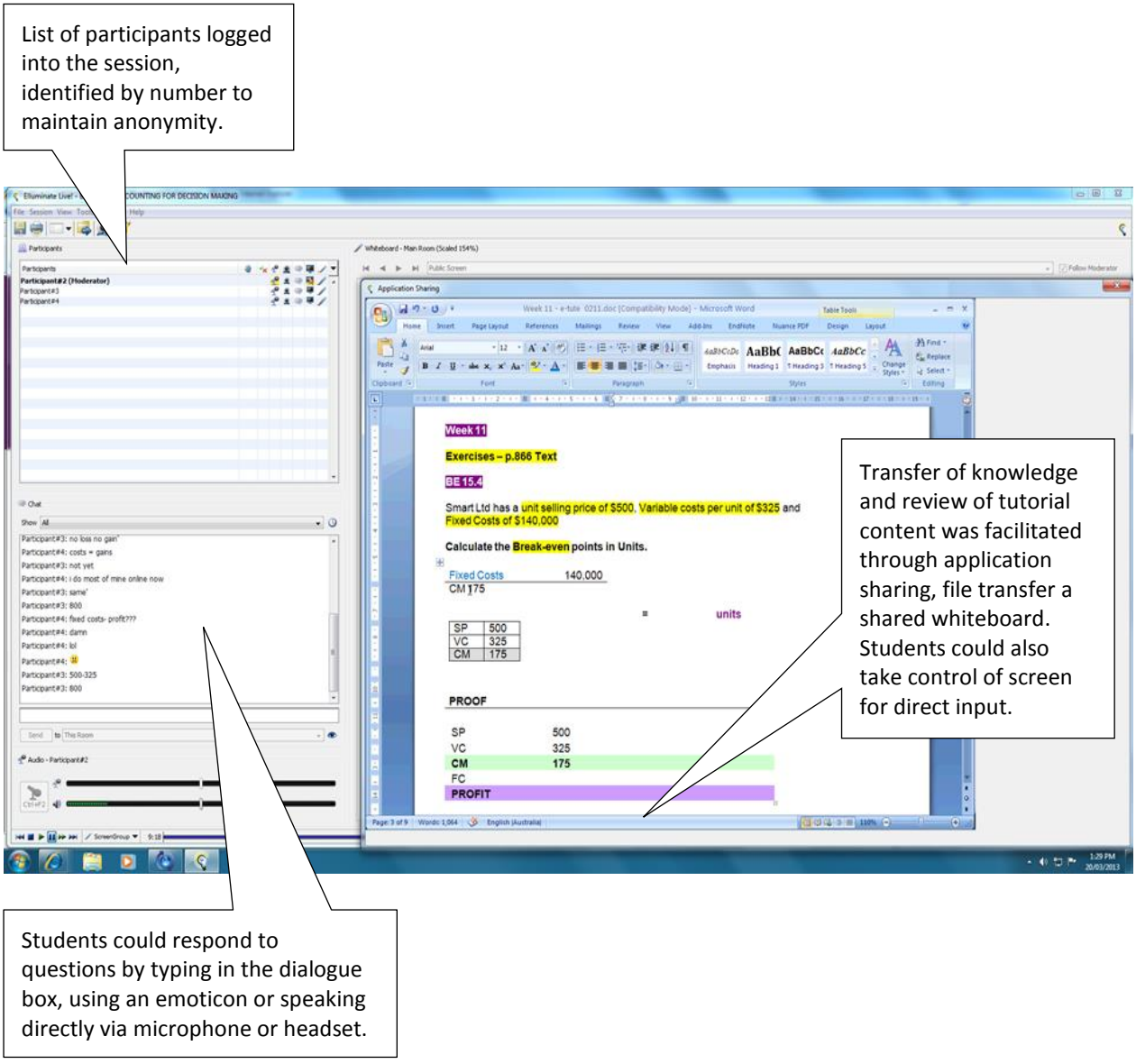


Figure 6.4 Screen Capture of Elluminate Live Session

A recording feature was also available that allows the moderator to record the session for students to view at a later time. Each of the Elluminate Live tutorials were recorded and posted on WebCT by the end of each week.

6.7.3 Option 3 Review Audio-Visual Content from Elluminate Live Tutorials

The third option allowed students to download and review the audio-visual content from the Elluminate Live tutorials. As with the first option of the recorded lectures, this was a passive viewing option. Access to all these additional online resources was via the unit website on WebCT.

FINDINGS FROM STUDENT SURVEY

6.8 Demographic Profile of Survey Participants

When selecting appropriate media and technology for educational purposes, student demographics, access and differences in how students learn, are important factors that need to be considered (Bates & Poole, 2003). With the increasing demand for higher education and the student population becoming much more diverse, universities and academic staff are required to adapt their teaching accordingly. To cater for this greater diversity in students with differing learning styles, course content should be developed to provide a variety of teaching approaches (Bates & Poole, 2003).

As this research focused primarily on first-year students, it is likely that this group will need more support and guidance in their transition to studying at a tertiary institution. This issue was raised by Nelson et al. (2006) stating that students in their first year have special learning needs arising from this change into a new academic environment. It would be considered inappropriate to expect this particular cohort of students to learn independently from online resources alone at this early stage of their university experience. Owston et al. (2006) also concluded that face-to-face contact was necessary for some first-year university students who need more guidance in their learning. In this situation, it would be best to use technology to supplement face-to-face teaching.

Students who live and work within close proximity to the university may prefer face-to-face interaction, whilst those with greater distances to travel, may prefer the convenience of online access to teaching resources if they are unable to regularly attend lectures and tutorials. Student demographics may also have an impact on their approach to learning and their preference for teaching method. Full-time and part-time students may also have differing needs depending on their level of work commitments. Age, gender, lifestyle, ethnicity are also factors that may affect the students study and learning preferences.

Table 6.3 provides a summary of the demographic profile of survey participants across the four semesters of this study.

Table 6.3 Demographic Profile of Survey Participants

	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
No. of Students Enrolled at Start of Semester	771	752	702	671
No. of Students Enrolled at End of Semester	561	495	468	424
Retention Rate	73%	66%	67%	63%
Sample Size	172	113	143	87
% Of Participants To Overall Student Population	31	23	31	20
Gender	%	%	%	%
Male	56	37	53	47
Female	44	63	47	53
Mode of Study	%	%	%	%
Full-Time	88	88	87	87
Part-Time	12	12	13	13
Year of Study	%	%	%	%
1st	64	67	67	70
other	36	33	33	30
Major in Accounting	%	%	%	%
Yes	35	8	19	15
No	65	92	81	85
Work and Study	%	%	%	%
Not working	27	25	31	31
1-10 hours of work	16	9	11	14
11-30 hours of work	45	56	47	44
Greater than 30 hours	12	10	11	11
Age	%	%	%	%
Less than 20 years	44	36	39	36
20 – 29 years	47	58	49	52
30 years or older	9	6	12	12
Previous Accounting Studies	%	%	%	%
Yes	39	22	37	23
No	61	78	63	77
Work Experience in Accounting	%	%	%	%
Yes	13	5	10	5
No	87	95	90	95
Number of Lectures Attended	%	%	%	%
None	1	2	1	1
1 to 5 lectures	6	19	8	9
6 to 10 lectures	12	12	13	12
11 to 20 lectures	18	27	23	18
Over 20 lectures	13	12	16	18
All 24 lectures	50	28	39	42
Number of Tutorials Attended	%	%	%	%
None	0	0	0	0
1 to 3 tutorials	3	1	5	5
4 to 7 tutorials	6	8	5	4
8 to 11tutorials	32	43	38	43
All 12 tutorials	59	48	52	48

Overall, there were 515 usable responses to the survey. Enrolments were generally higher in Semester 1 of each academic year. The overall response rate to the survey over this period was just over 26%, which was a reasonably successful rate given the time needed to complete the survey. The demographic profile of respondents across the four semesters suggests that the respondent groups generally had similar profiles across the period of study.

6.8.1 Sample Size

The largest sample size of 172 students was attained in first semester of the survey period but this decreased steadily with only 87 students responding to the survey in the fourth semester. This is reflective of the lower number of students enrolled for this period and lower attendance in lectures. It is possible that this trend may be related to the introduction of recorded lectures and tutorials becoming available online from Semester 1/2010 onwards.

6.8.2 Gender

In Semesters 1/2010 and 1/2011 male students represented a slightly higher proportion than female students. This reversed in Semester 2/2010 and 2/2011 with female students more dominant in the sample.

6.8.3 Mode of Study

The vast majority of students (87% to 88%) were studying in full-time mode. These figures remained consistent over the 4 semesters under review.

6.8.4 Year of Study / Previous Accounting Studies / Work Experience

For a large proportion of these students, this unit is undertaken as their first semester in the first year of study at this university. In Semester 1/2010 this accounted for 67% of survey participants; by Semester 2/2011 this had increased to 70%, the highest proportion of first-year students over the survey period. A significant majority of students ranging from 61% to 78% have no previous accounting studies. The percentage of students with work experience in accounting was very low representing from 5% to 13% of this sample. These results may be due to the low proportion of accounting majors in this sample.

6.8.5 Major Area of Study

A minority of students enrolled in this compulsory accounting unit are accounting majors. In Semester 1/2010, this amounted to 35% and in Semester 2/2010 this was at its lowest with only 8% of students identified as accounting majors. This is one of the main challenges in engaging these students in the learning of accounting as it is an area of study in which there is sometimes little or no interest. The survey results show a larger percentage of students from a non-accounting background in the second semester of each year as accounting majors generally complete this unit in the first semester to be eligible for sequential accounting units.

A breakdown of this sample by area of study for non-accounting majors is provided in Table 6.4. Although 221 students did not provide details of their major, the responses from the remaining 294 students provide some indication of the diversity of the students sampled in this survey.

Table 6.4 Areas of Study of Non-Accounting Majors

AREA OF STUDY	FREQUENCY	VALID %
Details Of Major Not Provided	221	
Business / Banking / Finance	67	23.0%
Management & Marketing	63	21.0%
Event Management	39	13.0%
Human Resource Management	22	7.0%
Hospitality And Tourism	21	7.0%
Information / Computer Systems	16	5.0%
Law	14	5.0%
Global Logistics	11	4.0%
International Trade	9	3.0%
Sports Management	9	3.0%
Music Industry	8	3.0%
Entrepreneurship	6	2.0%
Psychology	4	1.0%
Engineering	2	1.0%
E-commerce	2	1.0%
Art (Teaching)	1	0.0%
TOTAL RESPONSES	294	100%
TOTAL SAMPLE	515	

It was found that students in this sample were majoring across 16 different areas of study. The most prominent group were Business, Banking or Finance related majors closely followed by Management & Marketing majors, comprising 23% and 21% respectively of this sample. The proportion of Event Management majors was considerably lower at 13%. There was a broad spread of students across the remaining 13 areas in which the proportions were well below 10% of the sample. As can been seen from the composition of this student cohort, this introductory accounting unit is one that would have very limited appeal.

6.8.6 Work and Study

A significant majority of students are working and studying. Of this group of students, the percentage of students working between 11 to 30 hours each week ranged from 44% to 56%. It was also found that up to 12% of these students worked more than 30 hours per week. This is perhaps reflective of the generally low to medium socio-economic status of the university's student demographic in which students are required to work long hours to cover their educational and living expenses. More flexible learning options may be beneficial to this group to enable them to continue with their studies despite substantial work commitments. The proportion of students not working and able to focus more fully on their studies ranged from 25% to 31%.

6.8.7 Age

The dominant groups are those students less than 20 and those between 20 to 29 years old. These two younger groups combined represent approximately 88% to 94% of surveyed students in comparison to mature students aged 30 years or older who account for only 6% to 12% of this group.

6.8.8 Lectures and Tutorials Attended

The percentage of students who attended all lectures was quite low with an attendance rate of 50% recorded in Semester 1/2010. This declined over the three consecutive semesters, with the lowest attendance rate of 28% recorded in Semester 2/2010. It is also noted that 1% to 2% of students did not attend any lectures during the semester. A similar trend is seen in the percentage of students attending all tutorials with a slightly higher attendance rate of 59% recorded in Semester 1/2010. This also dropped in the following semesters with the lowest attendance rate of 48% recorded in Semester 2/2010 and Semester 2/2011. In contrast to lecture attendance, there were no students in this survey who did not attend any tutorials. This is probably due to students having to complete a mid-semester test. As this is a compulsory assessment for the unit, each student attended at least one tutorial.

6.9 Students' Perceptions of Effectiveness of Learning Options

The extent to which students perceived each of these options to be effective in assisting their learning and assessment outcomes is discussed in the next section.

6.9.1 Effectiveness in Assisting Learning

Students were asked to evaluate the effectiveness of each of the options in assisting their learning in this unit. This was measured using a 4 point rating scale with 1=not effective, 2=some effect, 3=effective and 4=very effective. The option of 'not applicable' was given if students did not use the feature or did not perceive it to be useful. The mean scores calculated for each of these options are shown in Table 6.5.

Table 6.5 Effectiveness in Assisting Learning in this Unit

		Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
Lectures	face-to-face	3.42	3.19	3.39	3.64
Lectopia	recorded lectures	2.75	2.84	2.92	3.05
Tutorials	face-to-face	3.33	3.07	3.20	3.33
Elluminate	recorded tutorials	2.51	2.25	2.63	2.54
Elluminate Live	participating in online tutorials	2.46	2.51	2.68	2.34

Despite having three new online options readily available via WebCT: the viewing of recorded lectures, the viewing of recorded tutorials, and participation in an online tutorial, there was strong support for traditional face-to-face delivery. There was an initial decline in the mean scores in Semester 2/2010 for face-to-face lectures and tutorials, but from this point onwards, an upward trend continued for both approaches through to Semester 2/2011. The results indicated that the students perceived face-to-face lectures as the most effective option in assisting their learning in this unit with a mean of 3.64 which peaked in Semester 2/2011. A similar trend was evident for face-to-face tutorials with a slightly lower mean of 3.33 for the same period.

Of the online options, the viewing of recorded lectures was rated the most highly. Even though it was the only option in which the mean score showed a continual increase from 2.75 in Semester 1/2010 to 3.05 in Semester 2/2011, it rated well below the face-to-face options.

These results appear to be consistent with research by Halabi, Tuovinen, and Farley (2005) on student attitudes toward tele-teaching and traditional face-to-face contact. Preference for face-to-face teaching was reported in this study and more recently in Osgerby (2013) who concluded that whilst students appeared to have a positive attitude to the adoption of organised and well-resourced ICT-based learning options, they still preferred traditional lectures and step-by-step instruction.

Over the four semesters, the viewing of recorded tutorials and participation in online tutorials rated the lowest of all the learning options. With mean scores ranging from 2.25 to 2.63 and 2.34 to 2.68 respectively, students perceived these two options to have only some effect in assisting their learning. These low scores are perhaps indicative of their preference for active involvement through student interaction rather than passive viewing of online recordings. Bates and Poole (2003, p. 98) state that "most theories of learning suggest that for learning to be efficient, it needs to be active … the learner must respond in some way to the learning material." Students learn better when they are actively engaged with their learning rather than being passive receptacles of information.

Despite the constant promotion of the online tutorial as a new and flexible learning option over the four semester period, the enrolments remained low with the numbers ranging between 5 and 10 students per tutorial. The number of participants would fluctuate from week to week so the actual number of students online was at times below this stated range. This may be perceived to be a benefit to those who did participate as it provided a more personalised learning experience compared to a traditional classroom tutorial of 25 students. As an instructor, one is able to better gauge the level of understanding of each individual student through the one-to-one interaction online in which student anonymity is maintained. The default setting for Elluminate Live is to publish participant names, however, in this instance, it was changed so that when students logged into the session, they were identified by a participant number only. This seemed to encourage more open discussion amongst participants and provide a more active and collaborative learning experience, particularly for those students who feel uncomfortable asking questions in a large tutorial group. It was interesting to note that in Semester 2/2011, the mean score for the participation in the online tutorials was at its lowest at 2.34, whilst the viewing of the recorded tutorials rated slightly higher at 2.54.

The overall decline in the mean scores for face-to-face lectures, face-to-face tutorials and viewing online tutorials for Semester 2/2010 may be attributed to the student profile for this period. With reference to demographic details in Table 6.3 it can be seen that 92% of this particular group are non-accounting majors of which 78% have no prior studies in accounting, the largest proportion in these categories across the 4 semesters surveyed. It also shows that 56% of these students were working between 11 to 30 hours, which is substantially higher than the range between 44% and 47% recorded in the other semesters from 1/2010 to 2/2011.

This may have contributed to the lower attendance rates for Semester 2/2010 which show that only 28% of these students attended all lectures and 48% attended all tutorials, the lowest over the four semesters reviewed. This may have also influenced the increase in the effectiveness of the Lectopia recorded lectures and Elluminate recorded tutorials to make up for missed classes during this semester.

Students' support for participation in online tutorials as an effective strategy to enhance their learning rose slightly from Semester 1/2010 to Semester 1/2011. The mean score increased marginally over the three consecutive semesters from 2.46 to 2.68, but dipped to its lowest point of 2.34 in Semester 2/2011. Despite numerous attempts by the unit coordinator to raise student awareness of these online tutorials during this semester, this did not seem to improve the low number of enrolments nor strengthen their perception that this was a viable alternative to face-to-face learning.

6.9.2 Effectiveness in Affecting Assessment Outcomes

Students were asked to evaluate the effectiveness of each of the learning options in potentially affecting their assessment outcomes in this unit. This was measured using a 4 point rating scale with 1=not effective, 2=some effect, 3=effective and 4=very effective. The option of 'not applicable' was given if students did not use the feature or did not perceive it to be useful. The mean scores calculated for each of these options are shown in Table 6.6.

Table 6.6 Potential Impact on Assessment Outcomes

		Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
Lectures	face-to-face	3.33	3.11	3.36	3.41
Lectopia	recorded lectures	2.74	2.69	2.76	2.29
Tutorials	face-to-face	3.22	3.06	3.18	3.23
Elluminate	recorded tutorials	2.32	2.25	2.50	1.26
Elluminate Live	participating in online tutorials	2.45	2.37	2.71	1.13

These students expressed similar views to the previous question relating to the effectiveness of these options in assisting their learning in this unit. Their responses confirm their strong perception that face-to-face lectures and tutorials would have a greater impact on their learning and assessment outcomes than the online alternatives. Both traditional learning options rated between effective to very effective over the four semester period.

Despite a slight increase in Semester 1/2011, the online options rated poorly in Semester 2/2011, with significant declines across all three options to record the lowest mean scores over the research period. Students still perceived the recorded lectures to have some effect on their assessment outcomes. The results for the Elluminate online options showed the most significant change in student perception. Whilst the participation in online tutorials and the viewing of recorded tutorials were initially considered to have some effect, the mean for both was trending toward not effective.

There is no clear explanation for this dramatic downturn in Semester 2/2011, however, it should be reiterated that students enrolled in the second semester generally have a higher percentage of non-accounting majors with no prior studies in accounting. These factors may have potentially lowered the students' level of confidence in using the online options to improve their assessment outcomes. It would be understandable for this group to express a stronger preference for the face-to-face interaction between staff and students for specific queries relating to their assessment in this unit. For Semester 2/2011, the student sample comprised 70% of students in their first year of study at this university, a considerably larger proportion in comparison to previous semesters in which this ranged from 64% to 67%. It is a possibility that students who are relatively new to the university are not aware or not familiar with the range of resources available via the WebCT.

6.10 Student Feedback on Online Learning

As this introductory unit is the largest accounting unit offered at the university, the teaching is shared between several teaching staff. Consequently, students may be exposed to a range of learning experiences due to differing interpretations of unit content, as well as divergent teaching styles. This was often confusing for students. In an attempt to provide consistency, the unit coordinator's online recordings of lectures and tutorials were posted on WebCT. The popularity for online recordings is reported in Osgerby (2013), in which several students specify that they would have liked recordings of lectures to be available, only if the lecturers were proficient in their units. It would be reasonable to assume the same for online tutorials. Feedback from students using these online resources has been very positive as a flexible learning option that enhanced their learning in this unit. Samples of student feedback are provided in the next section.

6.10.1 Online Tutorials

Despite the lowest mean score of 2.34 recorded in Semester 2/2011, the informal feedback from students participating in these online tutorials was very positive as a flexible learning option that enhanced their learning. Samples of student feedback from unsolicited emails are provided in Table 6.7.

Table 6.7 Student Feedback on Online Tutorials

Feedback from an online participant Semester 2/2011 - extract from email 27/10/2011 "Just wanted to say again how fantastic it has been being a student of BAO1101 this semester. I personally have found the online element and your teaching style extremely advantageous to my learning and thank you greatly for being such an inspirational teacher. I encourage you to keep trying to offer this unit to other students as it had been extremely helpful to me as a travelling student. Though class numbers and the obvious difficulty of distance effects (sic) your belief in this (online) subject I encourage you to keep doing what you're doing and only hope that other students can appreciate as much as I do what you have done for me this semester".
Feedback from a viewer of online recordings Semester 2/2011- extract from email 6/09/2011 "First of all thank you for the opportunity to access both the lecture recordings and online tutorial recordings, I have found them of great assistance and your teaching style is easy for me to follow. Although I attend both my tutorial and lecture I find I am able to use the recordings for better understanding of the subject".
Feedback from a viewer of online lectures Semester 2/2010- extract from email 27/08/2010 "I am just writing to say thank you and to mention how much I enjoy listening to your lectures. I have been away due to a surgery I recently had so I have been following along with the subject through the recorded lectures and I find your teaching style not only to be very easy to understand and follow, but you make the subject actually enjoyable to study. I have found it very difficult to find lecturers who not only make the subject easier to understand, but have the enthusiasm to want to make their students get the most out of the subject. You definitely have a great passion for this subject as well as a passion for teaching, which is rare. Thank you again and I look forward to learning more from you throughout the semester".

6.10.2 Online Recordings of Tutorials and Lectures

Presented in Table 6.8 is a sample of comments extracted from the student evaluation surveys conducted over the four semester research period. These comments are from students who had either participated in the online tutorials or had viewed the online recordings of lectures and tutorials. It provides an insight into how these learning options helped deepen their understanding and reinforce their learning in this unit.

Table 6.8 Student Feedback on Online Recordings

"The recordings are clear and easy to listen to especially with the company of the lecture notes and subject guide / workbook- very beneficial!"
"Really pleased with the online tutorials and lectures. Great for somebody who has limited exposure to accounting – good reinforcement to tutorials and lectures, able to learn at easy pace".
"I think it is great that you have recordings online. I think all subjects should be able to offer this service".
Lectures online are useful! For a non-accounting person, it's been far better than anticipated due to great lectures. Actually enjoyed accounting, surprising for someone who failed basic maths Year 10 high school".
"I understand that we should not be relying on the recording for learning. However I have found that when I'm able to return to the lecture via the recording and also replay any part I don't fully grasp on the first occasion, I find that I get a better understanding of the subject".

6.10.3 Weekly Online Tests

Weekly online tests are an example of constructive alignment used in this unit. A series of weekly online tests were developed to help students review and monitor their level of understanding of the key concepts covered in each week's lecture and tutorials. These online tests shown in Figure 6.5 were compulsory assessment and represented 10% of the final grade for this unit.

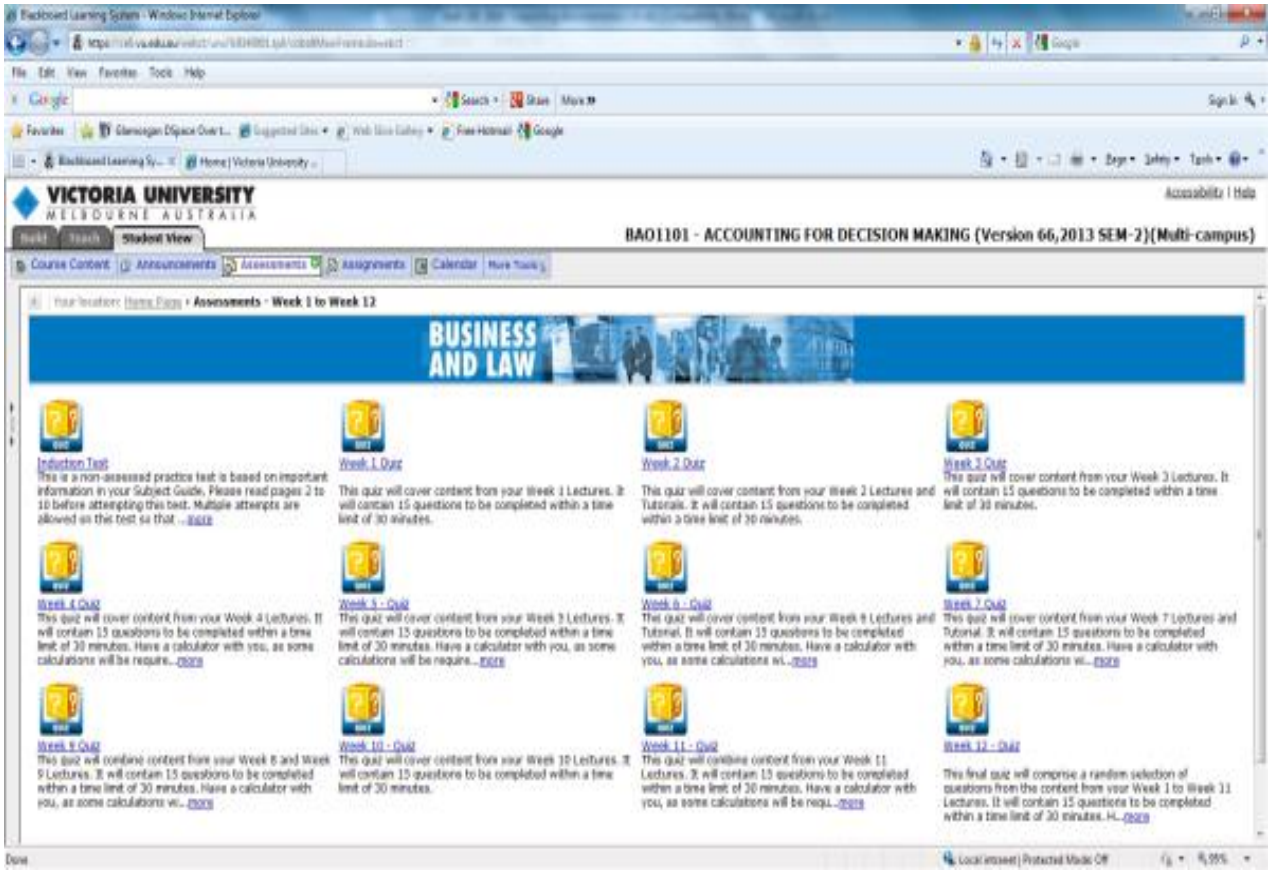


Figure 6.5 Screen Capture of Weekly Online Tests

Informal feedback received beyond the research period has been included to provide a valuable insight into the continual action research process of developing and improving the online resources available to support student learning. Provided in Table 6.9 are samples of student feedback from unsolicited emails which demonstrate the benefits derived from using the online tests and other resources which have been very positive in enhancing their learning in this unit.

Table 6.9 Student Feedback on Weekly Online Tests

Semester 2/2013 - extract of email from Jessica 4/9/2013 "The e-Learning resources provided in BAO1101 have proved very helpful to me in my studies. The supplementary resources for the assignment have taken some of the burden off undertaking an assignment on a subject I have never come across previously and have helped to maximise my understanding of the information I need to locate and utilise. The most helpful part, personally, has been the online tests. Not only do these keep the mind accounting focused but they help to zone in on topics that I have not understood properly the first time".
Semester 1/2013 - extract of email from Miles 28/8/2013 "As someone who had never done accounting before, I found the online resources to be very useful. Having the lectures uploaded was great for my revision at the end of the semester as it helped jog my memory for topics done at the beginning of the semester. Having the tutorials and exam revision classes uploaded to REVU was an added bonus because if I couldn't make a class, I could see how the answers to the tutorial questions were completed, and hear Lily's positive attitude towards the class. This subject was the first time I had seen tutorial videos on REVU at Victoria University, Lily went beyond what most tutors and lecturers usually do for their students. I was really pleased with my results for accounting (Distinction) which wouldn't have been possible without Lily's great tutorials and online lectures!"

Similar findings were reported in a qualitative study conducted by P. Marriott and Lau (2008) in which student feedback confirmed that regular online assessment played a significant role in the teaching and learning process.

6.11 Usefulness of Unit Website

This next section presents the student perceptions of the usefulness of specific website features and the overall quality of the unit website.

6.11.1 Usefulness of Website Features

From Semester 1/2010 through to Semester 2/2011, students were asked to evaluate the usefulness of the unit's website features in supporting their learning as well as the overall quality of the unit website. This was measured using a 4 point rating scale with 1=low, 2=medium, 3=high and 4=very high. The option of 'not applicable' was given if students did not use the feature or did not perceive it to be useful. The mean scores calculated for each of these options are shown in Table 6.10.

Table 6.10 Usefulness of Unit Website Features

WEBSITE FEATURES	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
Updates and Announcements	3.14	3.24	3.16	3.50
Unit Information	3.07	3.14	3.22	3.58
Lecture Notes	3.25	3.28	3.39	3.64
Weekly Online Tests	3.21	3.08	3.22	3.46
Online Recordings of Lectures and Tutorials	2.79	3.03	3.00	3.43
Supplementary Resources	2.76	2.82	2.84	3.06
Budgeting Module	2.63	2.68	2.86	3.27
Instructional Videos	2.56	2.80	2.64	3.40
Exam Solutions	3.37	3.37	3.35	3.76
E-mentoring	2.56	2.64	2.71	3.46
Discussion Board	2.54	2.60	2.70	3.12
Overall, rate the quality of the unit website	3.07	3.26	3.27	3.47

A graphical representation is presented in Figure 6.6 to facilitate interpretation of these results over the four semester period.

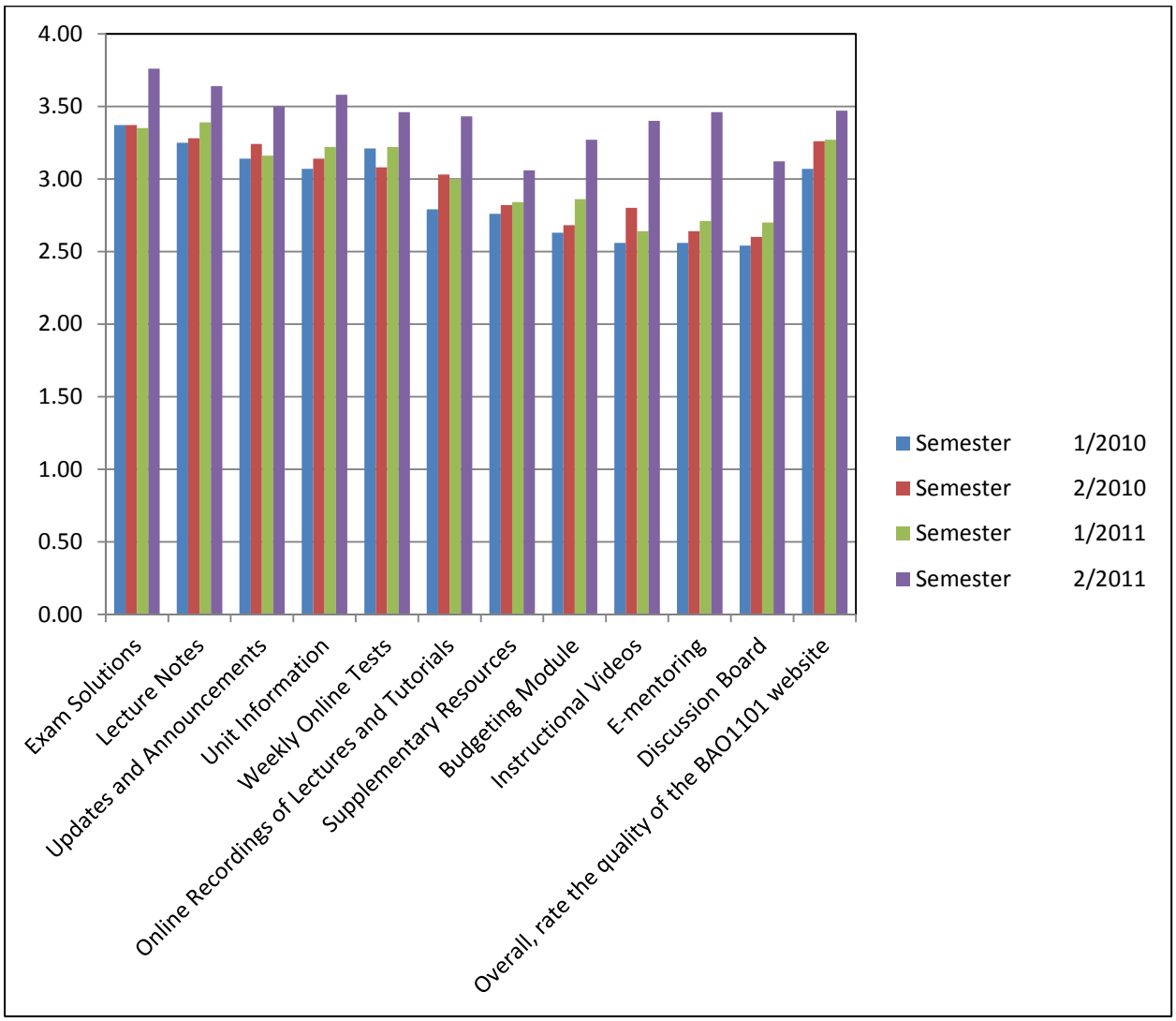


Figure 6.6 Usefulness of Unit Website Features Trend

Students' perception of the usefulness of the unit website features had increased over the four semesters, with the greatest improvement in Semester 2/2011 across all the listed features. It can be seen from Figure 6.6 that in the final semester all the unit website features attained a mean score of at least 3.00, rating them as highly useful. Of these, there were three features which rated above 3.50 and trending toward very useful: exam solutions, lecture notes and unit information. The increase was most significant for instructional videos and e-mentoring, which was initially perceived as moderately useful, but upgraded to highly useful by Semester 2/2011. The overall increase in usefulness may be attributed to incorporating some of the suggestions from student feedback. These include providing more comprehensive exam solutions and lecture notes, including weekly checklists and frequently asked questions under updates; as well as additional instructional videos demonstrating the use of spreadsheets in ratio analysis, budgeting and graphical functions. It is acknowledged that these increases may have been influenced by factors other than those stated.

6.11.2 Website Features Ranked In Order Of Usefulness

To rank the website features in order of usefulness, the mean score was averaged over the four semesters. A summary of results ranked in order of usefulness is presented in Figure 6.7.

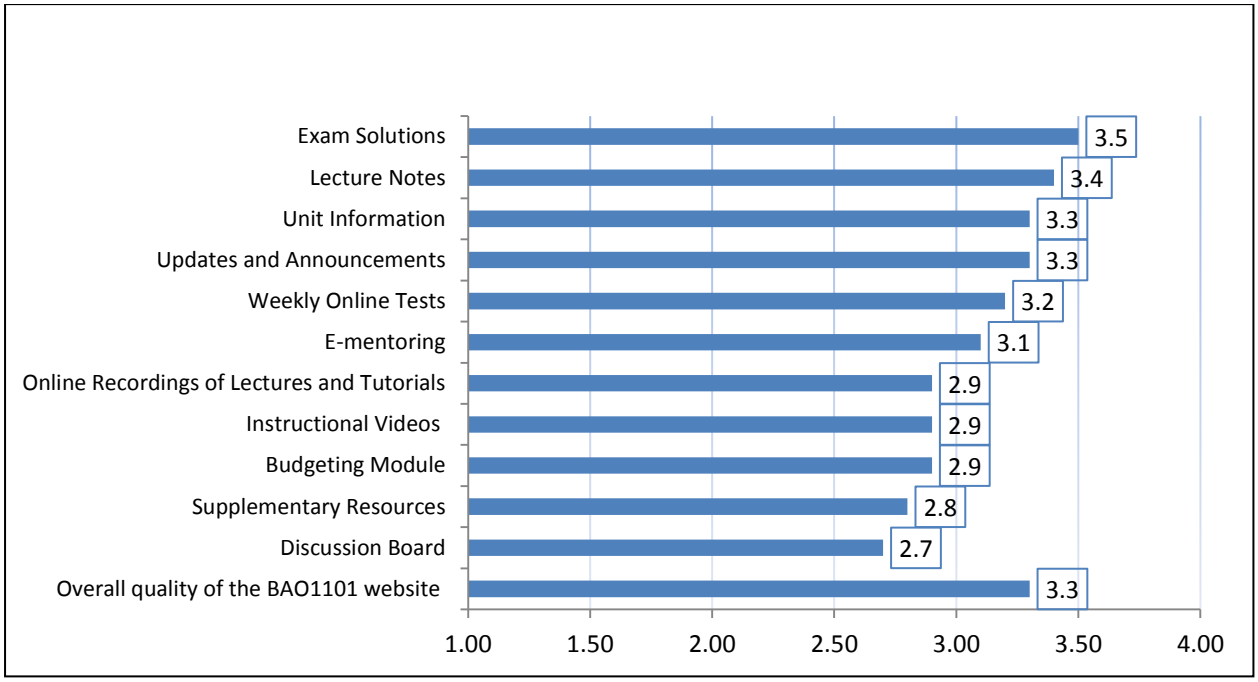


Figure 6.7 Website Features Ranked in Order of Usefulness

The most useful features were exam solutions (3.5) and lecture notes (3.4). This was closely followed by unit information, updates and announcements (3.3). Students also rated weekly online tests (3.2) and e-mentoring (3.1) as highly useful. These results are similar to previous research on the use of WebCT and its effect on student motivation which found that various design features of WebCT, such as the provision of lecture notes and online assessment significantly influenced the level of student satisfaction (de Lange et al., 2003). Investigations into the use of Blackboard as a supplement to face-to-face learning were also conducted by Love and Fry (2006) and Wells et al. (2008). Both studies found that lecture notes, content availability and announcements were the strongest predictors of overall perceptions of the website.

The features that enable students to communicate with each other and with teaching staff rated amongst the lowest; discussion board (2.7) but still regarded as moderately useful in their learning in this unit. This is similar to an observation made in a study conducted by Halabi and de Lange (2011) that students feel reluctant to engage in two-way online activities. This also seems to be consistent with the findings from Table 6.5 which highlight a strong student preference for face-to-face interaction with staff and students in lectures and tutorials as the most effective in assisting their learning.

6.12 Student Feedback for Action

From a unit coordinator's perspective, it was not only important to determine which features were most useful in supporting student learning in this unit, but also to identify areas in need of review. This constitutes the action research element of this research. Student feedback was sought in the student survey and their suggestions for improvement were considered and implemented where possible. This provided a regular cycle for reflection and continuous development to improve the quality of the resources made available via the unit website.

6.12.1 Suggestions for Improvement to Website

To improve on the usefulness of the unit website, students were asked to list any additional features to be included to support their learning. There were 95 responses collected over the four semesters.

To improve on the quality of the unit website, students were asked to identify any other uses of technology that would help their learning in this unit. There were 132 responses collected over the four semester period, however, many of the responses were similar to the previous question on additional features to be included.

To streamline this analysis, the total 227 responses were combined and the emerging themes from 204 responses are summarised in Table 6.11. To avoid repetition in the content analysis, similar comments were removed. A summary of suggestions actioned is shown Table 6.12 and suggestions that were not implemented are listed in Table 6.13. Details for the remaining 23 responses will accompany Table 6.14.

Table 6.11 Summary of Responses for Improvements to Website

THEME	COUNT	COMMENTARY
Instructional Videos	78	Instructional videos were the most frequently requested additional feature. There were multiple requests for more videos with step by step instruction and explanations of key topics and concepts. The ability to pause, search and review more difficult concepts such as budgeting was acknowledged. An overview video on how to use the unit website was also suggested. Other suggestions included videos for: all core topic matters, preparation of financial statements, assignment, revision questions and accounting formulas.
Additional Resources, Revision Materials and Solutions	29	Additional revision materials and solutions were requested to help students gain a better understanding of this unit. The most frequently requested items were answers to tutorial questions, exam solutions with workings of calculations and explanations, more exam papers and solutions for preparation, more practice tests with solutions and precise chapter readings relating to lectures / tutorials. Accounting programs, additional online videos to help students prepare for class presentations, more practice exercises and activities were also suggested.
Improved Format	28	These comments related to improving the format of the unit website to make it more user-friendly and easier to navigate. Recommendations included: frequently asked questions, creating a sub-section for students new to accounting for better instructions with podcasting & iTunes download for recorded lectures, more detailed lecture notes, clearer notifications for online tests due and the update section to be designed better.
Skype	25	Students considered Skype to be useful for online communication for e-mentoring, for online consultations with lecturer or online chats with tutor, lecturer or other students to discuss difficult concepts.
Social Media	13	The most popular request for was for the unit to have a Facebook presence. Other suggestions included live chat with lecturers or tutors and mobile phone help, such as text help for quick questions. Requests for Twitter to be used to answer questions with minimum words and suggestions for podcasts were noted.
Online Assistance	11	Suggestions for online assistance to support struggling students included a 24 hour online help service and a live forum available in the evening. The desire for an online tutor and online tutorials for more support, an online chat system for e-mentoring and tutorial based online discussions was expressed.
Communication	6	Most of these responses related to increasing the options for communication between students and their lecturer or tutor. Suggestions included a means of discussion to enable students to ask questions anonymously and more one-on-one communication with teaching staff via online consultations, if students are having difficulty understanding key concepts.
Consultation Details	5	All comments were associated with either having more consultation time available with lecturer / tutor or providing details of consultation times and the ability to make appointments with teaching staff online.
Interactive Activities	4	These requests were for interactive activities relating to budgeting, interactive learning modules, more online tests, interactive examples and activities.
PowerPoint	3	PowerPoint slides which go through each of the topics were requested.
Elluminate and Lectopia	2	These were requests, for students to be informed on how to use Elluminate and Lectopia on the first day of the semester so that all students are aware and informed from the outset. There was also a suggestion to go through previous exam questions using Elluminate.
TOTAL	204	

From the demographic profile shown in Table 6.3, the most prominent groups which represent approximately 90% in this survey sample are those students less than 20 years of age and those between 20 to 29 years of age. These suggestions may be reflective of their greater demands on the quality and range of online materials available as new technologies emerge. This appears to be a constant challenge to keep abreast with technology, "which is changing and developing faster than our capacity as individuals to adapt" (Bates & Poole, 2003, p. 18). These issues have also been raised in earlier studies on student motivation and its effect on levels of satisfaction (de Lange et al., 2003). This method of collecting suggestions for additional features provides user-driven improvements from the students themselves that have the potential to make the website more appropriate for their learning needs.

There were many suggestions worthy of consideration, however, due to time and budget constraints, those that were most practical, beneficial and easiest to implement were prioritised. The suggestions were categorised into five main themes: instructional videos, additional resources, improved format, online assistance and consultation details. An overview of the suggestions that were actioned is shown in Table 6.12.

Table 6.12 Overview of Suggestions Actioned

THEME	COMMENTS
Instructional Videos	Instructional Videos showing use of spreadsheets for assignment tasks, accounting formulae and graphical functions.
Additional Resources	Answers to weekly tutorial and revision questions were made available via link to Elluminate recorded tutorials.
	More comprehensive exam solutions with workings of calculations and explanations.
	Additional exam revision lectures were recorded and posted on WebCT.
	All lecture recordings were available as podcasts.
Improved Format	Improved format of lecture notes, more consistent presentation with subject guide.
	Responses to frequently asked questions posted under updates and discussion board.
	A sub-section for new students to accounting which included weekly checklist to keep students up-to-date.
	Clearer notifications for weekly online tests are posted on Updates and via calendar function on WebCT. Update section has been streamlined to enhance clarity of information presented.
Online Assistance	Online e-mentoring and staff available online during specified consultation times and for exam preparation period.
Consultation Details	Details of all staff and consultation times were provided to facilitate online contact for students during semester and over exam preparation period.

The majority of these suggestions were sourced from the student surveys conducted in Semester 1/2010 and Semester 2/2010. These were generally actioned in the semester following, as part of the action research cycle to improve the content and design of the unit website. As similar feedback was provided throughout and beyond the four semester research period, this enabled further opportunity for refinement.

With reference back to Table 6.10, the overall rating of the quality of the website had increased from a mean of 3.07 to 3.47 out of a maximum score of 4.00 over the four semester period. There appears to be some recognition of the proactive approach undertaken to improve the quality of the unit website.

Listed in Table 6.13 are those suggestions that were not implemented for reasons of practicality, lack of resources or staff concerns. Further discussion of staff views on social media appear in Chapter 7 Findings from Staff Survey.

Table 6.13 Overview of Suggestions Not Actioned

THEME	COMMENTS
Skype	Skype was a popular request which was considered but most staff preferred email as the formal means of communication in this unit.
Social Media	Facebook, live chat, mobile phone help and Twitter were requested but staff did not consider these options appropriate for this unit.
Online Assistance	Mobile phone help, for example, text help for quick questions
	A live forum would be useful if one is available in the evening
	24 hour online help service

Of the total 227 responses received to improve the usefulness and quality of the unit website, the emerging themes from 204 responses were covered in the previous section. The remaining 23 responses did not provide any information relating to additional features or any other uses of technology that would help their learning in this unit. However, these responses have been included as they provide additional insights into their level of satisfaction with the unit website. These responses, which are direct quotes from students, were categorised as either positive or negative feedback on the unit website and presented in Table 6.14.

Table 6.14 Summary of Positive and Negative Comments

THEME	COUNT	COMMENTARY
Positive	19	• I think you have provided everything required. Students have to undertake some of research themselves if they want to be successful. • happy with current learning • currently works very well • it was perfect…no need for changes • liked that all available online • nothing, it was all really good • nothing, it's fine • nothing really – it's good as it is • happy with the way of tech used • site was great • face-to-face lecture & PASS (Mentoring) was very effective • all uses of technology was useful • doing well in everything - I am satisfied • enough is used on website • everything was excellent • use of technology is good as it is • technology good but some bad tutors face-to-face • technology is good if it works • technology is great
Negative	4	• replace WebCT because it's crap • never used them (online resources) • none - I hate computers • technical difficulties occurred whilst using Lectopia
TOTAL	23	

There were 19 positive responses from students highly satisfied with the quality and the extent of the website features currently used. Feedback included: "site was great", "currently works very well" and "happy with the way technology is used". One comment in particular suggested that students need to take responsibility for their learning "I think you have provided everything required. Students have to undertake some of the research themselves if they want to be successful". There were four negative comments in which one was directed at the learning management system adopted by the university, to "replace WebCT because it's crap". Clearly, this is an institutional decision beyond the control of the unit coordinator.

6.13 Student Approaches to Learning

This section makes reference to student approaches to learning previously discussed in Chapter 4 under educational concepts. Research conducted by Marton and Säljö (1976b) identified two different approaches, surface and, deep, whilst a strategic approach was identified by Ramsden (1979). Their studies also acknowledged the relationship between students' approach to learning and learning outcomes.

To gain some insight into student attitudes and approach toward their study in this unit, students were asked to what extent they agreed with four statements extracted from the Revised Study Process Questionnaire (Biggs et al., 2001). These statements listed below, relate to strategies and motivation for learning and used to determine whether a deep or surface approach was adopted.

- My aim is to pass while doing as little work as possible
- I work hard on my studies as I want to gain a high mark
- I see no point in learning material which is not likely to be on exam
- I come to classes as I am really interested in learning about accounting

Their responses were measured using a 5 point Likert scale with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree. The results for the four semester period are shown in the following section.

6.13.1 Aim to Pass Doing as Little Work as Possible

This statement provides an indication of the proportion of students who are satisfied with gaining a pass in this unit with minimal effort in their studies. These characteristics are associated with students adopting a surface approach to learning. According to Biggs (1987), the motive for surface learners is to to meet their academic requirements minimally by establishing a balance between working too hard and failing. The strategy for surface learners is reproductive, they limit their learning to bare essentials and tend to reproduce through rote learning. Student responses to this statement are shown in Figure 6.8.

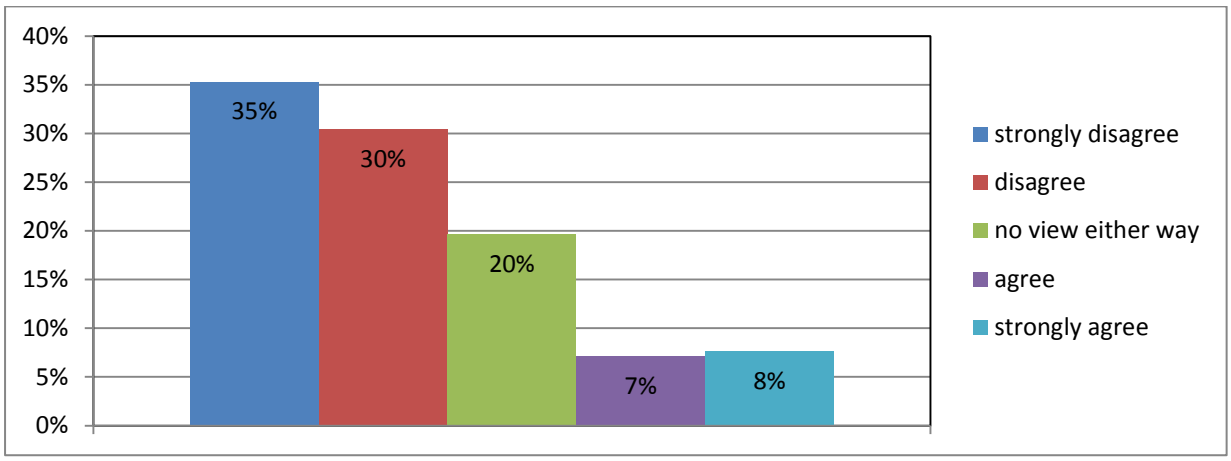


Figure 6.8 Aim to Pass Doing as Little Work as Possible

A significant majority of students, 65% of the students disagreed with this statement. A neutral position was taken by 20% of the sample and it appears that 15% may be categorised as surface learners with the aim is to pass with minimal effort in their studies in this unit. Overall, a substantial proportion of this sample indicated a willingness to do additional work and strive for more than a mere pass in this unit. This suggests a generally positive attitude given that most of the students, ranging from 65% to 92% in this sample are non-accounting majors.

6.13.2 Work Hard on Studies to Gain a High Mark

This statement provides an indication of the proportion of students who are high achievers. These characteristics are associated with students adopting a deep approach to learning. The motive for deep learners is to actualise interest and competence in the unit studied. The strategy for deep learners is to attain a meaningful level of learning by reading widely and inter-relating new concepts with previous knowledge acquired (Biggs, 1987). Student responses to this statement are shown in Figure 6.9.

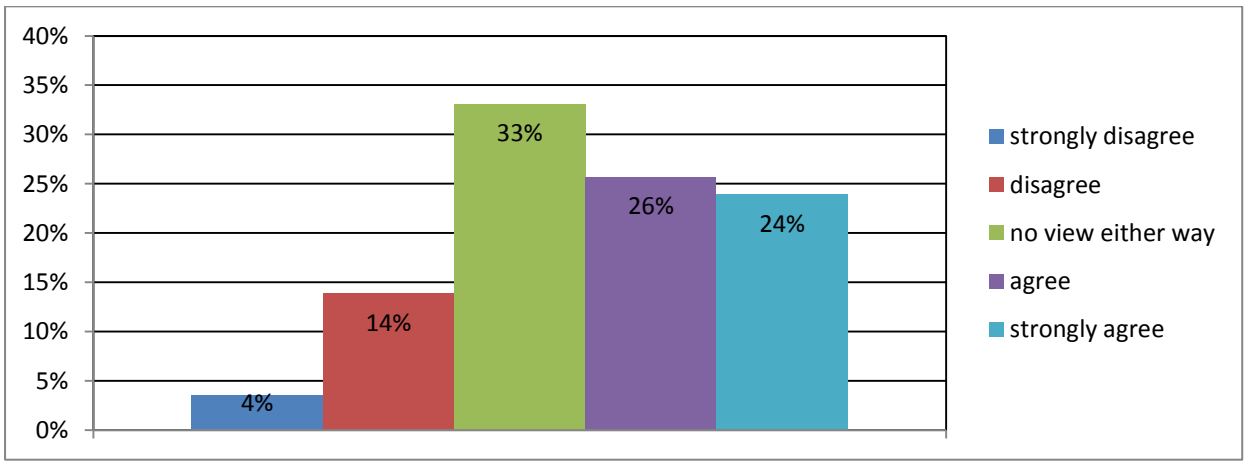


Figure 6.9 Work Hard on Studies to Gain a High Mark

The results indicated that 18% of the students disagreed with this statement and had no interest in attaining more than a passing grade. Whilst 33% of the sample had no view either way, 50% of the sample expressed their desire to attain a high mark in this unit and were prepared to work hard to achieve this outcome. It was of interest to compare Figure 6.9 with the results shown in Figure 6.8. Of the 65% of students aiming to attain a mark higher than a pass, it appears that 50% of these students would be prepared to work harder and adopt a deep approach to learning to gain a high mark in this unit.

6.13.3 No Point in Learning Material Which Is Not Likely To Be On Exam

This statement provides an indication of the proportion of students who are exam-focused in their studies and not interested in further learning beyond this. Assessment is a significant driver of student learning (Biggs, 1996) and students tend to approach learning in the way it is rewarded (Ramsden, 2003). If the material is not likely to be examined or rewarded, how many students would be prepared to commit their time and effort into studying this material? Student responses to this statement are shown in Figure 6.10.

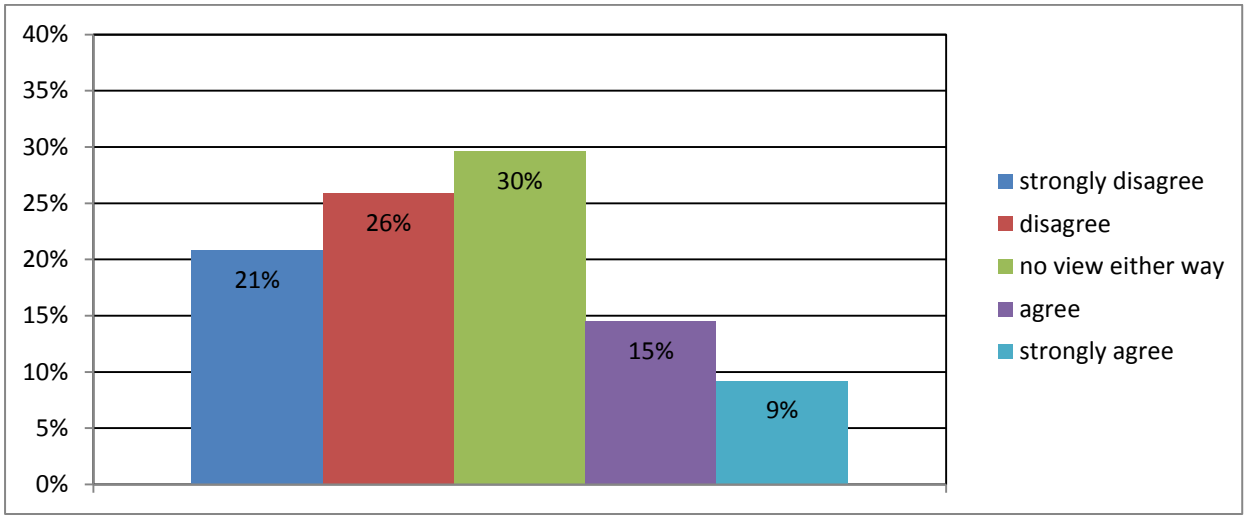


Figure 6.10 No Point in Learning Material Which Is Not Likely To Be On Exam

The results showed that 47% of the sample disagreed with this statement and indicated some value attached to a more holistic approach to their learning and prepared to study beyond what is likely to appear on the exam. Of the remaining sample, 30% were impartial and 24% of students appeared to be content in placing their efforts on focusing on the learning materials that are most likely to be examined. These findings seem consistent with the results shown in the previous two graphs. Almost half of the students surveyed in this first-year cohort were prepared to work hard to have a broader understanding of the unit, regardless of whether the content is to be examined.

6.13.4 Attend Classes As I Am Really Interested in Learning Accounting

This statement provides an indication of the proportion of students who attended classes due to a genuine interest in accounting. Student responses to this statement are shown in Figure 6.11.

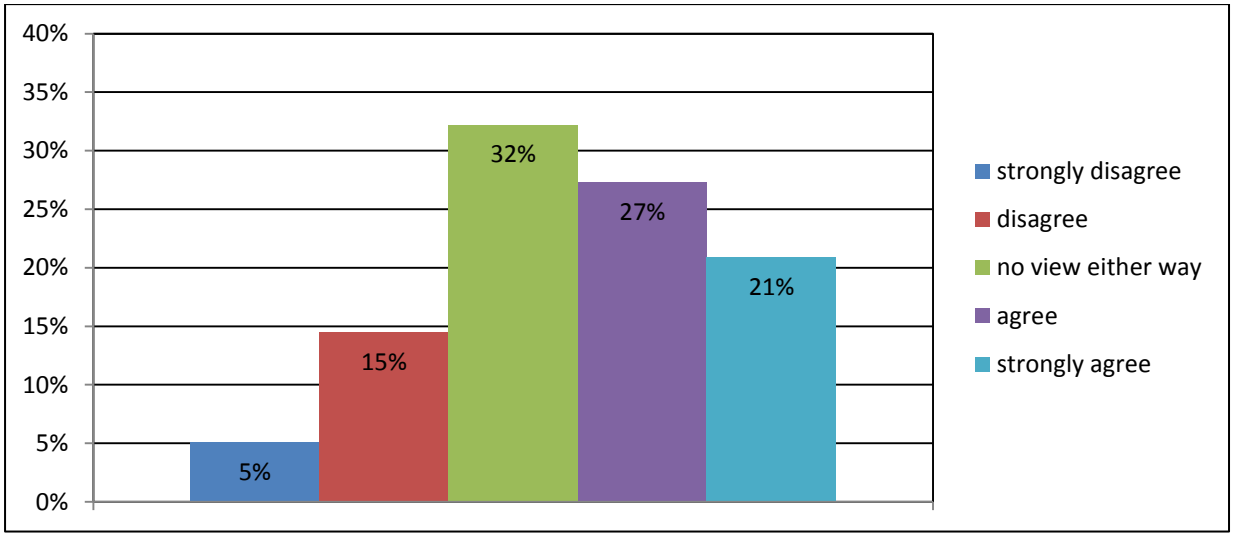


Figure 6.11 Attend Classes As I Am Really Interested in Learning Accounting

One of the challenges in teaching this first-year unit is the small proportion of accounting majors and generating student interest in learning accounting. Only 48% indicated that they attend classes as they are really interested in learning about accounting. Given that proportion of accounting majors ranged from 8% to 35% over the four semester period, this is quite a good result. Almost one-third of students had no view either way and 20% of students indicated that they are not interested in expanding their knowledge in this area.

In an investigation of students' perceptions of introductory accounting, Mladenovic (2000) acknowledged that many students come to their study of introductory accounting with numerous negative stereotypical perceptions of accounting. From the aforementioned results it appears that these perceptions still apply. As emphasised by Biggs (1993b) and Ramsden (1992), it is important to change these negative perceptions as students' perceptions are integral to the learning process because they influence students' learning approaches, which ultimately impact upon their learning outcomes.

6.14 Preferred Usage of Technology

To gain some insight into the students' preferences for differing levels of technology used in the teaching of this unit, students were asked to what extent they agreed with the statements listed in Table 6.15. This was measured using a 4 point rating scale with 1=strongly disagree, 2=disagree, 3=agree and 4=strongly agree, 'not applicable' was the option available if students did not have an opinion on their preferred usage of technology. The results are shown below.

Table 6.15 Preferred Usage of Technology

I would prefer to :	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
do online tutorials instead of face-to-face tutorials	1.95	1.91	1.96	1.89
view Lectopia instead of face-to-face lectures	2.10	2.05	1.97	1.91
learn this unit entirely online	1.77	1.69	1.83	1.63
have no technology in this unit	1.75	1.57	1.76	1.43
less technology used in this unit	1.98	1.76	1.95	1.53
have more technology used in this unit	2.56	2.49	2.52	2.66
Overall, I am happy with the level of technology used	3.15	3.28	3.18	3.48

The first three statements provide an insight into student preferences for online learning options. Students were not agreeable to doing online tutorials instead of face-to-face tutorials with the mean ranging from 1.89 to 1.96 over the four semesters. A slightly higher mean ranging from 1.91 to 2.10 were recorded against their preference to view Lectopia recordings instead of face-to-face lectures, however students indicated again that they were not agreeable to this option. The lowest mean scores for these two options were recorded in Semester 2/2011. The strongest level of disagreement was noted for the choice to learn this unit entirely online with the mean diminishing from 1.83 to 1.63 by Semester 2/2011.

In response to having no technology in this unit, the mean ranged from 1.43 to 1.76 and trending toward strong disagreement by Semester 2/2011. A similar response was found for the statement relating to having less technology used in this unit with the mean ranging from 1.53 to 1.98. In both instances, the lowest level of agreement with these statements was noted in Semester 2/2011. Students seemed slightly more agreeable to have more technology used in this unit with the highest mean scores starting from 2.49 and peaking at 2.66 by Semester 2/2011.

These results appear to support the findings of Kvavik and Caruso (2005) which indicated that the net-generation appreciate technology for the convenience but they only had a moderate preference for technology and value interaction with their instructor.

With the final statement relating to the students' satisfaction with the level of technology used, the most positive response was recorded with mean increasing from 3.15 to 3.48 by Semester 2/2011. As can be seen from the graph in Figure 6.6, there was a gradual increase over the four semesters and by the final semester, this was trending toward a high level of satisfaction. These results suggest that students were appreciative of the current balance of technology used in this unit to support their learning needs.

6.15 Student Perception of Learning Experience

According to Naaj, Nachouki, and Ankit (2012), student satisfaction is considered to be a key indicator of the quality of the blended learning experience. From Semester 1/2010 to Semester 2/2011, the level of student satisfaction with their learning experience in this unit was measured using a 5 point Likert scale with 1=strongly disagree, 2= disagree, 3=neutral, 4=agree and 5=strongly agree. The results are shown in Table 6.16.

Table 6.16 Level of Student Satisfaction With Their Learning Experience

	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
Overall, I am satisfied with the learning experience in this unit.	3.54	3.34	3.61	3.88

There was an initial drop in the level of student satisfaction from a mean score of 3.54 in Semester 1/2010 to 3.34 in Semester 2/2010. This downturn may have been influenced by the larger proportion of non-accounting majors enrolled in this unit in the second semester of each year, as shown in Table 6.17 Extract from Demographic Profile of Survey Participants.

By Semester 1/2011, the level of student satisfaction increased to 3.61 and peaked at 3.88 in Semester 2/2011. As the coordinator of this unit, these results provided some affirmation that the efforts made in changing the negative perceptions associated with first-year accounting had made a modest improvement over the four semester period.

This is also reflected in the level of student satisfaction for the total number of respondents over the four semester period from the data compiled in Figure 6.12.

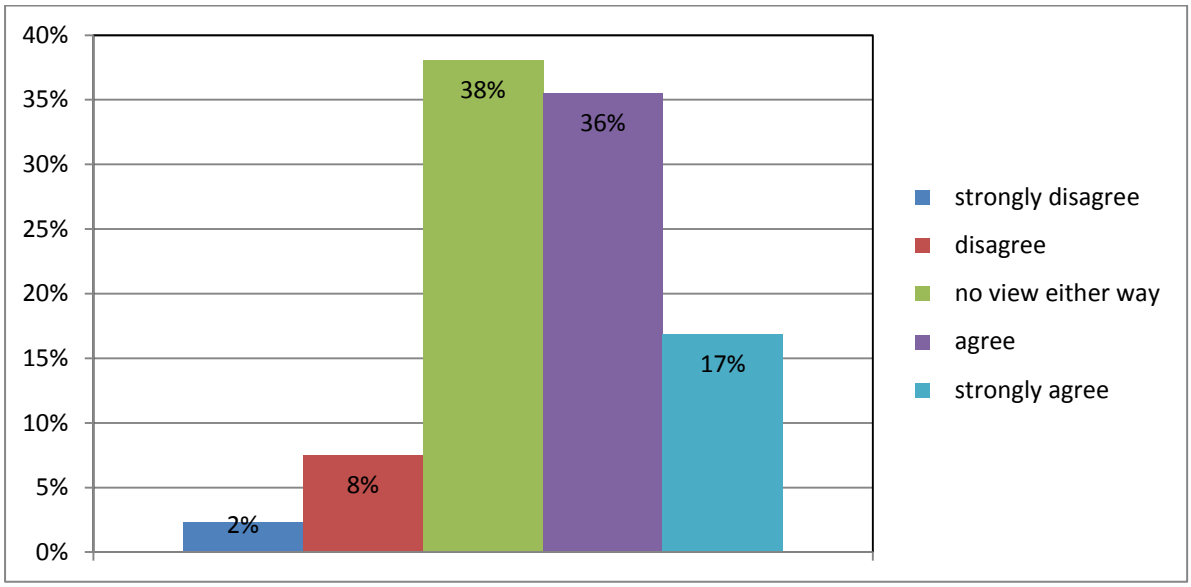


Figure 6.12 Frequency Distribution for Total Sample – Level of Student Satisfaction

It can be seen that 10% of the students expressed dissatisfaction with their learning experience, 38% took a neutral position with no view either way and 53% confirmed a satisfactory learning experience in this unit. In the context that approximately 19% of these students are accounting majors, but 48% of the sample attend classes as they are interested in learning accounting (in Figure 6.11), this could be considered a positive impact.

Table 6.17 Extract from Demographic Profile of Survey Participants

Are your major studies in Accounting?	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011	Average
Yes	35%	8%	19%	15%	19%
No	65%	92%	81%	85%	81%

6.16 Factors Important to Student Learning

Students were asked to evaluate the importance of social interaction, active participation and having a regular time and place for their study on campus. The extent to which these factors were considered important to their learning was measured using a 4 point rating scale with 1=low, 2=medium, 3=high and 4=very high, 'not applicable' was an option if students did not consider these factors to be important. The results are shown in Table 6.18.

Table 6.18 Factors Important to Student Learning

	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
social interaction in tutorials and lectures	3.11	2.89	3.02	3.29
active participation in discussions in tutorials and lectures	3.13	2.96	3.05	3.29
having a time and place for tutorials and lectures on campus	3.33	3.21	3.18	3.46

From Table 6.18, it is evident that students valued most highly the routine of having a time and place for their tutorials and lectures. This was closely followed by active participation and social interaction in lectures and tutorials. The relatively high scores attached to these factors suggest that students acknowledge the importance of face-to-face communication with both staff and students as an important aspect of their learning. Similar findings were reported by N. Marriott, Marriott, and Selwyn (2004) whereby students expressed their preference for a face-to-face educational experience and acknowledged the value of the social interaction and the communication skills they acquired from the classroom environment.

6.17 Impact of Online Resources on Learning Outcomes

Stein and Graham (2014) advise that a blended approach can have a positive impact on efficiency, convenience and learning outcomes. This next section reports on the availability of online assessments, online recordings of lectures and tutorials and their potential impact on the mid-semester test.

6.17.1 Student Performance on Mid-Semester Test

P. Marriott and Lau (2008) explained the merits of phased online assessment, whereby a series of assessments were delivered throughout the course. This enables students to monitor their performance, and the timely feedback provided would be beneficial in improving their future performance. A similar approach was adopted in this unit, with the introduction of online tests to help students review and test their understanding of the content in the lectures and tutorials at regular intervals during the semester.

To determine whether the online learning options had an impact in assisting the student learning in this unit and potentially affecting their assessment outcomes, a review was conducted to compare mid-semester test results attained prior to WebCT and after the implementation of WebCT shown in Table 6.19.

Table 6.19 Student Performance on Mid-Semester Test

	Prior to WebCT	With WebCT				WebCT Access To Recorded Lectures And Tutorials			
	2005	2006	2007	2008	2009	Sem. 1/2010	Sem. 2/2010	Sem. 1/2011	Sem. 2/2011
Sample Size*	1,021	1,152	1,307	1,163	1,333	588	541	491	481
Average score out of 10						5.9	5.4	5.9	5.5
	6.1	5.9	5.5	5.4	5.8	5.7		5.7	

** Sample Size is based on number of students completing mid-semester test*

The mid-semester test conducted in Week 8, is a paper-based multiple-choice test that contains both practical and theory content drawn from lectures and tutorials. It is a compulsory assessment conducted in class and accounts for 10% of the final grade. From Semester 1/2006 onwards, students were provided access to weekly online tests via WebCT. By providing regular assessment with immediate feedback, the weekly online tests were designed to help students prepare for their mid-semester test. However, the average mark attained by students for 2006 of 5.9 was lower than the 6.1 attained in 2005, prior to the introduction of WebCT. The downward trend continued through to 2008 reaching its lowest point with an average test score of 5.4.

In response to student feedback in 2009, students were allowed multiple attempts at the online test and the highest mark attained was used in the calculation of their final grade in this unit. This may have contributed a marginal improvement by Semester 1/2010 where the average mark increased back to 5.9 but slipped to a low of 5.4 in following semester. This could be attributed to Semester 2, which for this unit, is the semester where there is generally a larger proportion of repeat students and non-accounting majors. Reference to the demographic profile in Table 6.3 shows that non-accounting majors represented 92% of the students surveyed in Semester 2/2010, the largest cohort in this category over the four semester research period. It is acknowledged that there may be other factors influencing this result.

The average test mark was back to 5.9 in Semester 1/2011 and down to 5.5 in Semester 2/2011. For the two semesters combined, the average mark for 2010 and 2011 was the same at 5.7, which is slightly lower than the 6.1 attained prior to the introduction of WebCT. The implementation of the online assessment and the access to the online recordings did not seem to have any influence in improving students' overall performance on their mid-semester test.

6.17.2 Pre-Test and Post-Test Results

Pre-Test and Post-Test results were used as an additional measure to examine the impact of the online resources on the mid-semester test results.

A pre-test was implemented at the beginning of each of the four semesters under review. This was conducted online and comprised 40 multiple choice questions which covered the entire curriculum of this unit. Students were instructed to complete the online test within the first week of the semester and advised that no preparation was necessary as it was to establish an initial benchmark of their knowledge in this unit.

A post-test, which comprised the same set of questions, was conducted at the end of the semester to measure the change in the level of knowledge attributed to the weekly online tests designed to reinforce key concepts in this introductory accounting unit.

Pre-Test Results

An overview of the pre-test results is presented in Table 6.20. These results show the mid-semester test scores of students who attempted the pre-test, in comparison to the average score of all students sitting the mid-semester test.

Table 6.20 Pre-Test Results

	1	2	3	4	5	6	7	8
Semester	Pre-Test Score out of 40	Mid-Semester Test Score out of 40	Increase in Mid-Semester Test Score	Pre-Test Mid-Semester Test Score out of 10	Pre-Test Sample Size	Average Score for Mid-Semester Test	Total Sample Size	Pre-Test as a % of Total Sample Size
1/2010	13	25	12	6.3	316	5.9	588	54%
2/2010	12	23	11	5.6	262	5.4	541	48%
1/2011	13	25	12	6.2	264	5.9	491	54%
2/2011	12	23	11	5.7	235	5.5	481	49%
Average*	12.5	24	11.5	6.0		5.7		

** all figures are based on the average results for each category*

Column 1 - Pre-Test Score Out Of 40

It can be seen in Column 1 that the pre-test scores for each semester are significantly below a pass score of at least 20 correct answers out of 40 multiple choice questions. The average score over the four semesters was 12.5 out of 40 marks. Given that the majority of students enrolled in this unit are non-accounting majors with no prior studies in accounting, this result was not unexpected.

Column 2 - Mid-Semester Test Score out of 40

The results in Column 2 show the average mark attained in the mid-semester test. By the time these students had completed the mid-semester test, which is usually conducted around week 8 in a 12 week semester, the average mark attained for this pre-test group was a solid pass with marks ranging from 23 to 25 out of 40 marks.

Column 3 - Increase in Mid-Semester Test Score

Column 3 shows the difference between the pre-test score and the mid-semester test score. These results are of particular interest as they show that the increase in the mid-semester test score is almost identical to the original score attained in the pre-test score.

Columns 4 and 6 - Comparison of Mid-Semester Test Scores

In each semester, the mid-semester test scores of the pre-test sample shown in Column 4 is slightly higher than the average test score for the total number of students sitting the test shown in Column 6. The average marks were 6.0 and 5.7 for each group respectively. This may be an indication that these pre-test students, with their initial engagement with the online resources and ongoing commitment during the semester were able to reinforce and retain their content knowledge to improve their mid-semester test score.

Column 5, 7 and 8 - Comparison of Sample Size

In each of the four semesters, the number of students in the pre-test sample shown in Column 5 is significantly lower than the total number of students sitting the test shown in Column 7. The participation rate in Column 8 shows the proportion of students participating in the pre-test the ranging between 48% and 54% which is quite low. This may have been attributed to the timing of the pre-test. As it was conducted in the first week, many students may have missed the opportunity as they started later in the semester due to circumstances beyond their control. The higher percentage of 54% may be generally attributed to the higher proportion of accounting majors enrolled in the first semester.

Pre-Test and Post-Test Results

For students who attempted both the pre-test and post-test, further analysis was conducted. An overview of the pre-test and post-test results is presented in Table 6.21. These results show the mid-semester test scores of students who attempted the pre-test and post-test, in comparison to the average score of all students sitting the mid-semester test.

Table 6.21 Comparison of Pre-Test and Post-Test Results

	1	2	3	4	5	6
Semester	Pre-Test Score out of 40	Post-Test Score out of 40	Increase in Post-Test Score	% Increase	Pre and Post-Test Sample Size	Pre-Test Sample Size
1/2010	13	29	16	223%	166	316
2/2010	12	28	16	233%	138	262
1/2011	13	31	17	238%	116	264
2/2011	13	29	16	223%	108	235
Average*	12.8	29.3	16.3	229%	132	269

** all figures are based on the average results for each category*

Column 1 - Pre-Test Score Out Of 40

Column 1 shows that the pre-test scores for each semester for this pre and post-test group are also significantly below the passing score of 20 out of 40. The average score over the four semesters for this group was 12.8 out of 40 marks which is marginally higher than the pre-test group score of 12.5 for the same.

Column 2, 3 and 4 - Comparison between Pre-Test and Post-Test Scores

Column 2 shows the average mark attained in the post- test conducted at the end of the semester. By the time this group had completed the 12 week semester, scores for the post-test was significantly higher than the pre-test conducted in the first week of semester. The average mark for the post-test ranged from 28 to 31 out of 40 marks. Column 3 shows a similar trend over the four semesters with an average increase of 16.3 marks in the post-test score. This is expressed as an average increase of 229% as shown in Column 4.

Column 5 and 6 - Comparison of Sample Size for Pre-Test and Post-Test Results

In each of the four semesters, the number of students in the pre-test sample shown in Column 5 is significantly lower that the total number of students sitting both the pre-test and post-test shown in Column 6.

The average sample size for each of these respective groups was 132 students compared to 269 students. This decline in student numbers may be attributed to various reasons which include students un-enrolling from the unit, students unaware of completion dates or students not able to participate due to technical issues.

6.17.3 Summary of Pre-Test and Post-Test Results for Mid-Semester Test

A comparison of mid-semester test results of those students that sat the pre-test and post-test with the average score for all students sitting test is presented in Table 6.22.

Table 6.22 Summary of Pre-Test and Post-Test Results for Mid-Semester Test

Semester	1 Pre-Test Score out of 40	2 Pre and Post Test Mid-Semester Test Score out of 40	3 Increase in Score in Mid-Semester Test	4 Pre and Post-Test Mid-Semester Test Score out of 10	5 Pre and Post-Test Sample Size	6 Average Score for Mid-Semester Test	7 Total Sample Size
1/2010	13	26	13	6.5	166	5.9	588
2/2010	12	24	11	5.9	138	5.4	541
1/2011	13	26	12	6.4	116	5.9	491
2/2011	13	24	11	5.9	108	5.5	481
Average*	12.8	25.0	11.8	6.2	132	5.7	525

** all figures are based on the average results for each category*

Column 1 - Pre-Test Score Out Of 40

Column 1 shows that for those students who attempted both the pre-test and post-test, their pre-test scores for each semester are also well below a pass score of 20 correct answers out of 40 multiple choice questions. The average score over the four semesters for this group was 12.8 out of 40 marks, slightly higher than the 12.5 recorded for those students who attempted only the pre-test.

Column 2 and 3 - Mid-Semester Test Score out of 40

Column 2 shows similar test scores for each semester, with an average score of 25 out of 40 recorded for the those students who attempted both the pre-test and post-test. This is marginally higher than the 24 out of 40 recorded for those students who attempted only the pre-test. Column 3 shows the average increase in the mid-semester score of 11.8 compared to 11.5 for each group respectively.

To facilitate further analysis, additional details have been incorporated into Table 6.23 which is an extension of Table 6.22.

Table 6.23 Comparison of Mid-Semester Test Scores and Sample Sizes

Semester	4	5	6	7	8	9	10	11
	Pre-Test Mid-Semester Test Score out of 10	Pre-Test Sample Size	Average Score for Mid-Semester Test out of 10	Total Sample Size	Pre and Post-Test Mid-Semester Test Score out of 10	Pre and Post-Test Sample Size	Pre-Test as a % of Total Sample Size	Pre and Post-Test as a % of Total Sample Size
1/2010	6.3	316	5.9	588	6.5	166	54%	28%
2/2010	5.6	262	5.4	541	5.9	138	48%	26%
1/2011	6.2	264	5.9	491	6.4	116	54%	24%
2/2011	5.7	235	5.5	481	5.9	108	49%	22%
Average	6.0	269	5.7	525	6.2	132	51%	25%

Columns 4, 6 and 8 - Comparison of Mid-Semester Test Scores

In each semester, the mid-semester test scores for the pre-test and post-test sample shown in Column 4 are noticeably higher than the average test score for the total number of students sitting the test shown in Column 6. The average marks were 6.2 and 5.7 for each group respectively. Those students completing both the pre-test and post-test perhaps showed a greater level of engagement and greater awareness of the online resources from the first week to the final week of the semester. This group also scored slightly higher, 6.2 compared to 6.0 for those students completing the pre-test only.

Column 5, 7, 9, 10 and 11 - Comparison of Sample Size

Column 7 shows the average number of students sitting the test was 525 across the four semesters. Of these students, only an average of 269 students completed the pre-test as shown in Column 5. The number of students completing both the pre-test and post-test was even lower with average of 132 students in this sample as shown in Column 9. The participation rate for each of these groups was 51% and 25% respectively as shown in Column 10 and 11. While compiling data for this analysis, it was found that many students had completed the post-test but had not completed the initial pre-test. Without a paired-sample, these results could not be used in this study.

In summary, the results from the pre-test and post-test seem to suggest that those students who engaged with the online tests from the beginning through to the end of semester attained mid-semester test scores slightly higher than the average test score.

There has been some criticism levelled at the use of multiple-choice assessments, as they are perceived to encourage a surface approach to learning (Tang, 1994; Thomas & Bain, 1984). However, this stance is defended by English et al. (2004) and Hall et al. (2004). It is argued that in accounting, the initial competencies that students must learn can be learned using surface strategies. It is necessary for students to learn these fundamentals to transition to deeper approach to learning (English et al., 2004; Hall et al., 2004).

The findings from the previous section on the impact of online tests on the mid-semester scores are indicative of this approach to learning and align with the outcomes reported by Williams, Birch, and Hancock (2012) in their study on the relationship between levels of student engagement with online quizzes and their academic performance. Their study found that students who attempted the online quizzes multiple times performed much better than those who attempted a fewer number of times. The beneficial impact on learning, motivation and engagement attributed to regular interaction with the online assessment was also acknowledged by P. Marriott and Lau (2008).

Recent studies on the impact of online multiple choice questions (MCQ) on exam performance have also been conducted. A positive correlation between MCQ usage and examination performance was reported by Einig (2013). This study also revealed that students used the MCQs in different ways and concluded that this type of assessment was considered suitable for different learning styles. A similar investigation was conducted by Brink (2013). The findings reported a significant improvement in students' performance on subsequent exams.

Whilst this study did not examine the direct relationship between online tests and exam performance, it did investigate the level of engagement with the online resources and impact on learning outcomes. The results were consistent with the findings reported above and showed a positive relationship between engagement and outcome. This is discussed further in Section 6.20.

6.18 Overall Pass Rate

This section reports on the trend in the overall pass rate in this unit from 2005 to 2011 as shown in Table 6.24. It commences in 2005 as this is the year prior to the introduction of WebCT. This is used as the benchmark to compare the results of the subsequent periods. In 2005, the initial pass rate was 73% and over the following four years there was an overall declining trend apart from the increase to 77% in 2007.

Table 6.24 Overall Pass Rate

	Prior to WebCT	With WebCT				WebCT Access To Recorded Lectures And Tutorials			
	2005	2006	2007	2008	2009	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
Sample Size*	992	1,090	1,357	1,134	1,289	561	495	468	424
Pass Rate						80%	76%	82%	72%
	73%	68%	77%	71%	70%	78%		77%	

** Sample Size is based on number of students completing final exam*

The improvement was most significant from 2009 to Semester 1/2010 where the overall pass rate increased from 70% to 80% which seems to coincide with the availability of recorded lectures and tutorials via WebCT. However, it is acknowledged that there contributing factors other than the use of technology that may have influenced these results.

Despite the downward trend in the attendance rate of all lectures dropping from Semester 1/2010 to Semester 1/2011 and a similar trend in the attendance rate of all tutorials decreasing, there is a substantial improvement in the overall pass rate which peaked at 82% in Semester 1/2011. The average pass rate for Semester 1 and 2 combined for 2010 and 2011 was 78% and 77% respectively. This is considerably higher than the 73% pass rate attained prior to WebCT. It is interesting to note that this was achieved when the proportion of students attending all lectures had declined from 50% to 39% and the proportion of students attending all tutorials was down from 59% to 52%. These low attendance rates may be attributed to the growing number of students that are working and studying. As outlined in the demographic profile in Table 6.3, the percentage of students that were working between 11 and 30 hours ranged from 44% to 56% over the four semesters reviewed.

It appears that these students have found the online recordings a flexible learning option enabling them to continue with their studies and managing their work commitments. These issues were raised by Bates & Poole (2003), that in order to cope with higher tuition fees, full-time and part-time students are required to work longer hours out of financial necessity and regular attendance on campus becomes more difficult. Given that the vast majority of students in this unit are non-accounting majors with no prior studies in this area, the improvement in the overall pass rates is a significant achievement.

6.19 Possible Factors Impacting on Pass Rate

With reference back to Table 6.24, the improvement was most significant from 2009 to Semester 1/2010 where the overall pass rate increased from 70% to 80% which coincided with the availability of recorded lectures and tutorials via WebCT. It is acknowledged that there are other contributing factors that may have influenced these results, some of these are summarised in Table 6.25 below.

Table 6.25 Possible Factors Impacting on Pass Rate

	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
	%	%	%	%
Pass Rate	80	76	82	72
Non-accounting majors	65	92	81	85
No previous accounting studies	61	78	63	77
Working from 11 to 30 hours per week	45	56	47	44
Attended all lectures	50	28	39	41
Attended all tutorials	59	48	52	48

6.19.1 Proportion of Non-Accounting Majors

The decrease in the pass rate from to Semester 1/2010 to Semester 2/2010 from 80% to 76% may be due to the significantly larger proportion of non-accounting majors, 65% compared to 92% in the latter semester. In Semester 1/2011, the highest pass rate over the four semester survey period of 82% was achieved with 81% of non-accounting majors. By Semester 2/2011 the pass rate had dropped substantially from 82% to 72%, marginally below the 73% pass rate recorded prior to the introduction of WebCT. If the Semester 1 results for each semester are compared in isolation, the pass rate has improved from 80% to 82%. This result may be due to the larger proportion of accounting majors enrolled in the first semester of each year. A similar comparison with the Semester 2 results shows a decline in the pass rate from 76% to 72% possibly due to the larger proportion of non-accounting majors enrolled during this period.

6.19.2 Previous Accounting Studies

The high proportion of students with no previous accounting studies was similar for each of the first and second semesters, around 61% and 77% respectively. Coupled with substantially higher proportion of non-accounting majors for the same period, these two factors seem to be the most influential in the overall pass rate.

6.19.3 Hours Worked Per Week

The percentage of students that were working between 11 and 30 hours ranged from 45% to 56% over the four semesters reviewed. This appears to be a considerable workload undertaken given that approximately 88% of the students surveyed over this period were full-time students. This may also have a direct effect on level of attendance in tutorials and lectures during the semester. These students may have found the online recordings a flexible learning option enabling them to continue with their studies and managing their work commitments.

6.19.4 Attendance

There was a downward trend in the level of attendance for all lectures, dropping from 50% in Semester 1/2010 to its lowest point of 28% in the following semester. There was a significant increase in Semester 1/2011 and 2/2011, with lecture attendance rates up to 39% and 41% respectively. The level of attendance for all tutorials was at its highest in Semester 1/2010 at 59% but decreased to its lowest level of 48% in both Semester 2/2010 and 2/2011. The attendance in tutorials is higher for the same period as students have internal assessments that are conducted in the tutorial and require their attendance. Despite the low attendance rates which are mostly below 50% for lectures and tutorials, there is a substantial improvement in the overall pass rate which peaked at 82% in Semester 1/2011. This is considerably higher than the 73% pass rate attained prior to WebCT. It is interesting to note that this was achieved when the proportion of students attending all lectures had declined from 50% to 39% and the proportion of students attending all tutorials was down from 59% to 52%.

Whilst the increased use of web-based technologies such as Lectopia and Elluminate may have some impact on the low attendance rates, Taplin, Low, and Brown (2011) acknowledge research by R. Phillips et al. (2007) and von Konsky, Ivins, and Gribble (2009) who argue that other factors contribute to falling attendance rates. These include the changing lifestyles of students as well as their changed perceptions of the learning experience provided. In a study on the audio and video lectures conducted by Fessler (2011), it was found that students valued these digital resources and attendance was not compromised due to their availability online.

As can be seen from the data in Table 6.25, there is the possible interplay of different factors impacting on the overall pass rate. It suggests that where students are working longer hours, where there are a large proportion of non-accounting students with no previous accounting studies and low attendance rates, the overall pass rate may be adversely affected.

6.20 Level of Engagement and Learning Outcomes

Table 6.26 shows the level of student engagement with some of the key online resources on WebCT that may have assisted their learning in this unit. The results report on the findings for the final semester of the research period.

Table 6.26 Level of Engagement and Learning Outcomes for Semester 2/2011

	Number of Sessions	Total Time Hours Spent	Online Assessments Attempted Maximum =22 times	Average Time On Assessments Maximum =5.5 hours	Files Viewed	Discussion Board Messages Read
HD (80-100)						
Frequency / Hours	4,352	1,106	1,002	190	5,056	209
No. of Students	52	52	52	52	52	52
Average*	84	21	19	4	97	4
N2 (0-39)						
Frequency / Hours	3,492	790	1,000	170	6,276	152
No. of Students	134	134	134	134	134	134
Average*	26	6	7	1	47	1

**Average figures have been rounded up to nearest whole number*
Details accessed from WebCT Course Management Statistical Tools

It provides a breakdown of the number of sessions each student logged into, the average time spent on these sessions, the number of online assessments attempted, as well as the average time spent on the online assessments. The frequency of files viewed and the students' participation in discussion board activities is also included to help determine whether the level of interaction with the unit website and learning materials was an influential factor in their overall academic performance.

Two distinct groups of students were compared. The first group being the 'High Distinction' students attaining a final mark between 80 and 100, the latter being the 'N2' students, those who clearly failed the unit with a final mark between 0 and 39.

6.20.1 Sessions Logged

Students are required to log on regularly to the unit website for updates, online assessment, as well as access to important learning materials which include recordings of lectures and tutorials, assignment details, sample tests, past exams and solutions. On average, High Distinction students logged into 84 sessions and spent approximately 21 hours engaging with the online resources, whereas the failed N2 students logged into 26 sessions and spent approximately 6 hours on WebCT during the semester. These findings are similar to a study by Davies and Graff (2005) which found that students interacting less frequently, did not perform as well academically. This seems to be in contrast with research conducted by Perera and Richardson (2010) which found that the number of online sessions a student logged into was not significantly related to students' academic performance. It could also be argued that there is likely to be a correlation between the number of hours a student spends online with the number of hours that they spend studying offline.

6.20.2 Online Assessments Attempted

The online assessments comprised eleven tests that were released on a weekly basis to reinforce the students' understanding of the weekly lecture and tutorial content. Students were allowed two attempts for each of these eleven tests, therefore the maximum number of 22 attempts was allowed. The highest score from the two attempts for each of the weekly tests counted toward their final mark. These tests represented 10% of the total assessment in the unit.

The tests comprised theory and practical elements that required some calculations. After completion of each test, students were given immediate feedback on their score and incorrect answers were identified. On average, the High Distinction students attempted the weekly tests 19 times, in comparison to the N2 students who attempted seven times out of the maximum 22 times allowed. These results appear consistent with the findings of Williams et al. (2012) which indicate that students who attempted the online quizzes multiple times performed much better than those who attempted each quiz only once or not at all. Similar results were reported in Osgerby (2013) whereby students regarded online quizzes as very popular where instant feedback is provided. Students also stated that they often repeated the tests as it was helpful to enhancing their background information and building their confidence.

It was also found that the High Distinction students took a longer time to complete their online assessment, spending approximately 4 hours out of the 5.5 hours allowed, which is substantially higher than the 1 hour taken by the N2 students.

This may be due to the additional time by the High Distinction group to calculate the answers which could possibly demonstrate a deeper understanding of the technical content than the N2 group. The lesser time taken by this group may be due to students guessing the answers rather than working through each of the possible options to find the correct answer. Perera and Richardson (2010) propose that it is the quality of time spent within the online environment that has a relationship with students' academic outcomes.

6.20.3 Files Viewed

These files comprise essential learning materials which include lecture notes, tutorial content, assignment details, marking schemes as well as links to websites that are relevant to the unit content and assessment. A similar pattern is evident with the High Distinction students viewing 97 files in contrast to the 47 files viewed by the N2 students during the semester. As these files were integral to students' learning, assessment and exam preparation, these results show a potential link between the number of files viewed and improved results. This appears to be consistent with the findings reported by Perera and Richardson (2010).

6.20.4 Discussion Board

The discussion board feature is one that is not readily found on the WebCT interface. As it does not appear on the sidebar of the unit's homepage, a number of steps are required to locate it. This may partially explain the very low level of activity from both the High Distinction and N2 students. Despite being shown all the key features of WebCT at the commencement of the semester, it is possible that many students were not aware that this feature existed, or perhaps if they were aware, it was not considered an effective means of communication given this low level of interaction. Similar issues were raised by Concannon, Flynn, and Campbell (2005) who questioned whether technologically-enhanced learning systems were flexible enough to meet the design requirements of an effective learning system. This is reinforced by Osgerby (2013) who comments on the reliability and technical quality of the learning management system, such as WebCT. These factors have been found to have an impact on students' attitudes and willingness to engage with online learning resources.

In their research on the use of discussion boards and their impact on learning outcomes, Rainsbury and Malcolm (2003) reported that the use of the discussion board had contributed positively to students' perception of increased learning, but had an insignificant impact on their final exam performance. The results from this research indicated a potential link. Details accessed from the WebCT Course Management Statistical Tools for Semester 2/2011 indicated the reading of discussion board messages averaged around 4 messages for High Distinction students compared to 1 message for N2 students.

There was, however, a greater contrast by comparing the student in this unit achieving the highest mark of 96 reading 21 messages compared to the student with the lowest mark of 8 who did not read any messages over the 12 week semester. This student's poor performance due to missed assessments may have been attributed to this lack of awareness and interaction.

These findings highlight a possible relationship between the level of student engagement with online resources and their overall academic result. Across the online activities measured, namely the number of sessions logged, online assessments attempted, files viewed and messages read on the discussion board, the time spent on each activity was considerably longer for the High Distinction students.

These results seem to be consistent with prior research which suggests that the online provision of course materials can have a positive impact on students' examination performance as reported by Perera and Richardson (2010).

6.21 Retention Rate

Presented in Table 6.27 are details extracted from the student demographic profile from Table 6.3 to show the retention rate over the four semesters.

Table 6.27 Retention Rate for Introductory Accounting

	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
No. of Students Enrolled at Start of Semester	771	752	702	671
No. of Students Enrolled at End of Semester	561	495	468	424
Retention Rate	73%	66%	67%	63%
Pass Rate	80%	76%	82%	72%

The retention rate for this unit declined significantly from Semester 1/2010 to Semester 2/2010 from 73% to 66% and this downward trend continued over the remaining three semesters. As can be seen the lowest retention rates are recorded in the second semester of each year which is consistent with the higher proportion of non-accounting majors enrolled during this period. This also applies to the pass rate.

The availability of more online resources and online learning options did not appear to have any impact in improving the retention rate in this unit. It was of interest to find that even though the retention rate had dropped from 73% in Semester 1/2010 to 67% by Semester 1/2011, there was an increase in the overall pass rate from 80% to 82% in the corresponding semesters. This suggests that those students that did remain enrolled and completed the unit performed sufficiently well to pass during this period.

To provide some context to this unit's retention rate, Table 6.28 shows the retention rates for the Bachelor of Business degree and for all courses offered by Victoria University. The differences are marginal between these two measures and both show a gradual decline from 2005 through to 2013, with the retention rate reaching its lowest point in the final year.

Table 6.28 Retention Rates for Bachelor of Business and All Courses

	2005	2006	2007	2008	2009	2010	2011	2012	2013
B. Business	77.20%	78.40%	76.87%	78.79%	77.12%	74.05%	77.37%	74.23%	71.17%
All Courses	76.57%	77.95%	77.36%	79.42%	77.70%	74.38%	77.82%	74.69%	71.88%

(INFOVU, 2014)

In comparison, this unit's retention rate is considerably lower than the benchmarks shown above. This would be partially attributed to the substantial proportion of non-accounting majors enrolled in this compulsory introductory accounting unit.

6.22 ATAR Score

Another factor that may have an impact on the retention rate is the Australian Tertiary Admission Rank (ATAR) score which is the primary criterion for entry into most undergraduate-entry university programs in Australia. It is measured on a scale from 0 to 99.95 and is calculated from the students' study scores attained in their final year of secondary education. Generally, a higher ATAR score reflects a higher level of academic achievement and therefore preferential in the selection of students into university courses. The ATAR scores from 2005 were sought to correspond with the retention rate in Table 6.28, however, these statistics were only available from 2009 to 2013. The ATAR scores for acceptance into Victoria University's Bachelor of Business for this period are shown in Table 6.29.

Table 6.29 ATAR Score for Bachelor of Business

ATAR	2009	2010	2011	2012	2013
Minimum	50.20	50.00	50.25	40.30	31.20
Maximum	92.35	94.50	89.85	88.25	89.20
Average	63.83	62.79	61.15	60.17	52.80

(INFOVU, 2014)

A downward trend is also evident in the average ATAR from 2009 to 2013, with the ATAR reaching its lowest point in the final year. The most significant decline is noted in the minimum ATAR from 2011 to 2013 which decreased from 50.25 to 31.20. Given the similarities in movement over the same time period, there appears to be some correlation between the ATAR and the overall retention rates.

It is important to acknowledge this change to the student population undertaking courses in the Bachelor of Business, in particular, the minimum ATAR of 31.20 in 2013 and the increasing gap between the minimum and maximum scores. This adds to the challenge of teaching these students in the introductory accounting unit. As advised by Bates and Poole (2003), to facilitate an effective blended delivery, the course content and supporting online resources need be designed to address the greater diversity of this student cohort.

6.23 Impact on Learning Outcomes

The latter sections of this chapter discussed the utilisation of online resources and its impact on test scores, pass rates and retention rates. In each of these performance measures, there was evidence of improvement, albeit modest in some instances. These outcomes appear to be consistent with the findings reported in recent meta-analyses on blended learning (Bernard et al., 2014; Schmid et al., 2014; Zhao & Breslow, 2013) that focused on the impact of technology-enhanced teaching upon students' academic performance. The most general conclusion inferred from these collective studies was that the improvement in student achievement due to blended learning was low but significantly greater than zero (Bernard et al., 2014).

6.24 Summary

This chapter reported on the results of the quantitative and qualitative data from the student survey. The demographic profile identifies that for a large proportion of students in this sample, it is their first semester in the first year of study at this university. A significant majority of these students are non-accounting majors with no previous accounting studies. The dominant groups are those students less than 20 and those between 20 to 29 years old.

In Semester 1/2010, students were introduced to three new online learning options to complement traditional face-to-face lectures and tutorials: viewing recorded lectures via Lectopia, enrolling and actively participating in online tutorials via Elluminate Live and downloading and reviewing the Elluminate Live tutorials.

Student responses indicated a strong perception that the face-to-face options were more beneficial in assisting their learning and improving assessment outcomes than the online options. Students acknowledged the importance of face-to-face communication with both staff and students as an important aspect of their learning. It was however acknowledged in feedback from students using these online resources, that having more flexible learning options has enhanced their learning in this unit. Students were satisfied with of the current balance of technology used in the unit website to support their learning needs. Their evaluation of the quality of the unit website had gradually increased over the four semester period.

With regard to learning outcomes, a possible relationship was found between the level of student engagement with online resources and their overall academic result. It was found that were was an improvement in test scores, the overall pass rate and level of retention since the availability of all three online learning options. These positive results appeared to be consistent with findings from recent meta-analyses on blended learning that identified the impact of technology integration in higher education to be effective to a modest but significant degree. This chapter closed with a discussion on retention rates and ATAR scores, and the potential link between these two factors.

This section concludes the findings from the student survey on attitudes toward e-Learning. The next chapter will report on the findings from the staff survey on attitudes toward this style of delivery.

CHAPTER 7
FINDINGS FROM STAFF SURVEY

7.1 Introduction

This chapter will report on the findings from the staff survey on their attitudes toward the use of e-Learning in the delivery of this unit. It will commence with a staff profile of the participants in this survey. Comparisons will be made between the staff and student responses to the survey questions to identify aligning and contrasting viewpoints on their impact on learning outcomes. Factors which may influence the level of staff willingness to incorporate more technology into their teaching will be discussed in the final section of this chapter.

7.2 Staff Profile

As this is the largest accounting unit taught at the university, the load is shared between several teaching staff. Consequently, students may be exposed to a range of teaching and learning experiences due to differing staff interpretations of unit content and divergent teaching styles, as well as staff perceptions and attitudes toward the technology used in this unit.

To gain an insight into staff perceptions and attitudes toward e-Learning, the teaching staff in this unit were asked to participate in a survey that contained similar items to the student version. The main difference was that the focus of the questions in the staff survey was on the teaching of the unit rather than the learning in the student version.

Staff who had taught in this unit during the research period were invited to participate and participation was voluntary. The initial intention was to survey staff at the end of each semester, as with the student survey. However, the sample size would have been considered too small with only three to four staff responding, as in some instances, the same staff were involved in teaching over the four semesters under review. A decision was made to conduct the staff survey at the end of the research period. This increased the potential sample size to 12 respondents.

Ahadiat (2008) found that educators have different attitudes which affect their choice of technology and the extent to which technology is used. These differences were attributed to teaching area, academic rank, course level, years of teaching experience, age and gender. The staff survey was designed with these factors in mind and the details are discussed in the next section.

Responses were collated and findings are reported collectively to maintain anonymity amongst the participants. A profile of the staff participants is presented in Table 7.1.

Table 7.1 Profile of Staff Participants in Survey

PROFILE OF STAFF PARTICIPANTS	
Average Number Of Teaching Staff Over The Four Semester Period	12
Sample Size	10
% Of Participants To Total Teaching Staff	83%
Gender	%
Male	40
Female	60
Mode of Employment	%
Full-Time	30
Part-Time	70
Age	%
Less than 29 years	10
30-39 years	50
40-49 years	20
50-59 years	10
60 years or over	10
Years Of Teaching Experience in BAO1101	%
less than 1 year	20
1-3 years	40
4-6 years	20
7-10 years	10
10 years or over	10
Teaching Responsibilities in BAO1101	%
Tutorials Only	60
Lectures and Tutorials	40

7.2.1 Sample Size

Overall, there were 10 usable responses to the staff survey which represents 83% of the staff teaching in this unit during this four semester period of research.

7.2.2 Gender

Female teaching staff represented a slightly higher proportion than male teaching staff, 60% and 40% respectively.

7.2.3 Mode of Employment

Part-time staff account for 70% of the sample. This is typical of the teaching allocation in this unit whereby most of the teaching is undertaken by casual staff.

7.2.4 Age

The dominant age group is 30 to 39 years with 50% of staff falling into this category. This is followed by those staff aged 40 years and over, making up 40% of the sample. There was only one member of staff less than 29 years of age.

7.2.5 Teaching Experience

Overall, 60% of the staff were relatively new to this unit with their teaching experience ranging from less than 1 year up to 3 years. Of the remaining staff, 20% were moderately experienced having taught in this unit for at least 4 years and the final 20% were highly experienced with a minimum of 7 years of teaching in this introductory accounting unit.

7.2.6 Teaching Responsibilities

This is to some extent aligned with the level of teaching experience outlined above, with 60% of the sample responsible for conducting tutorials only and 40% conducted both lectures and tutorials. Staff who were given the responsibility for the delivery of lectures were generally those with more teaching experience in this unit.

Although this is a small sample, it is still important to gain some insight into staff perceptions of e-Learning as the success of any initiatives to implement technology in an educational programme depends strongly upon the support and attitudes of teachers involved (Askar & Umay, 2001).

7.3 Staff Perceptions of Effectiveness of Learning Options

The extent to which staff perceived each of the traditional and online options to be effective in assisting their students learning and assessment outcomes is discussed in the next section. To facilitate comparison between staff and student perceptions of the same question posed, the mean scores of the student responses over the four semesters are included in comparative graphs in the next section. Full details of the mean scores and raw data on staff comments are provided in the Appendix B: Chapter 7.

7.3.1 Effectiveness in Assisting Learning

Staff were asked to evaluate the effectiveness of each of the options in assisting student learning in this unit. This was measured using a 4 point rating scale with 1=not effective, 2=some effect, 3=effective and 4=very effective. The option of 'not applicable' was given if staff did not use the feature or did not perceive it to be useful. This scale applies to next two graphs appearing in this section. The mean scores for each of these options are shown in Figure 7.1.

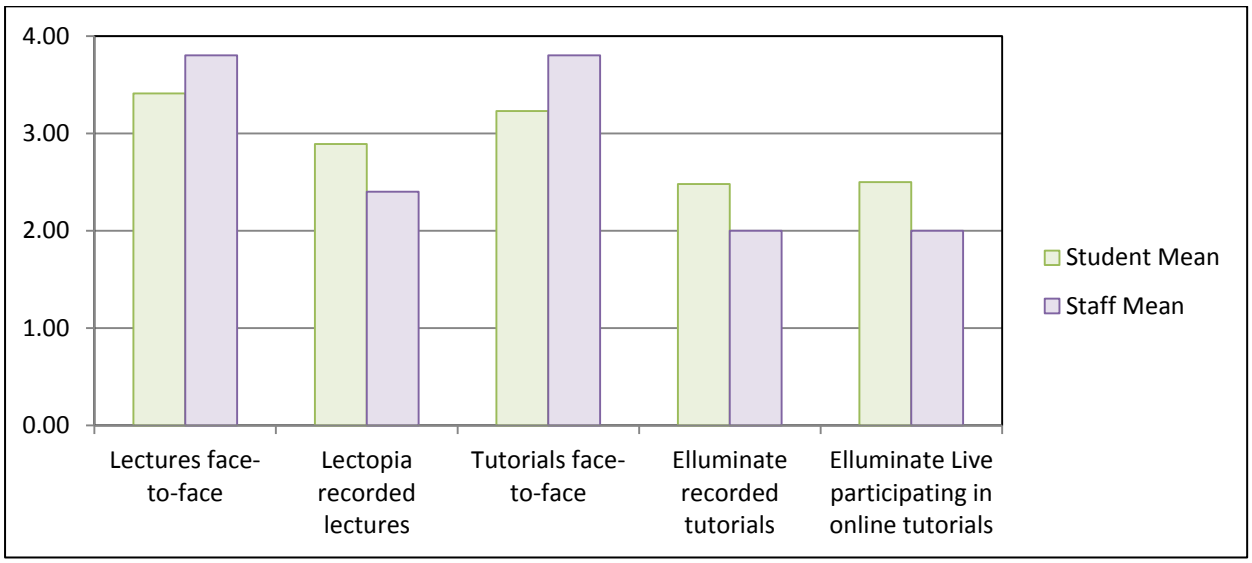


Figure 7.1 Comparative Graph - Effectiveness in Assisting Student Learning

The student and staff views were somewhat similar in their perceptions of the effectiveness of each of the traditional and online learning options available. In both cases, the face-to-face options ranked highest, however students identified that the lectures were slightly more effective than tutorials in assisting their learning in this unit. Staff ranked the traditional face-to-face delivery of tutorials and lectures equally with a mean score of 3.80 toward very effective. Of the online options, the viewing of recorded lectures via Lectopia scored highest with staff and students rating its usefulness between (2) some effect and (3) effective. This result was slightly higher from the student perspective. One of the options considered least useful were the online tutorials. Staff rated both the viewing and participation in online tutorials quite low with a mean of 2.00 indicating some effect, however students perceived these options to be slightly more useful with mean scores generally between (2) some effect and (3) effective. A slight differentiation was evident with students rating the viewing of recorded tutorials slightly higher than participating in the online tutorials. Overall, for the traditional modes of the delivery, the staff mean was higher than the student mean. In contrast, for the each of the online options, the student mean was higher than the staff mean.

7.3.2 Effectiveness in Affecting Assessment Outcomes

Staff were asked to evaluate the effectiveness of each of the learning options in potentially affecting assessment outcomes in this unit. The mean scores for each of these options are shown in Figure 7.2.

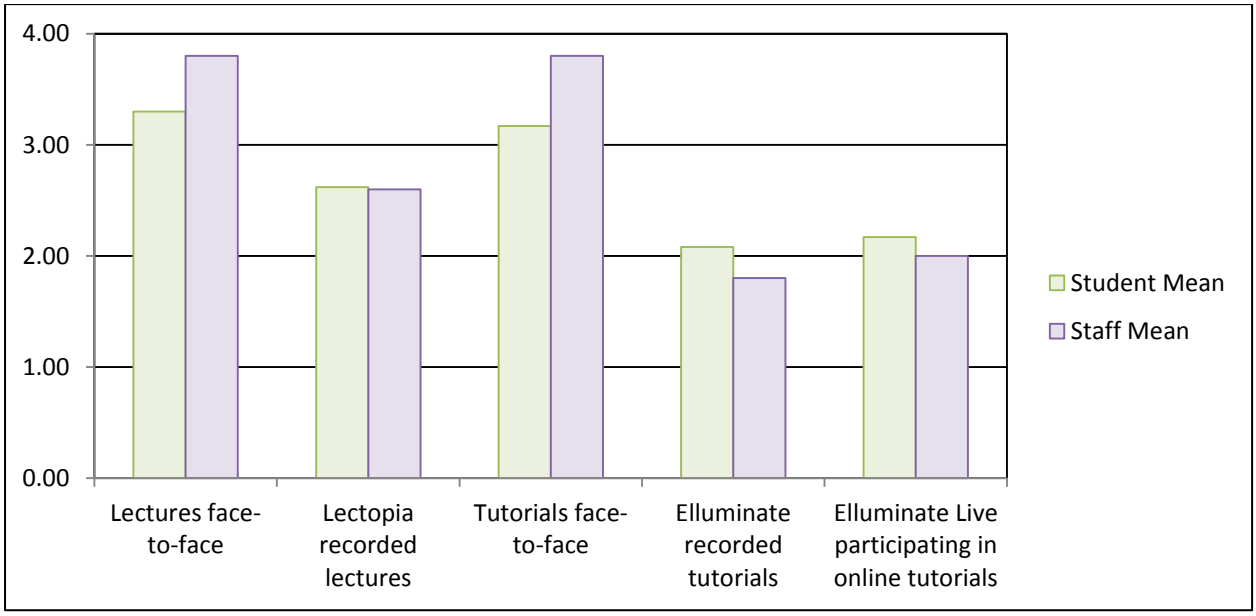


Figure 7.2 Comparative Graph - Potential Impact on Assessment Outcomes

These results on student and staff perceptions of the effectiveness of each of these learning options and their potential impact on assessment outcomes showed a similar trend. Again in both cases, the face-to-face options ranked highest, with students rating the lectures slightly more effective than tutorials in potentially affecting their academic performance in this unit.

Staff responses were identical to Figure 7.1, rating the traditional face-to-face delivery of tutorials and lectures equally with a mean score of 3.80 trending toward very effective in influencing student assessment outcomes. Of the online options, the viewing of recorded lectures via Lectopia scored highest with staff and students rating its effectiveness between (2) some effect and (3) effective.

The options considered to have minimal impact on their assessment outcomes were the online tutorials. Staff perceived student participation in online tutorials to have only some effect (2) and the viewing of recorded tutorials rated lowest (1.8) between no effect and some effect.

Students perceived the impact on the online tutorials to have a slightly more positive impact on their assessment outcomes with mean scores slightly above (2) with some effect. Active participation in the online tutorials rated marginally higher than the passive viewing of recorded tutorials. Again, staff ranked the effectiveness of face-to-face teaching modes more highly than students.

7.4 Usefulness of Unit Website

Staff were asked to evaluate the level of usefulness of the unit's website features and overall quality of the unit website. This was measured using a 4 point rating scale with 1=low, 2=medium, 3=high and 4=very high. The option of 'not applicable' was given if staff did not use the feature or did not perceive it to be useful.

The mean scores calculated for each of these options are shown in Figure 7.3.

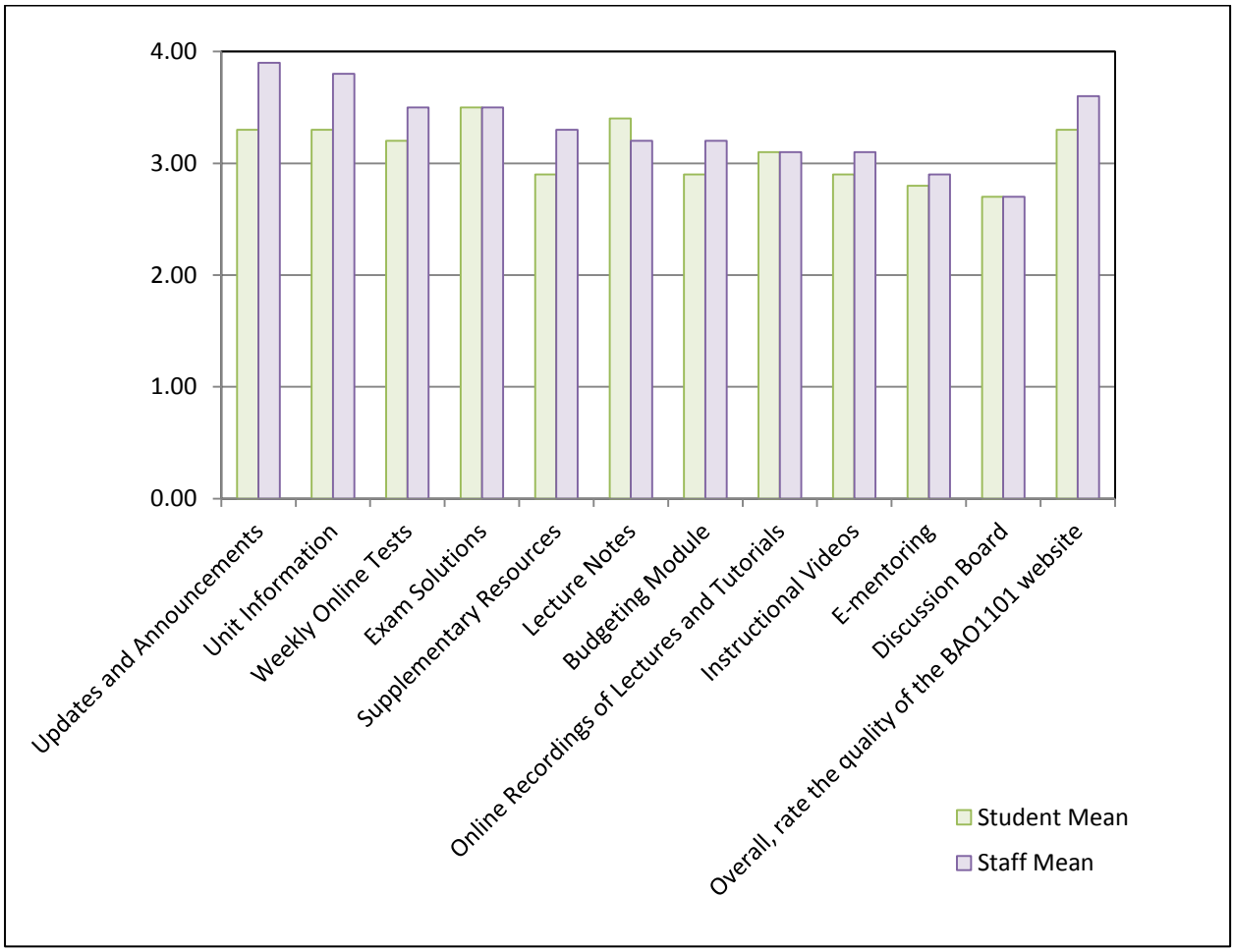


Figure 7.3 Comparative Graph - Usefulness of Website Features

According to staff, the three most useful website features were updates, unit information and the weekly online tests. In contrast, students nominated exam solutions to be the most useful, closely followed by lecture notes with updates and unit information being of equal ranking as the third most useful feature on the website. Both staff and students were in agreement with what they perceived as least useful. Features that enabled students to communicate with each other and with teaching staff rated amongst the lowest; e-mentoring (2.9) and discussion board (2.7) but still regarded as moderately useful in their learning in this unit. Both students and staff rated the overall quality of the website between high and very high with mean scores of 3.3 and 3.6 respectively.

7.5 Additional Features on Website

To improve on the usefulness of the unit website, staff were asked to list any additional features to be included to support student learning. The direct quotes from the staff responses to this question are shown in Table 7.2.

Table 7.2 Additional Features on Website – Staff Responses

CATEGORY	STAFF RESPONSES
Teaching Materials	Handouts
	Resources are adequate. If anything, perhaps we should reduce the content as students have said it is too cluttered with materials.
	Any videos related to the topic could be showed in the class, for example YouTube
	Interactive self-access question and answers or practice
Technology	Skype or Communicator would be beneficial for consultation
	SMS can be used to send subject related reminders.
Negative Comments	I don't think most students would bother with these. More face-to-face time is needed with teaching staff prompting students.
	I think there is enough technology in the subject.
	Irrespective of technology students need to learn the basics of accounting, this is something that technology cannot help.
	None (no additional features to be included)

Staff recommendations were similar to those forwarded by students in Table 6.11 Summary of Responses for Improvements to Website in Chapter 6. Along with the student recommendations, these were taken into consideration for implementation as part of the action research cycle which was a continual process beyond the research period.

Additional teaching materials suggested were handouts, videos and interactive assessment. To increase the channels of communication between staff and students, the use of Skype, Communicator and SMS was proposed. There were four negative comments in response to this question.

As there were ten respondents to the staff survey, it provides an indication that a substantial proportion are not in support of using more technology in the teaching of this unit. These comments either indicated that there was already sufficient use of technology in this unit or reinforced the view that more face-to-face time is required to learn the basics of accounting.

7.6 Technology Not To Be Used

To gather further feedback, staff were asked to identify any technology that should not be used in this unit. The direct quotes from the staff responses to this question are shown in Table 7.3.

Table 7.3 Technology Not To Be Used In This Unit

CATEGORY	STAFF RESPONSES
Social Media	Any social media, as students will not use it.
	Facebook, Twitter and other online chat social groups are not an appropriate forum for learning - there is too much technology already.
	Students using phones for internet access during classes might have distractions to themselves or others.

Three staff responses expressed concerns about the use of social media and mobile phones in this unit. These were considered inappropriate and disruptive to learning. It was interesting to note that the use of social media was requested by a small proportion of students as one of the additional features to be included on website. An extract from the content analysis is shown in Table 7.4.

Table 7.4 Extract from Student Responses for Additional Features To Be Included On Website

THEME	COUNT	COMMENTARY
Social Media	13	The most popular request was for the unit to have a Facebook presence. Other suggestions included live chat with lecturers or tutors and mobile phone help, such as text help for quick questions. Requests for Twitter to be used to answer questions with minimum words and suggestions for podcasts were noted.

Although social media is a popular means of communication between students, there is some resistance shown by staff towards its use in this unit. As explained by Huang and Liaw (2005), regardless of how sophisticated and powerful the technology is, the extent to which it is implemented is highly dependent on the teacher having a positive attitude towards it.

7.7 Preferred Usage of Technology

To gain some insight into the students' and staff preferences for differing levels of technology used in the teaching of this unit, both groups were asked to what extent they agreed with the following statements listed in Figure 7.4 below. The responses were measured using a 4 point rating scale with 1=strongly disagree, 2=disagree, 3=agree and 4=strongly agree, 'not applicable' was the option available if respondents did not have an opinion on their preferred usage of technology.

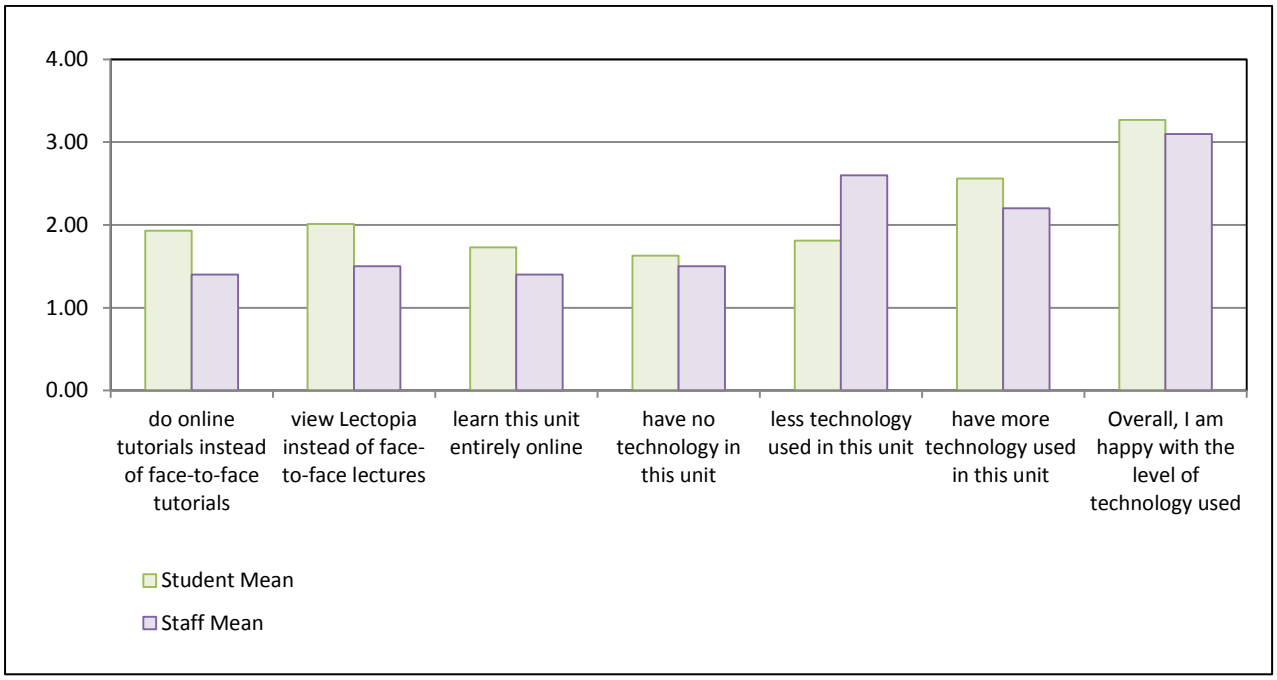


Figure 7.4 Comparative Graph - Preferred Usage of Technology

The comparative results show that the mean score for staff responses indicated their preference for: doing online tutorials, viewing online lectures or learning the unit entirely online, was lower than the student response for the same. Their response to having no technology in this unit was similar with both groups expressing their disagreement with this notion. With regard to having less technology used in this unit, students tended to disagree whereas staff tended to agree with this stance. However, both staff and students agreed that they were satisfied with the level of technology currently used in this unit. This is useful in establishing whether the current blend of technology and face-to-face delivery is appropriate. As advised by D. Clark (2003), this is one of the key criteria in determining an optimal blend.

7.8 Factors Important to Student Learning

Staff were asked to evaluate the importance of social interaction, active participation and having a regular time and place for their study on campus. The extent to which these factors were considered important to student learning was measured using a 4 point rating scale with 1= low, 2=medium, 3=high and 4=very high, 'not applicable' was an option if students did not consider these factors to be important. The results semester are shown in Figure 7.5.

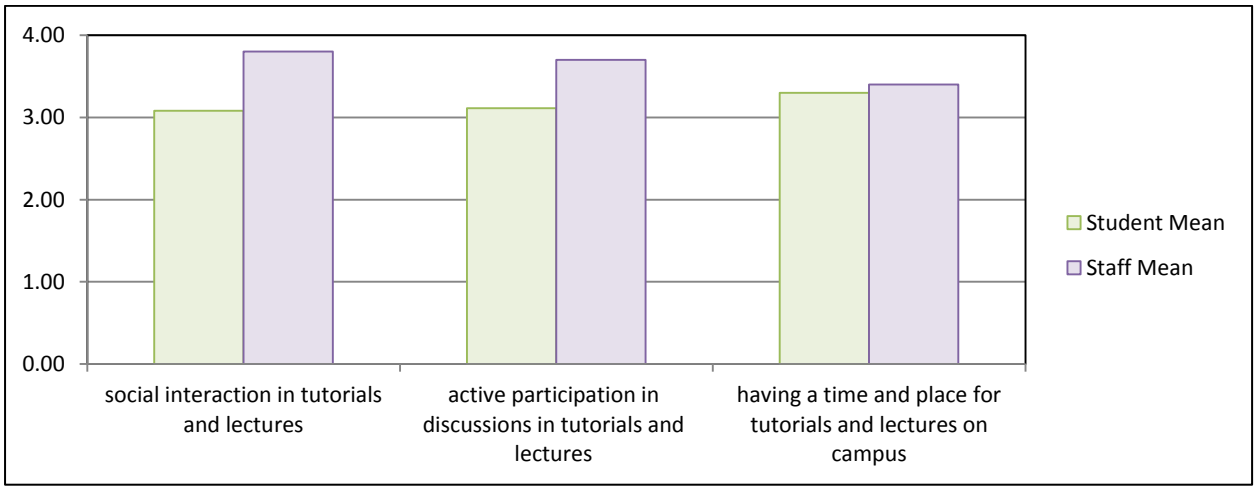


Figure 7.5 Comparative Graph - Factors Important to Student Learning

Of the factors considered, teaching staff attached a very high level of importance on the opportunities for social interaction and active participation in discussions in both tutorials and lectures with a mean of 3.80 and 3.70 respectively. With a mean of 3.40, having a time and place for tutorials and lectures on campus was considered of high importance, but not to the same extent as the factors relating to communication and face-to-face interaction described above.

For students, the factor considered most influential on their learning was having a routine on campus for their study by having a set time and place for their tutorials and lectures with a mean of 3.30. Despite acknowledging the importance of regular attendance, there was an overall decline in the number of students attending all lectures and tutorials over the four semesters. The percentage of students who attended all lectures was quite low with an attendance rate of 50% recorded in Semester 1/2010. This declined over the three consecutive semesters, with the lowest attendance rate of 28% recorded in Semester 2/2010. It is also noted that 1% to 2% of students did not attend any lectures during the semester. Regular contact with staff and other students was acknowledged by this student sample as an integral part of their learning experience. Students placed a high level of importance for social interaction and active participation in tutorials and lectures with mean scores of 3.08 and 3.11 respectively.

The student responses across the three factors were lower than the staff response. These results may be reflective of the student demographic of this sample. With reference to Table 6.3, the dominant groups are those students aged less than 20 and those aged 20 to 29. By combining these two younger groups, the 'digital natives' represent approximately 88% to 94% of surveyed students, in comparison to mature students aged 30 years or older, which account for only 6% to 12% of this group.

Research on this younger generation of students suggests that their familiarity with digital technologies has influenced their learning preferences; they demand instant access to information, have a lower tolerance for lectures and passive forms of learning, and expect technology to be an integral part of their education (Barnes et al., 2007; Lai & Hong, 2014; Oblinger & Oblinger, 2005; Philip, 2007). Despite these general characteristics of 'digital natives', students acknowledged the importance of traditional values. These findings are similar to those reported in a study conducted by Owston et al. (2006) which concluded that face-to-face contact was necessary for some first-year university students who need more guidance in their learning.

7.9 Results from Staff Focus Group Survey

Although it was initially intended to conduct focus group interviews with staff to enable more in-depth analysis of qualitative data, this proved difficult to coordinate. As an alternative, toward the end of the research period, the focus group questions were made available to each individual staff member as an online survey and participation was voluntary. This additional survey comprised eight open-ended questions relating to the usefulness of the technology used in their teaching of this unit. A copy of the staff focus group questions is included in Appendix E.

Cross-tabulations using the age of each participant and years of experience were conducted, where appropriate, and used in the analysis. To maintain confidentiality of the respondents, these details are not disclosed. Data on gender was initially included in the tables presented. However this information did not appear to produce any significant additional information as the responses from each gender were roughly comparable. It was since removed from the summary of the responses presented in the next section.

7.9.1 Use of Online Resources to Help With Teaching

Staff were asked if they used the online resources to help with their teaching in this unit. A summary of direct quotes from staff responses is provided in Table 7.5.

Table 7.5 Staff Use of Online Resources

STAFF RESPONSES	YES	NO	NEUTRAL
only when necessary		1	
rarely used		1	
somewhat			1
yes	7		
TOTAL	7	2	1

All staff responded that they did use the online resources to help with their teaching, however there was some variation with the extent to which they were used. Three staff members indicated they made minimal use with responses ranging from “rarely used” to “only when necessary”.

These responses may have been influenced by their level of teaching experience. Each of these staff had taught in this unit for at least two semesters. They may have considered that they were familiar with the unit content and did not deem it necessary to use the online resources on a regular basis.

7.9.2 How Resources Were Used

Staff were asked how the online resources were used in their teaching of this unit. A summary of staff responses is provided in Table 7.6.

Table 7.6 How Staff Used Online Resources

USE	SUMMARY
Preparation	The most utilised resources were the updates and materials relevant to their preparation for conducting their tutorials or lectures.
Revision	There were instances of staff using sample tests and solutions to tutorial or exam content for revision in tutorials or lectures.
View Online Lectures	It was noted that only two of the teaching staff made use of the recorded online lectures, one of which was a new member of staff. From the viewpoint of unit coordinator, the online recordings of lectures and tutorials were particularly useful as an instructional video for staff new to teaching in this unit. However these resources were not highly utilised.

All staff indicated that the online resources were used in their teaching. One staff member responded that she “encouraged students to go through the resources if they need to revise what they have done in the class”. Similar responses relating to the use of specific online resources such as sample tests, lecture notes and exam solutions were provided by the majority of staff. The inevitability of using more technology in our teaching was acknowledged by one staff member “nowadays we can't live without advanced technology however we should control how efficiently we use it”.

7.9.3 Usefulness of Online Resources

Staff were asked if the online resources were useful in their teaching of this unit. A summary of staff responses is provided in Table 7.7.

Table 7.7 Usefulness of Online Resources

STAFF RESPONSES	YES	NO
TOTAL	10	-

All staff indicated that the online resources were useful in their teaching. Despite regular efforts by the unit coordinator and teaching staff in showing students the extent of resources available on the unit website, it appeared that students did not utilise many of these options. One staff member advised that “I always show in my lectures what resources are available to students but I find that not much is used”.

There was considerable time and effort invested into developing appropriate online resources to facilitate student learning in this unit. In the opinion of another staff member, having greater flexibility and accessibility to online resources makes “it is easier for the students but sometimes it is very time consuming for the responsible staff which causes a burden / heavy workload.” The issue of additional workload associated with designing digital content for online delivery has been recognised in studies by M. J. Anderson (2006) and McCarthy (2010).

7.9.4 What Would Encourage Teaching Staff to Use the Online Resources?

Staff were asked what would encourage them to use the online resources in their teaching of this unit. A summary of staff responses is provided in Table 7.8.

Table 7.8 What Would Encourage Staff to Use the Online Resources

THEME	SUMMARY
Preparation	The main theme that emerged related to preparation. Four staff members affirmed that if the online resources were helpful to both staff and students in the preparation of their class or useful within the lectures and tutorials to review more difficult concepts, this would encourage the use the online resources in their teaching.
Relevance	Two staff members advised if the online resources were relevant and helpful to their teaching.
Miscellaneous	The remaining four staff responses comprised an assortment of suggestions. Two staff suggested the use of online case studies. It was noted that in these two responses, staff expressed concern about the impact of these options on student attendance. The last two responses identified having a simple layout to access resources and appropriate training on WebCT as the primary factors that would encourage their use of online resources in this unit.

The majority of staff responses indicated that the use of online resources as a means to facilitate their preparation and its relevance to their teaching were the two most influential factors. Responses such as "I can access the materials whenever I need. It is helpful for me to prepare the lessons at home" and "if resources are relevant to my teaching I will use them" were typical of the views expressed by this group of staff. Two staff members conveyed their concerns about the impact of online resources on face-to-face teaching and learning. One view was "I would suggest that some part of the studies use online resources but some part should encourage students to attend face-to-face activities." The other view related to online lectures, that they should only be offered "if there are reasonable clashes in the timetable, otherwise many students will not turn up".

7.9.5 What Would Encourage Teaching Staff To Use More Technology?

Staff were asked what would encourage them to use more technology in the teaching of this unit. A summary of staff responses is provided in Table 7.9.

Table 7.9 What Would Encourage Staff to Use More Technology

STAFF RESPONSES	POSITIVE	NEGATIVE
TOTAL	7	3

Whilst the majority of staff conveyed their support by providing some insight into the factors that would encourage them to use more technology, three staff members expressed their resistance to change. Two staff members were quite firm in responding "nothing" would encourage them to use more technology. It was the opinion of another staff member that a sufficient level of technology is already used in this unit and the onus should be on students attending classes. According to this staff member, "I think there is enough technology used. I believe that students should turn up to lectures and tutorials and not rely on technology so much".

Of the positive comments, staff would consider the use of more technology if it was helpful to improving teaching and learning, time-saving, user-friendly or driven by student demand. The addition of interactive case studies, SMS and social media were also regarded as influential factors.

7.9.6 Barriers to Using More Technology

Staff were asked if there were any barriers to using more technology in the teaching of this unit. A summary of staff responses is provided in Table 7.10.

Table 7.10 Barriers to Using More Technology

STAFF RESPONSES	YES	NO
TOTAL	5	5

One half of the staff expressed that there were no barriers to them using more technology in the teaching of this unit. However for the other half, three barriers were identified. A strong preference for face-to-face teaching and the view that this method is more beneficial to student learning was expressed by two staff members as their main barrier. One of their responses stated "I feel that one-on-one is of more benefit to the students than technology". Two other staff members indicated the lack of time in classes to show any relevant videos or links. It was the opinion of one staff member that students were "not IT literate". Perhaps this staff member meant that students were not sufficiently familiar with the functionality of WebCT.

7.9.7 Concerns in Using Technology

Staff were asked if there were any concerns about using technology in the teaching of this unit. A summary of staff responses is provided in Table 7.11.

Table 7.11 Concerns in Using Technology

STAFF RESPONSES	YES	NO
TOTAL	4	6

The majority of staff did not express any concern and supported the use technology in the teaching of this unit. One staff responded “it is good to use new technology” however another staff member cautioned that “I have no concerns about technology but I think that students shouldn't rely too much on it”.

Of the four staff expressing concerns, two of these related to the potential impact on face-to-face teaching. Both questioned whether the increased use of technology in the teaching of this unit would reduce its importance and eventually replace this traditional method of delivery. Another staff member raised a related issue: “does more technology actually improve students’ ability to learn?” The last concern was associated with the facilities available to support the implementation of new technology as this may influence its level of utilisation and overall effectiveness.

7.9.8 Adequate Training Provided

Staff were asked if adequate training for the use of WebCT had been provided by the university. A summary from staff responses is provided in Table 7.12.

Table 7.12 Adequate Training Provided

STAFF RESPONSES	YES	NO	NEUTRAL
TOTAL	5	4	1

One half of the staff confirmed that adequate training had been provided and that they were proficient in their knowledge of WebCT and the features relevant to their teaching. Four staff members conveyed a contrasting view, one of which stated that that only minimal training was provided and it was not possible to attend these sessions if they were scheduled during teaching times. One staff member took a neutral position and did not express much concern about the extent of training proved as she had “the ability to work out what to do”.

The adequacy of staff training can impact upon the effectiveness of a blended delivery. As emphasised by De Laat and Lally (2003), it is imperative to have a tutoring team that has the requisite skills to maximise the use of new online environments otherwise its success will be compromised. McPherson & Nunes (2008) inform that appropriate training programmes should be provided to ensure that staff are adequately trained and ready to engage effectively within a new online learning environment. Further comments on the lack of training are shown in Table 7.15 Overview of Staff Concerns.

7.9.9 Concerns About Using More Technology

Staff were asked whether they had any concerns about the expectation of using more technology in the teaching of this unit. A summary of staff responses is provided in Table 7.13.

Table 7.13 Concerns About Using More Technology

STAFF RESPONSES	YES	NO
TOTAL	8	2

In contrast to Table 7.11 that showed the majority of staff did not have any concerns about the use of technology, Table 7.13 shows that only two staff members were comfortable with the expectation of using more technology in this unit. One staff member responded “could introduce Moodle or any other new system to replace WebCT”. Another staff member cautioned that “more technology is good as a teaching aid in the class but not as a substitute for face-to-face teaching”. These results align with the findings under Preferred Usage of Technology whereby staff agreed that they were satisfied with the level of technology currently used in this unit.

Eight staff members across a broad range of age groups expressed some apprehension as shown in cross-tabulation between age group and indication of concern in Table 7.14.

Table 7.14 Cross-Tabulation between Age Group and Concern

Do you have any concerns about the expectation of using more technology in your teaching?				
		NO	YES	TOTAL
Age Group	less than 29 years	0	1	1
	30-39 years	1	4	5
	40-49 years	1	1	2
	50-59 years	0	1	1
	60 years or over	0	1	1
TOTAL		2	8	10

The responses from staff identifying the nature of their concerns about the expectation of using more technology have been categorised and summarised in Table 7.15.

Table 7.15 Overview of Staff Concerns

THEME	SUMMARY
Training and Keeping Up to Date with Technology	The most common concern amongst three staff members related the lack of training for new technology that they are expected to adopt in their teaching at this university. If adequate training and information sessions are conducted, staff will gain a better understanding of these new technologies which may then be more fully utilised in their teaching. It is likely that both staff and students would benefit from this. A related concern from another staff member expressed the difficulty associated with keeping up to date with greater levels of technology used at the university.
Focus on Teaching and Learning	Three staff members shared similar views with their call to shift the focus from technology back to the basics of teaching and learning. There was a concern that the increased use of technology was a poor substitute for quality teaching and a distraction from student learning. It was suggested that that there would be more to gain if staff focused on improving the quality of their teaching and students concentrated more on their learning. The point was raised that technology should be not be used for the sake of using it, only if there are proven benefits for staff and students.
Student Attendance	One staff member expressed the view that students need to learn the basics in accounting and the only way to do this is using their minds rather than access to technology. Attending lectures and tutorials was considered more important and useful than using online resources such as recorded lectures.

According to Salmon (2005), academic staff are naturally reluctant to change their methods of teaching and learning without a deep understanding how the use of technology may enhance the quality of the teaching and learning experience. The findings in this section seem to support this view.

7.9.10 Usefulness of Social Media

Staff were asked to rate the usefulness of social media in the teaching of this unit. A summary of responses is provided in Table 7.16.

Table 7.16 Usefulness of Social Media

	not useful	of some use	useful	very useful	TOTAL
SMS	6	3		1	10
Facebook	6	3		1	10
Skype	7	2		1	10
Twitter	7	3			10
YouTube	7	3			10

There were two staff members who rated some forms of social media as 'very useful' in the teaching of this unit. One staff member from the younger age bracket rated SMS and Facebook in this category whilst another member from a slightly higher age bracket rated Skype accordingly. The majority of respondents comprising between six to seven staff did not consider SMS, Facebook Skype Twitter or YouTube to be useful. A small group of two to three staff rated the aforementioned listing as having 'some use' in the teaching of this unit. This conservative attitude toward the use of social media is perhaps reflective of the staff profile whereby the dominant age group is 30-39 years which represents 50% of the respondents. Members of staff aged 40 years and over comprise 40% of the sample and one member of staff was less than 29 years of age.

7.9.11 Suggested Uses of Social Media

Staff who rated any of the listed social media as 'very useful' were asked to explain how this technology could be used in the teaching of this unit. A summary of responses is provided in Table 7.17.

Table 7.17 Suggested Uses of Social Media

TYPE	USE
SMS	Reminders of due dates, group creation for assignments and alert of students at risk
Facebook	Comment on student progress and discussions
Skype	Student consultation and verbal communication
Twitter	Reminders about exams and discussions
YouTube	For very technical explanations (but not to replace lecturers) Subject related videos

Despite the small sample, the overall findings provided an overview on the staff perceptions toward e-Learning and gave some insight into the extent to which the online resource were utilised. Whilst all staff made use of the technology in their teaching, it was found the level of utilisation was quite low and confined to basic resources for teaching preparation, only two of the ten teaching staff made use of the recorded online lectures. Staff were generally satisfied with the current level of technology used in the unit and expressed some resistance toward the greater use of technology questioning the benefits associated with this intention. The preference for face-to-face teaching and the importance of social interaction in the teaching of this introductory accounting unit was clearly evident. This situation is similar to one described by J. J. Smith and Greene (2013), that change is sometimes slow and often slowest in education, whereby the integration of technology into instruction happens when the teacher is comfortable within this new online environment.

7.10 Summary

This chapter reported on the findings from the staff survey on their attitudes toward the use of e-Learning in the delivery of this unit. The dominant age group is 30 to 39 years with 50% of staff falling into this category. Staff aged 40 years and over represent 40% of the sample and one member of staff is less than 29 years of age. The majority of staff (60%) were relatively new to teaching in this unit, 20% were moderately experienced and 20% were highly experienced.

Staff and student views were somewhat similar in their perceptions of the effectiveness of each of the traditional and online learning options in assisting student learning and affecting assessment outcomes. In both cases, the face-to-face options ranked highest, however, staff rated traditional modes of delivery for lectures and tutorials slightly higher than the students. Of the online options, the viewing of recorded lectures via Lectopia scored highest with staff and students. Staff attached a very high level of importance on the opportunities for social interaction and active participation in class discussions as well as having a time and place for tutorials and lectures on campus.

All staff were satisfied with the level of technology currently used in this unit. Whilst the majority of staff supported the notion of using more technology in the teaching of this unit, 40% expressed some apprehension. They questioned whether this trend would reduce the importance of face-to-face teaching and eventually replace of this traditional method of delivery. The issue of whether the use of more technology actually improves students' ability to learn was also raised. There was a concern that the increased use of technology was a poor substitute for quality teaching and a distraction from student learning. The lack of training and the difficulties associated with keeping up to date with greater levels of technology used at the university also posed a problem for several staff.

Support for the use of social media was very low. Between 60 and 70% of staff did not consider SMS, Facebook, Skype, Twitter or YouTube to be at all useful in the teaching of this unit. This conservative attitude is perhaps reflective of the staff profile whereby a substantial portion, 40% of the staff were from 40 years to over 60 years of age.

This section concludes the findings from the staff survey on attitudes toward e-Learning. The next chapter will integrate these key findings from the staff and student surveys into the Blended Learning Assessment framework to evaluate the overall effectiveness of the traditional and online learning options used in the delivery of this unit.

CHAPTER 8
APPLICATION OF THE BLENDED LEARNING ASSESSMENT FRAMEWORK

8.1 Introduction

This chapter will review the key findings from Chapter 6 Findings from Student Survey and Chapter 7 Findings from Staff Survey. The integration of these findings into the operationalised Blended Learning Assessment Framework will demonstrate its practical application in determining the impact of blended learning approaches used in the delivery of this unit. It will consider student and staff readiness, and the intensity of adoption of each style of delivery in its evaluation of the overall effectiveness on improving the quality of learning achieved.

8.2 Application of the Blended Learning Assessment Framework

The structure of the operationalised Blended Learning Assessment (BLA) Framework shown in Table 8.1 will be used to report on the findings under each stage: Readiness, Intensity of Adoption and Impact.

Table 8.1 Operationalised Blended Learning Assessment Framework

BLA FRAMEWORK STAGE		BLENDED LEARNING ASSESSMENT					
READINESS	Institution						
	Staff						
	Student						
INTENSITY OF ADOPTION	Blended Learning Options	Existing Approaches			New Approaches		
		Approach A	Approach B	Approach C	Approach D	Approach E	Approach F
	Blended Learning Continuum						
	Selection Of Options						
IMPACT	Effectiveness						
	Overall Effectiveness						

8.3 Readiness

The first stage of the BLA Framework refers to the level of readiness of the institution, staff and students to adopt different aspects of blended learning. An overview is provided in Table 8.2.

Table 8.2 Application of BLA Framework - Readiness

BLA FRAMEWORK STAGE		BLENDED LEARNING ASSESSMENT
READINESS	INSTITUTION	WebCT was implemented at Victoria University in 2005. There was a decision made at the institutional level that each unit would at least have a WebCT web page and an expectation that WebCT would be used to some extent by staff in relation to the delivery of all units. This was effective from 2006 onwards.
	STAFF	Prior to the commencement to the introduction of WebCT in Semester 1/2006, several workshops were conducted to train teaching staff in the School of Accounting the basics of setting up their unit websites. This was to ensure that all units offered by the school had a web presence from 2006 onwards. A university template was developed to create uniformity in which a unit website appeared, however, the amount of online content and the range of learning materials provided was up to each unit coordinator responsible for developing their respective websites. As reported in Chapter 7, all staff responded that they used the online resources on WebCT, however the degree of staff readiness for a more blended style of learning varied amongst staff in this unit. Whilst staff were satisfied with the current level of technology, the majority of staff expressed apprehension towards greater use. The most common concerns related to the lack of training, the difficulties associated with keeping up with new technology and the view that the increased use of technology was a poor substitute for quality face-to-face teaching. Due to lack of familiarity or doubt over its usefulness, staff may make an active decision not to use new technology. These factors may affect the level of staff readiness.
	STUDENT	At the commencement of WebCT in 2006, students were provided with a basic level of online teaching resources which included lecture notes and examination solutions. In each of the following semesters, additional resources were made available. There was also greater use of communication tools, in particular online chat and discussion boards for students to communicate with each other and their lecturers via WebCT. In Semester 1/2010, students were introduced to three new online learning options to complement traditional face-to-face lectures and tutorials. Refer to Table 6.2 in Chapter 6 for an overview of online resources provided via WebCT. As found in Chapter 6, students in some instances may not be familiar with WebCT or do not want to use these resources and prefer face-to-face delivery.

8.4 Intensity of Adoption

The BLA Framework allows for a variety of methods for assessing the intensity of adoption for traditional and blended learning approaches. Students were asked to rate the effectiveness of these different options according to whether they had used that option at least once during the semester. This measure is not an indicator of whether students used the option extensively. The effectiveness and level of adoption for each learning option are shown in Table 8.3.

Table 8.3 Summary of Results for Effectiveness of Learning Options

BLENDED LEARNING OPTION		ADOPTION %
Lectures	face-to-face	97
Lectopia	recorded lectures	96
Tutorials	face-to-face	72
Elluminate	recorded tutorials	48
Elluminate Live	participating in online tutorials	44

8.4.1 Existing Approaches

The results showed that the highest rate of adoption was associated with the traditional modes of delivery. Face-to-face delivery of lectures was adopted by 97% students and face-to-face tutorials were adopted by 96% of students.

8.4.2 New Approaches

Of the online options, the viewing of recorded lectures via Lectopia, had the highest rate of adoption with 72% of students viewing at least one recorded lecture. The online tutorials options via Elluminate did not appear to be well-utilised by students, with less than 50% of students adopting the option of viewing recording of tutorials and actively participating in the online tutorials.

These results have been incorporated into the second stage of the BLA which refers to the intensity of adoption for each of the existing and new online learning options. An overview is provided in Table 8.4.

Table 8.4 Application of BLA Framework - Intensity of Adoption

<table>
<tr><td colspan="2">BLA FRAMEWORK STAGE</td><td colspan="5">BLENDED LEARNING ASSESSMENT</td></tr>
<tr><td rowspan="4">INTENSITY OF ADOPTION</td><td rowspan="2">Learning Options</td><td colspan="2">Existing Approaches</td><td colspan="3">New Approaches</td></tr>
<tr><td rowspan="2">Lectures</td><td rowspan="2">Tutorials</td><td>Lectopia</td><td>Elluminate</td><td>Elluminate Live</td></tr>
<tr><td>viewing recorded lectures</td><td>viewing recorded tutorials</td><td>participating in online tutorials</td></tr>
<tr><td>Blended Learning Continuum</td><td>face-to-face</td><td>face-to-face</td><td>e-enhanced</td><td>e-enhanced</td><td>e-focused</td></tr>
<tr><td>Selection Of Options</td><td>97% high adoption</td><td>96% high adoption</td><td>72% moderate adoption</td><td>48% low adoption</td><td>44% low adoption</td></tr>
</table>

The approaches to learning offered within the unit ranged from the traditional face-to-face delivery methods, through to e-enhanced options (Lectopia lectures and Elluminate tutorials) and e-focused delivery (Elluminate Live real time tutorials) on the Enhanced Continuum of Blended Learning.

To facilitate the overall application and the analysis of the BLA Framework, all details from the previous stages, Readiness and Intensity of Adoption have been summarised and shown in Table 8.5. With the addition of the final stage of Impact, the BLA Framework is now complete. Further discussion on Impact is provided after Table 8.5.

Table 8.5 Application of BLA Framework – Readiness, Intensity and Impact

BLA FRAMEWORK STAGE		BLENDED LEARNING ASSESSMENT				
READINESS	Institution	WebCT was implemented at Victoria University in 2005.				
	Staff	All teaching staff in this unit had access to WebCT, however the degree of readiness varied amongst staff in this unit.				
	Student	All students enrolled in this unit had access to WebCT, however the degree of readiness varied amongst students in this unit.				
INTENSITY OF ADOPTION	Learning Options	Traditional Approaches		New Online Approaches		
		Lectures	Tutorials	Lectopia	Elluminate	Elluminate Live
				viewing recorded lectures	viewing recorded tutorials	participating in online tutorials
	Blended Learning Continuum	face-to-face	face-to-face	e-enhanced	e-enhanced	e-focused
	Selection Of Options	97% high adoption	96% high adoption	72% moderate adoption	48% low adoption	44% low adoption
IMPACT PART A EFFECTIVENESS	Effectiveness In Assisting Learning and Affecting Assessment Outcomes					
	Student Mean	3.41	3.23	2.89	2.48	2.50
	Staff Mean	3.80	3.80	2.40	2.00	2.00
	Effectiveness In Assisting Learning In This Unit	between 'effective' and 'very effective'	between 'effective' and 'very effective'	between 'some effect' and 'effective'	between 'some effect' and 'effective'	between 'some effect' and 'effective'
	Student Mean	3.30	3.17	2.62	2.08	2.17
	Staff Mean	3.80	3.80	2.60	1.80	2.00
	Effectiveness In Potentially Affecting Assessment Outcomes	between 'effective' and 'very effective'	between 'effective' and 'very effective'	between 'some effect' and 'effective'	between 'not at all effective' and 'some effect'	between 'some effect' and 'effective'
IMPACT PART B OVERALL EFFECTIVENESS	Overall Effectiveness					
	Level Of Technology Used	Student and Staff rating between 'high' and 'very high' level of satisfaction with the current level of technology used in the unit.				
	Quality Of Unit Website	Student and Staff rating between 'high' and 'very high' for the usefulness of the majority of online resources and the overall quality of the website.				
	Rating Of Learning Experience	Improvement in mean from 3.54 to 3.88 over four semester period. 53% of the sample confirmed a satisfactory learning experience in this unit.				
	Level of Engagement	Review of mid-semester test scores and final grades suggest a possible relationship with the level of engagement with WebCT and learning outcomes. A higher level of engagement was found for those students attaining a higher than average mid-semester test scores and those achieving a High Distinction in this unit.				
	Overall Pass Rate	The most significant increase in the pass rate was recorded for Semester 1/2010 with 80% in comparison to 70% for 2009. This coincided with the availability of the three online options to support traditional delivery. The pass rates over the four semester period exceeded the pass rate of 73% prior to the introduction of WebCT.				

8.5 Impact

The final stage of the framework refers to the impact of the blended learning environment. This is shown in the final section of Table 8.5 which has been divided into two sections:

8.5.1 Part A Effectiveness Of Each Learning Option

Part A summarises the student and staff perceptions of each of the learning options used in this unit. The mean scores have been used to evaluate their level of effectiveness in assisting learning and their potential impact on assessment outcomes. By viewing the Intensity of Adoption with Part A of Impact, it can be seen that the traditional face-to-face lectures and tutorials with the highest levels of adoption, also rated highest in their level of effectiveness. Both of these options rated between 'effective' and 'very effective' in assisting learning and improving assessment outcomes.

Of the new online approaches, the first e-enhanced option of viewing recorded lectures via Lectopia had a moderate level of adoption and rated lower, between 'some effect' and 'effective' in both of the aforementioned measures. The second e-enhanced option of viewing recorded tutorials via Elluminate and the third option, the e-focused option of participating in online tutorials via Elluminate Live had levels of adoption below 50%. Despite very low levels of adoption, both of these latter options were still perceived to be of use and rated between 'some effect' and 'effective' in enhancing learning and assessment outcomes. The only exception was the viewing of recorded tutorials via Elluminate. This e-enhanced option was rated the lowest by students and staff, between 'not at all effective' and 'some effect' on its potential impact on assessment outcomes.

8.5.2 Part B Overall Effectiveness

Part B summarises the overall effectiveness of the e-Learning experience. This was based on the overall satisfaction with the level of technology used and the overall quality of the unit website which was assessed using a 4 point rating scale with 1=low, 2=medium, 3=high and 4=very high. The results are shown in Table 8.6.

Table 8.6 Summary of Mean Scores for Satisfaction Level with Technology Used and Unit Website

	STUDENT MEAN	STAFF MEAN
Overall Satisfaction With The Level Of Technology Used	3.3	3.1
Overall Quality Of The Unit Website	3.3	3.6

These measures take into account the quality of the blended learning options as well as the inventory of online resources provided via WebCT which are constructively aligned with the key assessments in this unit.

With regard to the current level of technology used in the teaching of this unit, both students and staff indicated between a 'high' and 'very high' level of satisfaction They shared a similar view towards the overall quality of the unit website.

Feedback from students and staff was sought over the four semester period and implemented where possible to constantly improve the online resources to support students in their learning and staff in their preparation in this unit. This practice has continued beyond the research period as part of the ongoing commitment of the coordinator to improve the first-year learning experience.

Figure 8.1 refers to an email from the university's e-Learning Coordinator to the Director of International requesting the use of this unit's WebCT materials to create an exemplar VU Collaborate Space for demonstration and training purposes. VU Collaborate is the new e-Learning environment which was introduced at this university in Semester 2/2014 to replace WebCT.

From: Mark ORourke
Sent: Wednesday, 12 February 2014 3:17 PM
To: Brendan McCarthy
Subject: Exemplar content for VU Collaborate

Hi Brendan,
As discussed I would like the opportunity to use some curriculum material from the College of Business to create an exemplar VU Collaborate Space for demonstration and training purposes. You mentioned Lily Wong's WebCT material. Could you please ask Lily whether this would be OK?
Regards, Mark

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VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

As can be seen from Table 8.7, the student rating of the learning experience showed a modest but gradual increase in the level of satisfaction over the time of this research.

Table 8.7 Level of Student Satisfaction of Learning Experience

	Semester 1/2010	Semester 2/2010	Semester 1/2011	Semester 2/2011
Overall Satisfaction With The Learning Experience In This Unit	3.54	3.34	3.61	3.88

The impact on learning outcomes is summarised under the headings of Level of Engagement and Overall Pass Rate. A review of mid-semester test scores found that those students that had engaged in the online tests from the initial pre-test at the start of the semester to the post-test at the end of the semester attained a score higher than the average score of all students sitting the test. A summary of these details is presented in Table 8.8.

Table 8.8 Comparative Mid-Semester Test Scores

	Mid-Semester Test Score out of 10	Pre-Test Mid-Semester Test Score out of 10	Pre and Post-Test Mid-Semester Test Score out of 10
Average Score	5.7	6.0	6.2

A comparison of final grades with the time spent in accessing online content via WebCT indicated a possible relationship between these two factors. It was found that those students achieving a 'High Distinction' for a final grade between 80 to 100 marks spent considerably more time than those students receiving an 'N2' the lowest failed grade ranging from 0 to 39 marks. An extract from these results are presented in Table 8.9.

Table 8.9 Extract from Level of Engagement and Learning Outcomes

	Number of Sessions	Total Hours	Online Assessments Attempted	Average Time On Assessments
			Maximum 22 times	Maximum 5.5 hours
High Distinction (80-100) Average	84	21	19	4
N2 (0-39) Average	26	6	7	1
Difference	58	15	12	3

As can be seen from seen from Table 8.10, a review of the overall pass rates found that the most significant increase in the pass rate was attained in Semester 1/2010 of 80% in comparison to 70% for 2009. The highest pass rate ever in this unit was attained in Semester 1/2011. These notable achievements coincided with the availability of the three online options and a comprehensive suite of online resources to support traditional delivery. Despite minor fluctuations, the pass rates over the four semester period exceeded the pass rate of 73% prior to the introduction of WebCT.

Table 8.10 Summary of Overall Pass Rate

	Prior to WebCT	With WebCT				WebCT Access To Recorded Lectures And Tutorials			
	2005	2006	2007	2008	2009	Sem. 1/2010	Sem. 2/2010	Sem. 1/2011	Sem. 2/2011
Pass Rate						80%	76%	82%	72%
	73%	68%	77%	71%	70%	78%		77%	

The extent to which the use of technology has contributed to these results may be not be possible to ascertain but it could still be considered to have some impact. It is acknowledged that factors other than the use of technology may affect these results.

The findings that have emerged from this final assessment provide some insight as to where future efforts need to be directed to improve the quality of the learning experience in this first-year accounting unit. Although the study focused primarily on the 'Intensity of Adoption' and 'Impact' aspects of the framework, it appears that further effort could be made to improve the level of 'Readiness' of students and staff to increase the intensity of adoption of new blended learning options.

8.6 Usefulness and Potential Application of the Framework

This final stage of reviewing and incorporating the relevant findings within this Blended Learning Assessment Framework provided the opportunity to not only test the usefulness of the framework in assessing the e-Learning experience in this unit but to also consider its broader practical application.

Given the generic nature of the Blended Learning Assessment Framework, its versatility is enhanced. As an example, it could be used as a checklist for an organisation about to embark on a blended learning initiative. Prior to its introduction, planners and implementers need to consider key factors that are critical to its success. These include the degree of readiness to adopt, the blended learning options available and how their impact will be assessed before any implementation occurs. This provides a more holistic approach to the implementation of blended learning options and ensures that the impact of the blended learning approach is considered during its design rather than an afterthought once implementation has commenced.

8.7 Summary

This chapter demonstrated the practical application of the Blended Learning Assessment (BLA) Framework to evaluate the impact of blended learning approaches used in the delivery of this unit. Student and staff readiness was used in conjunction with the intensity of adoption to gauge the impact of each of style of delivery. Key performance indicators were used to evaluate the overall effectiveness of the e-Learning experience and its impact on improving the quality of learning achieved.

All students enrolled in this unit and all staff teaching in this unit had access to WebCT, however the degree of readiness amongst students and staff varied. The apprehension toward the utilisation of all the online resources available may be attributed to various factors which include: unfamiliarity with the content, technical issues or lack of perceived benefits attached to their use. Such factors would have a direct impact on the intensity of adoption of new online options.

The results indicated that despite having three new online options readily available via WebCT, there was strong support for face-to-face lectures and tutorials. These two traditional styles of delivery were rated as the preferred learning options with the highest levels of adoption as well as the highest mean scores for learning effectiveness and impact on assessment outcomes over the four semester period.

Of the e-Learning options, the viewing of recorded lectures via Lectopia rated highest with a moderate level of adoption but the viewing of recorded tutorials via Elluminate and the participation in online tutorials via Elluminate Live had adoption levels below 50%. In most instances, these options were still perceived to have some positive impact on the above mentioned student learning outcomes.

The assessment of the overall effectiveness of the e-Learning experience indicated that students and staff were satisfied with the current level of technology used, the quality of unit website and the learning experience. A comparison of final grades with the time spent in accessing online content via WebCT indicated a possible positive relationship between these two factors. It was found that those students achieving a ‘High Distinction’ spent considerably more time than those students receiving an ‘N2’ or failed grade in this unit. A review of the overall pass rates indicated that the most significant increase occurred in Semester 1/2010 and the highest pass rate ever in this unit was attained in Semester 1/2011. These achievements coincided with the availability of the three online options and a comprehensive suite of online resources to support traditional delivery.

From the perspective of the unit coordinator, this evaluation of the new blended learning initiatives has provided some insight as to where future efforts need to be directed to improve the quality of the learning experience in this first-year accounting unit. Finally, the broader practical application of Blended Learning Assessment Framework as a checklist for organisations contemplating a blended learning initiative was explained.

This chapter demonstrated the practical application of the Blended Learning Assessment Framework. The key findings from the staff and student surveys were integrated into this framework to evaluate the overall effectiveness of the traditional and online learning options used in the delivery of this unit.

The next chapter is the final chapter of the thesis. It will review the aims and significance of this research as well as the broader application of the Blended Learning Assessment Framework. This chapter will then conclude with the limitations of the study and directions for future research.

CHAPTER 9
CONCLUSION

9.1 Introduction

Garrison and Vaughan (2008, p. 10) put forward the view that:

There has been little fundamental change with regard to how we approach teaching and learning in higher education, yet there is increasing dissatisfaction among faculty, students and society with the quality of the learning experience. Although technological advancements in society have been unrelenting, technological innovation in teaching and learning have been confined to addressing issues of access and convenience. However, addressing the relevance and quality of the learning experience demands that higher education take a fresh look at how it approaches teaching and learning and utilises technology.

This quote summarises many of the issues that are still prevalent in the current educational landscape, some of which have been addressed in this thesis on the e-Learning experience in first-year introductory accounting and its impact on learning outcomes.

In this final chapter of the thesis, the aims of the research and the research questions are re-examined. The final version of the conceptual framework that forms the main theoretical contribution to knowledge is presented. The practical implications and the significance of the research are also addressed. The generalisability of the results is examined along with the suitability of the research framework as an instrument to evaluate the effectiveness of blended learning in other environments. This thesis will conclude with the limitations of the study and directions for future research.

9.2 Contribution to Accounting Education Literature

A review of accounting education literature from 2000 to 2014 identified the rapid developments in technology and the changing nature of accounting education throughout this period. The importance of research specific to the effective use of technology was highlighted by Rebele (2002). More recent reviews reinforced the same with Apostolou et al. (2011) emphasising the need for empirical studies into the effectiveness of using technology in accounting education. As blended learning has become more prevalent in higher education, the need for this type of research has become more prominent. For future research, Apostolou et al. (2013) advised that studies of students were considered important as they would provide some insight into practices that have worked well as well as those in need of improvement. This knowledge would help the next generation of practitioners and academics to better prepare for the challenges ahead.

It was also highlighted that it would be of interest to accounting education researchers to identify which online resources are appropriate to maximise learning and how they affect student learning. The authors expressed their view that as technology evolves, accounting educators are more likely to spend less time creating content and more time identifying appropriate online content to use. The use of alternative media and its impact in facilitating learning were also touted as areas for further research. As this thesis addressed some of these important issues associated with the implementation of e-Learning and evaluating its impact on learning outcomes, this study contributes to this current gap in accounting education research.

9.3 Research Questions Re-Examined

The primary objective of this thesis was to improve the learning experience and academic outcomes of Victoria University's first-year accounting students; specifically in relation to the use of technology to augment traditional modes of teaching and learning. To evaluate the overall effectiveness of e-Learning and its potential impact on learning outcomes, this thesis developed a conceptual framework which addressed the key research questions and sub-questions outlined below:

1. **What is the perception of the e-Learning experience in first-year accounting?**
   - *What are the student attitudes towards e-Learning?*
   - *What are the teaching staff attitudes towards e-Learning?*

2. **How has the e-Learning experience impacted upon learning outcomes?**
   - *What is the level of engagement with the technology used in first-year accounting?*
   - *How does the level of engagement affect student learning outcomes?*
   - *How has the use of technology improved learning outcomes?*

From these research questions, it was necessary to identify three key elements to be incorporated into the design of the conceptual framework: the type of the blended learning options available, the perceptions of these options and the quality of learning achieved.

The basis of the conceptual framework was derived after review of the relevant literature on educational theory, blended learning and adoption theory. To classify the blended learning options, the Continuum of Blended Learning (N. Jones et al., 2009) was used. In recognition of the impact of student and staff perceptions upon the level of adoption and utilisation for each of these options, the e-Learning Indicator Framework was selected. The key elements from these two models were then merged with the Conceptual Framework Indicating Influences on Student Learning (Entwistle, 2003). This integration formed the basis of the conceptual framework developed in this thesis, the Blended Learning Assessment Framework.

This conceptual framework was used to evaluate the overall effectiveness of blended learning options compared to traditional approaches of teaching and learning and its potential impact on learning outcomes in this introductory accounting unit.

The manner in which the Blended Learning Assessment Framework addresses each of the research questions is highlighted in Table 9.1. The sections of the BLA Framework have been colour-coded to match the key research questions and sub-questions.

Research Question 1 which relates to student and staff perceptions of the e-Learning experience in this unit is addressed initially under 'Readiness', the first stage of the BLA Framework. Student attitudes are further examined under 'Intensity of Adoption' in the second stage of the BLA which gauges their level of engagement in traditional and online approaches to learning.

Research Question 2 which relates to the e-Learning experience and its effect on learning outcomes is reviewed under 'Impact', the final stage of the BLA. In addition to level of engagement and the level of technology used, other measures used for evaluating impact included quality of the unit website, rating of learning experience and the overall pass rate.

Table 9.1 Research Questions Addressed in the BLA Framework

<table>
<tr><td colspan="2">BLA FRAMEWORK STAGE</td><td colspan="6">BLENDED LEARNING APPROACH</td></tr>
<tr><td rowspan="3">READINESS</td><td>Institution</td><td colspan="6"></td></tr>
<tr><td>Staff</td><td colspan="6">staff attitudes towards e-Learning</td></tr>
<tr><td>Student</td><td colspan="6">student attitudes towards e-Learning</td></tr>
<tr><td rowspan="4">INTENSITY OF ADOPTION</td><td rowspan="2">Blended Learning Options</td><td colspan="3">Traditional Approaches</td><td colspan="3">Online Approaches</td></tr>
<tr><td>Approach A</td><td>Approach B</td><td>Approach C</td><td>Approach D</td><td>Approach E</td><td>Approach F</td></tr>
<tr><td>Blended Learning Continuum</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Selection Of Options</td><td colspan="6">student attitudes and level of engagement of traditional and online approaches</td></tr>
<tr><td rowspan="2">IMPACT</td><td>Effectiveness</td><td colspan="6">student and staff perceptions of the effectiveness of traditional and online approaches in assisting learning and improving assessment outcomes</td></tr>
<tr><td>Overall Effectiveness</td><td colspan="6">level of engagement
level of technology used
quality of unit website
rating of learning experience
overall pass rate</td></tr>
</table>

9.4 Academic Contribution

The purpose of this research was to gain an insight into student and staff perceptions of e-Learning and to gain some indication of the extent to which the increased use of technology in this unit enhances the quality of the learning and teaching experience. From the perspective of unit coordinator, these findings have provided a greater understanding of how student and staff perceptions can directly impact on their degree of readiness to embrace new online options. This may affect the intensity of their adoption and ultimately, their overall effectiveness in improving learning outcomes. Information sourced from student and staff surveys will be used to develop strategies to stimulate and motivate students and staff to encourage a greater level of engagement with the online learning environment. This research has also raised awareness of the areas in need of improvement. The importance of face-to-face teaching was emphasised by both staff and students. Although the online options provided greater access and flexibility, they were not considered as viable alternatives to the traditional forms of delivery. It also emerged that a greater focus and higher priority should be placed on the quality of teaching provided by teaching staff rather than the medium by which it is delivered. Given the action research element of this study, suggestions from students and staff were considered and implemented where feasible for continual improvement in the quality of the e-Learning experience and the overall quality of learning achieved in this unit.

9.5 Theoretical Contribution

The theoretical contribution to knowledge from this thesis is the development of a unique conceptual framework, the Blended Learning Assessment Framework. Its practical application in assessing the effectiveness of an existing blended approach was demonstrated in Chapter 8. Due to the generic nature of this framework, it has versatility across a range of applications. For example, it can be utilised as a checklist for an organisation about to embark on a blended learning initiative. Prior to the introduction of blended learning, key stakeholders such administrators, technical experts, instructional designers as well as staff and students need to consider the key factors that are critical to its success. These include the degree of readiness to adopt, the blended learning options available and how their impact will be assessed before any implementation occurs. This provides a more holistic approach to the implementation of blended learning options and ensures that the impact of the blended learning approach is considered during the initial design stage. This will facilitate a more effective design and delivery of blended learning.

9.6 Final Version of the Research Framework

During the process of organising the findings within the original framework, it became evident that some minor modifications to the 'Impact' section would enhance the overall clarity of presentation. Under the heading of 'Effectiveness', additional rows were added to compare staff and student results for each of the existing and new approaches to facilitate evaluation. Similarly, under the heading of 'Overall Effectiveness', additional rows can be added for each of the key performance indicators to be used for evaluation. The final version of the BLA Framework is presented in Table 9.2.

Table 9.2 Final Version of the Blended Learning Assessment Framework

BLA FRAMEWORK STAGE		BLENDED LEARNING APPROACH					
READINESS	Institution						
	Staff						
	Student						
INTENSITY OF ADOPTION	Blended Learning Options	Existing Approaches			New Approaches		
		Approach A	Approach B	Approach C	Approach D	Approach E	Approach F
	Blended Learning Continuum						
	Selection Of Options						
IMPACT	Effectiveness						
	Staff						
	Student						
	Overall Effectiveness						
	Key Performance Indicators						

9.7 Practical Implications and Significance

This research developed a conceptual framework named the BLA Framework which examines the effectiveness of a blended approach to learning. This was initially tested using a single unit within a single university. However, due to its generic nature, it is anticipated that this framework has the potential to be generalisable across other units, courses and organisations considering blended learning to augment traditional modes of delivery. This structured approach may be useful for designers, administrators and other stakeholders involved in the creation, implementation and evaluation of online learning options.

9.8 Limitations of the Study

This study was focused on an introductory accounting unit within one course at one higher education institution and from a student and staff perspective. As this research was conducted within this specific context, the results may not be generalisable across different student cohorts and staff members in different learning environments in other units or at other universities.

To enhance the usefulness of the findings, the research was conducted over four consecutive semesters to collect data from more substantial sample size. There were 515 usable responses to the student survey and the overall response rate to the survey over this period was approximately 26%. This was considered a reasonable response rate given the time needed to complete the survey and that participation was voluntary.

It was intended to conduct focus group interviews for staff and students to enable more in-depth analysis of qualitative data, however this proved difficult to coordinate. With the review of responses provided from the staff and student surveys, there was sufficient information to gain some insight into their perceptions toward the e-Learning experience.

It is acknowledged that there are various contributing factors other than the availability of additional online learning options that may influence the learning outcomes examined in this research. These results may have been affected by the relative quality of the resources available. There were some technical issues that compromised the audio and visual quality of the online recordings of lectures and tutorials. This may have impacted the students' responses to these options.

Students' perceptions of traditional lectures and tutorials versus online alternatives may vary due the teaching provided in a face-to-face context. Over the four semesters reviewed, there were on average, twelve staff responsible for the teaching in this first-year accounting unit. Teaching staff differed in terms of level of experience, teaching style and interpretation of the content. These factors may have also contributed the students' perception of their overall learning experience.

This study was confined to the use of simple descriptive statistics to analyse the quantitative and qualitative data collected, however the outcomes provide a starting point for further statistical analysis. This could include testing for statistically significant correlations between variables to establish whether there is a relationship between certain demographic conditions of students and their preferences for different teaching strategies.

As this study is based on data collection from 2010 and 2011, it is noted that the findings may be slightly dated in terms of advances in educational technologies beyond the research period. The very nature of technology means that it is in constant change, which makes it a challenging area of research. Despite the limitations inherent in this type of research, if the student learning experience can be enhanced as a consequence, it is considered worthwhile.

9.9 Implications for Future Research

From the perspective of the unit coordinator, this research on the evaluation of new blended learning initiatives at Victoria University has provided some insight as to where future efforts need to be directed to improve the quality of the learning experience in this first-year accounting unit. Although this study focused primarily on the 'Intensity of Adoption' and 'Impact' sections of the BLA Framework, there is scope for further investigation into improving the level of 'Readiness' of both staff and students.

The findings may be influential in increasing the intensity of adoption of new blended learning options and their overall impact on learning outcomes. It was of interest to find that despite the availability of new online options, the strongest preference and highest levels of perceived effectiveness in supporting learning and improving assessment outcomes was associated with the traditional forms of delivery. It was also found that the Lectopia recorded lectures and both Elluminate options did not rate in the top five website features ranked by students as useful in their learning of this unit. The most useful features were Exam Solutions, Lecture Notes and Unit Information. If students perceived these basic needs as the most beneficial to their learning, it raises the question: *as academics do we need to re-evaluate what we spend our time on in creating appropriate online support?*

9.10 Summary

This chapter re-examined the initial research questions and reviewed the practical implications for e-Learning. The primary objective of this thesis was to improve the learning experience and academic outcomes of Victoria University's first-year accounting students. To evaluate the overall effectiveness of e-Learning and its potential impact on learning outcomes, this thesis developed a conceptual framework which addressed the key research questions and sub-questions outlined below:

1. **What is the perception of the e-Learning experience in first-year accounting?**
   - *What are the student attitudes towards e-Learning?*
   - *What are the teaching staff attitudes towards e-Learning?*

2. **How has the e-Learning experience impacted upon learning outcomes?**
   - *What is the level of engagement with the technology used in first-year accounting?*
   - *How does the level of engagement affect student learning outcomes?*
   - *How has the use of technology improved learning outcomes?*

The key factor in each of these questions was considered to establish the general framework. Elements were extracted from the Continuum of Blended Learning (N. Jones et al., 2009) and the Conceptual Framework Indicating Influences on Student Learning (Entwistle, 2003). These were merged with features from the OECD e-Business Indicator framework that were modified for e-Learning. The combination and integration of all these factors into a single framework led to the development of the Blended Learning Assessment Framework. This was refined and the final version was presented with an overview of its practical application and significance to potential users and designers of a blended learning environment.

A review of accounting education literature from 2000 to 2014 identified the need for empirical studies into the effectiveness of using technology in accounting education. As this thesis investigates some of the important issues associated with the implementation of e-Learning and evaluating its impact on learning outcomes, it makes a practical and theoretical contribution to the current gap in accounting education research.

This final chapter concluded with an acknowledgement of various limitations of this study, however, the invaluable insights gained from this study has provided opportunities for further research into determining the optimal blend of traditional and online options to maximise its effectiveness in enhancing student learning outcomes.

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APPENDIX A:
FINDINGS FROM STUDENT SURVEY

Appendix A contains additional information pertaining to Chapter 6 Findings from Student Survey.

The following graphs relate to student perceptions of effectiveness of each of the learning options.

A.1 Effectiveness in Assisting Learning in This Unit

Figure A.1 provides a graphical representation of the means scores shown in Table 6.5 featured in Section 6.9.1.

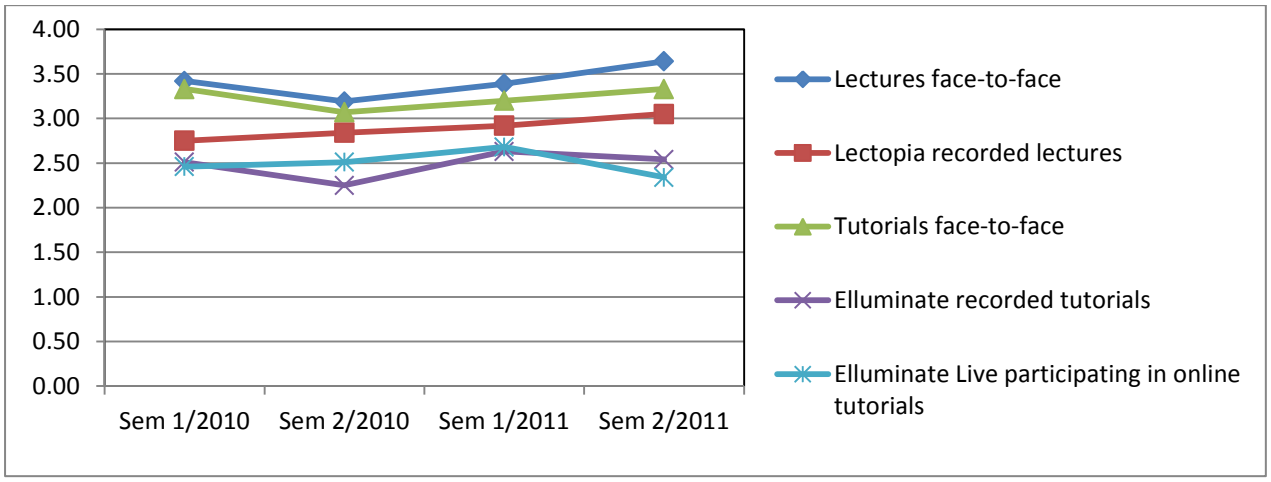

Figure A.1 Effectiveness in Assisting Learning in This Unit

A.2 Effectiveness in Potentially Affecting Assessment Outcomes

Figure A.2 provides a graphical representation of the means scores shown in Table 6.6 featured in Section 6.9.2.

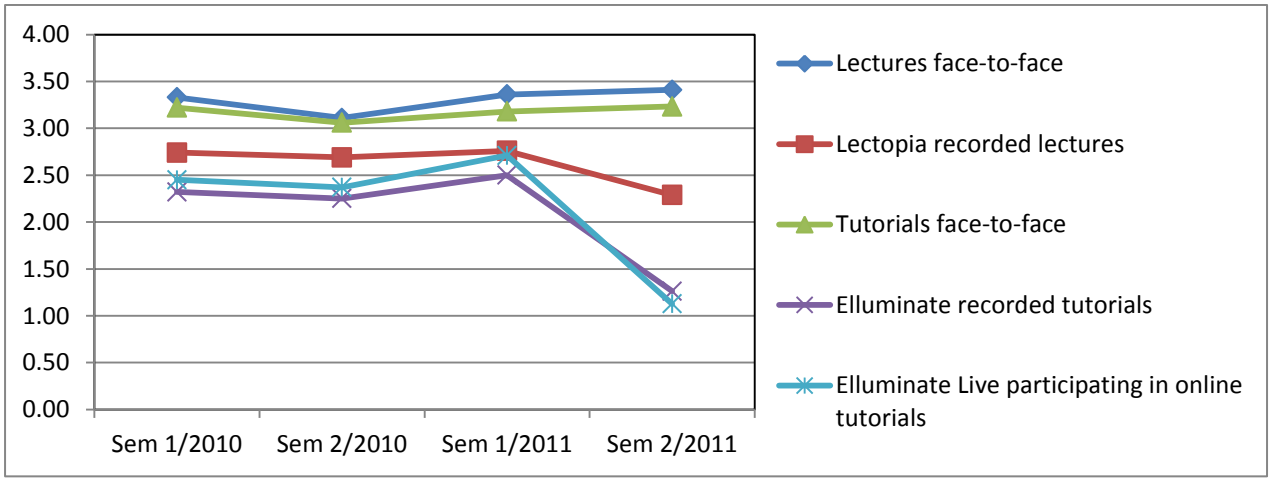

Figure A.2 Effectiveness in Potentially Affecting Assessment Outcomes

The following tables relate to student attitudes toward study.

A.3 Aim to Pass Doing as Little Work as Possible

Table A.3 provides the frequency distribution for Figure 6.8 featured in Section 6.13.1.

Table A.3 Aim to Pass Doing as Little Work as Possible

	FREQUENCY	VALID %	CUMULATIVE %
strongly disagree	173	35.3	35.3
disagree	149	30.4	65.7
no view either way	96	19.6	85.3
agree	35	7.1	92.4
strongly agree	37	7.6	100.0
TOTAL	490	100.0	

A.4 Work Hard on My Studies to Gain a High Mark

Table A.4 provides the frequency distribution for Figure 6.9 featured in Section 6.13.2.

Table A.4 Work Hard on My Studies to Gain a High Mark

	FREQUENCY	VALID %	CUMULATIVE %
strongly disagree	17	3.5	3.5
disagree	68	13.9	17.3
no view either way	162	33.1	50.4
agree	126	25.7	76.1
strongly agree	117	23.9	100.0
TOTAL	490	100.0	

A.5 No Point in Learning Material Not Likely On Exam

Table A.5 provides the frequency distribution for Figure 6.10 featured in Section 6.13.3.

Table A.5 No Point in Learning Material Which is Not Likely To Be On Exam

	FREQUENCY	VALID %	CUMULATIVE %
strongly disagree	102	20.8	20.8
disagree	127	25.9	46.7
no view either way	145	29.6	76.3
agree	71	14.5	90.8
strongly agree	45	9.2	100.0
TOTAL	490	100.0	

A.6 Attend Classes as I am Really Interested in Learning about Accounting

Table A.6 provides the frequency distribution for Figure 6.11 featured in Section 6.13.4.

Table A.6 Attend Classes as I am Really Interested in Learning about Accounting

	FREQUENCY	VALID %	CUMULATIVE %
strongly disagree	25	5.1	5.1
disagree	71	14.5	19.7
no view either way	157	32.2	51.8
agree	133	27.3	79.1
strongly agree	102	20.9	100.0
TOTAL	488	100.0	

A.7 Preferred Usage of Technology

Table A.7 provides the mean and standard deviation for Table 6.15 featured in Section 6.14.

Students were asked to what extent they agreed with the statements listed in Table A.7.

A 4 point rating scale was used: 1=strongly disagree, 2=disagree, 3=agree and 4=strongly agree, 'not applicable' was the option available if students did not have an opinion on their preferred usage of technology.

Table A.7 Preferred Usage of Technology

	Semester 1/2010		Semester 2/2010		Semester 1/2011		Semester 2/2011	
I would prefer to :	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
do online tutorials instead of face-to-face tutorials	1.95	.855	1.91	.869	1.96	.832	1.89	1.033
view Lectopia instead of face-to-face lectures	2.10	.941	2.05	.984	1.97	.825	1.91	.872
learn this unit entirely online	1.77	.804	1.69	.789	1.83	.816	1.63	.631
have no technology in this unit	1.75	.760	1.57	.749	1.76	.762	1.43	.614
less technology used in this unit	1.98	.796	1.76	.811	1.95	.822	1.53	.918
have more technology used in this unit *	2.56	.833	2.49	.774	2.52	.817	2.66	.503
Overall, I am happy with the level of technology used	3.15	.672	3.28	.588	3.18	.668	3.48	1.033

APPENDIX B:
FINDINGS FROM STAFF SURVEY

Appendix B contains additional information pertaining to Chapter 7 Findings from Staff Survey.

B.1 Staff Perceptions - Effectiveness in Assisting Student Learning

Table B.1 provides the means scores for Figure 7.1 featured in Section 7.3.1.

Table B.1 Effectiveness in Assisting Student Learning

		STUDENT MEAN	STAFF MEAN
Lectures	face-to-face	3.41	3.80
Lectopia	recorded lectures	2.89	2.40
Tutorials	face-to-face	3.23	3.80
Elluminate	recorded tutorials	2.48	2.00
Elluminate Live	participating in online tutorials	2.50	2.00

B.2 Staff Perceptions - Potential Impact on Assessment Outcomes

Table B.2 provides the means scores for Figure 7.2 featured in Section 7.3.2.

Table B.2 Potential Impact on Assessment Outcomes

		STUDENT MEAN	STAFF MEAN
Lectures	face-to-face	3.30	3.80
Lectopia	recorded lectures	2.62	2.60
Tutorials	face-to-face	3.17	3.80
Elluminate	recorded tutorials	2.08	1.80
Elluminate Live	participating in online tutorials	2.17	2.00

B.3 Usefulness of Website Features

Table B.3 provides the means scores for Figure 7.3 featured in Section 7.4.

Table B.3 Usefulness of Website Features

WEBSITE FEATURES	STUDENT MEAN	STAFF MEAN
Updates and Announcements	3.3	3.9
Unit Information	3.3	3.8
Weekly Online Tests	3.2	3.5
Exam Solutions	3.5	3.5
Supplementary Resources	2.9	3.3
Lecture Notes	3.4	3.2
Budgeting Module	2.9	3.2
Online Recordings of Lectures and Tutorials	3.1	3.1
Instructional Videos	2.9	3.1
E-mentoring	2.8	2.9
Discussion Board	2.7	2.7
Overall, rate the quality of the BAO1101 website	3.3	3.6

B.4 Preferred Usage of Technology

Table B.4 provides the means scores for Figure 7.4 featured in Section 7.7.

Table B.4 Preferred Usage of Technology

I would prefer to :	STUDENT MEAN	STAFF MEAN
do online tutorials instead of face-to-face tutorials	1.93	1.40
view Lectopia instead of face-to-face lectures	2.01	1.50
learn this unit entirely online	1.73	1.40
have no technology in this unit	1.63	1.50
less technology used in this unit	1.81	2.60
have more technology used in this unit	2.56	2.20
Overall, I am happy with the level of technology used	3.27	3.10

B.5 Factors Important to Student Learning

Table B.5 provides the means scores for Figure 7.5 featured in Section 7.8.

Table B.5 Factors Important to Student Learning

	STUDENT MEAN	STAFF MEAN
social interaction in tutorials and lectures	3.08	3.80
active participation in discussions in tutorials and lectures	3.11	3.70
having a time and place for tutorials and lectures on campus	3.30	3.40

This section shows the details and raw data for the summarised tables that appear in Section7.9.

B.6 Staff Use of Online Resources

Table B.6 provides the details for Table 7.5 featured in Section 7.9.1.

Table B.6 Staff Use of Online Resources

	GENDER		POSITIVE	NEGATIVE	NEUTRAL
STAFF RESPONSES	M	F			
only when necessary	1			1	
rarely used		1		1	
somewhat	1				1
yes	2	5	7		
TOTAL	4	6	7	2	1

B.7 How Staff Used Online Resources

B.7 provides the details for Table 7.6 featured in Section 7.9.2.

Table B.7 How Staff Used Online Resources

	GENDER	
STAFF RESPONSES	M	F
for lecture notes	1	
in lectures showing updates		1
lecture notes and updates	1	
mainly used sample tests, announcements, lecture notes to prepare for tutes		1
Only to the extent where students were keeping up to date with announcements and catching up with lectures.	1	
Encourage students to go through the resources if they need to revise what they have done in the class.		1
I use the information presented to assist class in WebCT updates, solutions but do not use any other resources		1
I use online materials for updates, online lectures and tutorial materials.		1
WebCT, recording of lectures and materials	1	
Nowadays we can't live without advanced technology however we should control how efficiently we use it.		1
TOTAL	4	6

B.8 Usefulness of Online Resources

Table B.8 provides the details for Table 7.7 featured in Section 7.9.3.

Table B.8 Usefulness of Online Resources

	GENDER		POSITIVE	NEGATIVE
STAFF RESPONSES	M	F		
yes	2	4	6	
yes, very helpful	1		1	
yes, to the extent of keeping students up to date	1		1	
yes ,I always show in my lectures what resources are available to students but I find that not much is used		1	1	
yes, it is easier for the students but sometimes it is very time consuming for the responsible staff which causes a burden / heavy workload		1	1	
TOTAL	4	6	10	0

B.9 What Would Encourage Staff to Use the Online Resources

Table B.9 provides the details for Table 7.8 featured in Section 7.9.4

Table B.9 What Would Encourage Staff to Use the Online Resources

		GENDER	
CLASSIFICATION	STAFF RESPONSES	M	F
Preparation	Helps us to know any announcements, could advise my students to check the online materials to enhance their studies as well.		1
	If they go through the resources in advance then they participate well in the lecture and tutorial.		1
	If I can access to the materials whenever I needed. It is helpful for me to prepare the lessons at home.		1
	As a means to review some difficult concepts but most of the work required the students need to work through exercises manually.		1
Relevance	Only if it relevant and helpful to my teaching.	1	
	If resources are relevant to my teaching I will use them.		1
Miscellaneous	Perhaps the use of case studies, but I prefer to perform calculations for students outside of the online environment. Online lectures should only be offered if there are unreasonable clashes in the timetable, otherwise many students will not turn up.	1	
	I would suggest that some part of the studies use online resources but some part should encourage students to attend face-to-face activities.		1
	easy layout	1	
	training	1	
TOTAL		4	6

B.10 What Encourage Staff to Use More Technology

Table B.10 provides the details for Table 7.9 featured in Section 7.9.5

Table B.10 What Encourage Staff to Use More Technology

	GENDER		POSITIVE	NEGATIVE
STAFF RESPONSES	M	F		
if it benefits my teaching and if students think it is helpful to them learning		1	1	
if it is time saving and user friendly		1	1	
if necessary to improve my teaching		1	1	
if I can see that it is helpful to me and easy to use	1		1	
student demand	1		1	
Interactive case studies	1		1	
SMS and Facebook		1	1	
I think there is enough technology used. I believe that students should turn up to lectures and tutorials and not rely on technology so much.		1		1
nothing	1	1		2
TOTAL	4	6	7	3

B.11 Barriers to Using More Technology

Table B.11 provides the details for Table7.10 featured in Section 7.9.6

Table B.11 Barriers to Using More Technology

	GENDER		POSITIVE	NEGATIVE
STAFF RESPONSES	M	F		
No	1	3	4	
Not if it is user friendly	1		1	
I feel that one-on-one is of more benefit to the students than technology.		1		1
Prefer face-to-face	1			1
Time and sometimes the computer systems are bit too old for new programs and it takes a long time to download.		1		1
Yes. Lack of time to show any relevant videos or links.		1		1
Yes, students are not IT literate.	1			1
TOTAL	4	6	5	5

APPENDIX C: STUDENT SURVEY

STUDENT SURVEY - ATTITUDES TOWARDS E-LEARNING

This semester you were exposed to 3 forms of e-Learning:

Lectures	which involved basic ICT usage such as PowerPoint and Word
Lectopia & Elluminate	which involved e-enhanced learning with access to online lecture and tutorial recordings
Elluminate Live	which involved e-intensive learning with participation in online tutorials

The purpose of this survey is to get feedback about your perceptions of the effectiveness of these forms of learning. We are also interested in your ways of studying and your perceptions of the learning environment. Most of the questions can be answered by ☑ each statement that most accurately reflects your view or by writing a few words in the space provided.

Which year of study are you in? ❍ 1st ❍ 2nd ❍ 3rd ❍ 4th

Are your major studies in Accounting? ❍ Yes ❍ No, what is your major? _____

Are you male or female? ❍ Male ❍ Female

What is your mode of study? ❍ Part-Time ❍ Full-Time

Do you work and study? ❍ No

❍ Yes, how many hours do you work per week?

❍ 0– 10 hours ❍ 11 - 20 hours ❍ 21 - 30 hours ❍ Greater than 30 hours

What is the main language you speak at home? ❍ English ❍ Language other than English

Are you a permanent resident of Australia? ❍ Yes ❍ No

What is your country of permanent residence? _____

Age Group ❍ Less than 20 years old ❍ 20 to 29 years old ❍ 30 to 39 years old ❍ 40 years or older

Have you studied Accounting previously? ❍ No

❍ Yes, at which level?

❍ VCE Accounting Units 1 and 2 ONLY ❍ VCE Accounting Units 3 and 4 ❍ Accounting Diploma

Other, please specify: _____

Do you have work experience in Accounting? ❍ Yes ❍ No

What is your home postcode? _____

Which campus(es) do you study BAO1101?

❍ Footscray Park (FP) ❍ City Flinders (CF) ❍ City Queen (CQ) ❍ Werribee (W)

Which lecture do you attend this semester? ❍ day ❍ evening ❍ both

How many lectures did you attend? ❍ none ❍ 1- 5 ❍ 6 -10 ❍ 11 - 20 ❍ over 20 ❍ all 24 lectures

Which tutorial do you attend? ❍ day ❍ evening ❍ both

How many tutorials did you attend? ❍ none ❍ 1 - 3 ❍ 4 – 7 ❍ 8 – 11 ❍ all 12 tutorials

What is the highest level of education completed by your mother?

❍ no school or primary school ❍ some or all secondary school ❍ vocational certificate or diploma
❍ university degree or diploma ❍ not sure

What is the highest level of education completed by your father?

❍ no school or primary school ❍ some or all secondary school ❍ vocational certificate or diploma
❍ university degree or diploma ❍ not sure

Are you the first in your immediate family to attend university? ❍ Yes ❍ No

ABOUT YOUR WAYS OF STUDYING

Please answer the following questions by ☑ each statement that most accurately reflects your view or by writing a few words in the space provided.

1. In this semester you were exposed to a number of different teaching strategies. How effective was each strategy in assisting your learning in this unit?

		not at all effective	some effect	effective	very effective	not applicable
Lectures	face-to-face					
Lectopia	recorded lectures					
Tutorials	face-to-face					
Elluminate	recorded tutorials					
Elluminate Live	participating in online tutorials					

2. To what extent did each of the following strategies motivate your learning in this unit?

		no motivation at all	some motivation	quite a bit of motivation	high motivation	not applicable
Lectures	face-to-face					
Lectopia	recorded lectures					
Tutorials	face-to-face					
Elluminate	recorded tutorials					
Elluminate Live	participating in online tutorials					

3. To what extent did each of the following strategies potentially affect your assessment outcomes?

		not at all effective	some effect	effective	very effective	not applicable
Lectures	face-to-face					
Lectopia	recorded lectures					
Tutorials	face-to-face					
Elluminate	recorded tutorials					
Elluminate Live	participating in online tutorials					

4. To what extent was the importance of these factors to your learning in this unit?

	low	medium	high	very high	not applicable
social interaction in tutorials and lectures					
active participation in discussions in tutorials and lectures					
having a time and place for your tutorials and lectures on campus					

5. To what extent did you find the following BAO1101 website features useful in your learning in this unit?

	low	medium	high	very high	not applicable
Updates and Announcements					
Unit Information					
Lecture Notes					
Weekly Online Tests					
Online Recordings of Lectures and Tutorials					
Supplementary Resources					
Budgeting Module					
Instructional Videos (how to find and chart ASX data)					
Exam Solutions					
E-mentoring					
Discussion Board					
Overall, rate the quality of the BAO1101 website					

6. What other features would you like to be included on the BAO1101 website to help your learning?

7. To what extent do you agree with the following statements about preferred usage of technology in this unit?

I would prefer to :	strongly disagree	disagree	agree	strongly agree	not applicable
do online tutorials instead of face-to-face tutorials					
view Lectopia instead of face-to-face lectures					
learn this unit entirely online					
have no technology in this unit					
less technology used in this unit					
have more technology used in this unit *					
Overall, I am happy with the level of technology used					

8. * What other uses of technology should be included to help your learning in this unit?
Please specify the type of technology and a specific purpose

9. Are there some uses of technology that should not be included in the unit?
Please specify the type of technology and your reasons.

YOUR EXPERIENCES OF YOUR CURRENT BAO1101 ACCOUNTING STUDIES

Thinking about your study in BAO1101, indicate the extent to which each statement that most accurately reflects your view.

10. To what extent do you agree with the following statements about the BAO1101 unit?

	strongly disagree	disagree	neutral	agree	strongly agree
The teaching staff of this unit stimulated me to do my best work					
The workload was too heavy					
Staff put a lot of time into commenting on my work					
To do well in this unit all you really needed was a good memory					
Staff seemed more interested in testing what I had memorized than what I understood					
I was generally given enough time to understand the things I had to learn					
The staff made a real effort to understand difficulties I might be having with my work					
Assessment methods used in this unit required an in-depth understanding of the content					
The teaching staff normally gave me helpful feedback on how I was going					
My lecturer was extremely good at explaining things					
Too many staff asked me questions just about facts					
The teaching staff worked hard to make the unit interesting					
There was a lot of pressure on me to do well in this unit					
The amount of work covered in this unit meant it couldn't all be thoroughly comprehended					
Overall, I am satisfied with my learning experience in this unit					

11. To what extent do you agree with the following statements on your attitude toward your study for the BAO1101 unit?

	strongly disagree	disagree	neutral	agree	strongly agree
My aim is to pass this unit while doing as little work as possible					
I work hard at my studies because I find the material interesting					
I see no point in learning material which is not likely to be on the exam					
I come to classes as I am really interested in learning about accounting					

Thank you for your participation in this survey, Lily

APPENDIX D: STAFF SURVEY

STAFF SURVEY - STAFF PERCEPTIONS TOWARDS E-LEARNING

INTRODUCTION

Dear BAO1101 Teaching Staff,

During Semester 1 and 2 / 2011, our students were exposed to 3 forms of e-Learning:

Lectures	which involved "basic ICT usage" such as PowerPoint and Word
Lectopia & Elluminate	which involved "e-enhanced learning " with access to online lecture and tutorial recordings
Elluminate Live	which involved "e-intensive learning" with participation in online tutorials

The purpose of this survey is to examine your perceptions of and to evaluate the effectiveness of each approach. Most of the questions can be answered by clicking on the circle beside each statement that most accurately reflects your view or by writing a few words in the box provided. The information from this survey will be collated in a summary format by an independent person to maintain anonymity of participants.

STAFF PROFILE

Gender ❍ Male ❍ Female

Type of Employment ❍ Full-time ❍ Sessional

Age Group

❍ Less than 29 years ❍ 30 to 39 years ❍ 40 to 49 years ❍ 50 to 59 years ❍ 60 years +

Years of teaching experience at university level?

❍ Less than 1 year ❍ 1 to 5 years ❍ 6 to 10 years ❍ 11 to 19 years ❍ 20 years +

Years of teaching experience in BAO1101?

❍ Less than 1 year ❍ 1 to 3 years ❍ 4 to 6 years ❍ 7 to 10 years ❍ 10 years +

Teaching Responsibilities in BAO1101?

❍ Tutorials only

❍ Lectures and Tutorials

ABOUT YOUR PERCEPTIONS OF E-LEARNING IN BAO1101

Please answer the following questions by ☑ each statement that most accurately reflects your view or by writing a few words in the space provided.

1. During Semester 1 and 2 / 2011 our students were exposed to a number of different teaching strategies. How effective was each strategy in assisting your teaching in this unit?

		not at all effective	some effect	effective	very effective	not applicable
Lectures	face-to-face					
Lectopia	recorded lectures					
Tutorials	face-to-face					
Elluminate	recorded tutorials					
Elluminate Live	participating in online tutorials					

2. To what extent do you think each of the following strategies motivated your student's learning in this unit?

		no motivation at all	some motivation	quite a bit of motivation	high motivation	not applicable
Lectures	face-to-face					
Lectopia	recorded lectures					
Tutorials	face-to-face					
Elluminate	recorded tutorials					
Elluminate Live	participating in online tutorials					

3. To what extent do you think each of the following strategies potentially affected your students' assessment outcomes?

		not at all effective	some effect	effective	very effective	not applicable
Lectures	face-to-face					
Lectopia	recorded lectures					
Tutorials	face-to-face					
Elluminate	recorded tutorials					
Elluminate Live	participating in online tutorials					

4. To what extent do you consider the importance of these factors to our students' learning in this unit?

	low	medium	high	very high	not applicable
social interaction in tutorials and lectures					
active participation in discussions in tutorials and lectures					
having a time and place for your tutorials and lectures on campus					

5. To what extent did you find the following BAO1101 website features useful in your teaching of this unit?

	low	medium	high	very high	not applicable
Updates and Announcements					
Unit Information					
Lecture Notes					
Weekly Online Tests					
Online Recordings of Lectures and Tutorials					
Supplementary Resources					
Budgeting Module					
Instructional Videos (how to find and chart ASX data)					
Exam Solutions					
E-mentoring					
Discussion Board					
Overall, rate the quality of the BAO1101 website					

6. What other features would you like to be included on the BAO1101 website to help your teaching?

7. To what extent do you agree with the following statements about preferred usage of technology in this unit?

I would prefer to :	strongly disagree	disagree	agree	strongly agree
teach online tutorials instead of face-to-face tutorials				
record my lectures on Lectopia instead of face-to-face lectures				
teach this subject entirely online				
have no technology in this subject				
less technology used in this subject				
have more technology used in this subject *				
Overall, I am happy with the level of technology used				

8. * What other uses of technology should be included to help your teaching in this unit?
Please specify the type of technology and a specific purpose.

9. Are there some uses of technology that should not be included in the unit?
Please specify the type of technology and explain your reasons.

10. How useful would you rate the following technologies for teaching in first-year accounting?

	not at all useful	of some use	useful	very useful
SMS				
Twitter				
Facebook				
Youtube				
Skype				

If you consider any of these of some use to very useful, could you explain how this technology could be used:

	How This Technology Could Be Used In Teaching
SMS	
Twitter	
Facebook	
Youtube	
Skype	

Thank you for your participation in this survey, Lily

APPENDIX E: FOCUS GROUP QUESTIONS

BAO1101 TEACHING STAFF – FOCUS GROUP QUESTIONS

1. Did you use the online resources to help your teaching in this subject?

    1.1 If no, could you please provide reason/s?

    1.2 If yes, how did you use it?

2. What would encourage you to use the online resources to help your teaching?

3. Have you found the online resources useful for your teaching in this subject?

    3.1 If no, could you please provide reason/s?

    3.2 If yes, which online resources have been useful to you?

4. What would encourage you to use more technology in your teaching?

5. Are there any barriers to you using more technology in your teaching?

6. Do you have any concerns about using technology in your teaching?

7. Do you feel that you have had adequate training to feel comfortable with the technology that you are required to use in your teaching?

8. Do you have any concerns about the expectation of using more technology in your teaching?

    8.1 If so, please identify these concerns