Students' perceptions towards using an e-learning tool, Tax-Tim, as a teaching and learning method in the Taxation 1 syllabus

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DECLARATION

I *Andre Sheik-Essop* declare that this dissertation is a representation of my own work in conception and execution. This work has not been submitted in any form for another degree at any university or institution of higher learning. All information cited from published or unpublished works have been acknowledged.

Andre Sheik-Essop Date: 28/04/2020

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DEDICATION

This is dedicated to my Lord and Saviour Jesus Christ. Through him all things are possible and without him this dissertation would not be possible. *‘‘But seek first the kingdom of God and his righteousness, and all these things will be added to you.’’ - Matthew 6:33*

There are a few quotes that shaped my journey throughout education and I want to share two important ones.

"Education is the most powerful weapon which you can use to change the world." Nelson Mandela

The function of education is to teach one to think intensively and to think critically. Intelligence plus character; that is the goal of true education - Martin Luther King Jr.

Forward to whoever is pursuing education, never forget that no one can ever take away your qualification, knowledge and experience from you.

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I would like to acknowledge Prof. L. Stainbank for her continuing support and guidance through this journey of discovery.

To my family and friends that have seen a shadow of me through this journey, thank you for all the support.

ABSTRACT

The expanding world of technology has extended into the education space through employers' needs regarding graduates' technology attributes. To keep abreast of the trends of technology adoption in education, particularly blended theory and technology learning and to provide a basis for practical teaching and learning. The need for continued research in this area has arisen. The purpose of the research is to investigate students' perceptions of using an e-learning, e-filing tool to determine their attitudes towards acceptance of using technology and the benefits and challenges of e-learning tool, Tax-Tim. The intention of the assessment is to investigate students' ability to apply the theoretical underpinnings of the Taxation 1 syllabus to an online simulation of the South African Revenue Service (SARS) e-filing system. The e-learning tool chosen was Tax-Tim which simulates a SARS e-filing tool and is assessed by an independent company called Tax-Tim. The research defined three objectives. The first research objective was addressed by hypotheses developed using the theoretical framework of the Technology Acceptance model (TAM) developed by Davis (1989). To be able to explain user acceptance of new e-learning technology using the antecedents of the TAM, constructs used included perceived usefulness (PU), perceived ease of use (PEOU), Attitude towards (ATT) and behavioural intention (BI) with external variable computer self-efficacy. The second objective explored the extent of effectiveness of using Tax-Tim as a case study e-learning tool. The third objective was to investigate the extent to which Tax-Tim worked together with determining the benefits and challenges of the e-filing simulation tool, Tax-Tim, that the students identified.

Descriptive statistics highlighted that students mostly agreed that Tax-Tim was an effective tool and added value to their experience of an e-learning tool. Additionally, English second language students found Tax-Tim to be more helpful than English language students. Four hypotheses, H3, H4, H6 and H7 positively supported the TAM model. Alternatively, three hypotheses, H1, H2 and H5 did not contribute to the TAM model. CSE was rejected as positively supporting the hypothesis. The research could be used as a basis for e-learning technology adoption at Durban University of Technology and using e-learning for a blended learning approach.

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LIST OF ACRONYMS

Abbreviation	Meaning
ATU	Attitude towards using
BI	Behavioural intention
CA (SA)	Chartered Accountant (South Africa)
CSE	Computer Self-Efficacy
DUT	Durban University of Technology
E-filing	Electronic filing
E-government	Electronic government
EL	English first language
ESL	English second language
ICT	Information and communication technology
IS	Information Systems
IT	Information Technology
PEOU	Perceived ease of use
PU	Perceived usefulness
SARS	South African Revenue Services
SPSS	Statistical Package for the Social Sciences
TAM	Technology acceptance model (Davis 1989)
TPB	Theory of planned behaviour
TRA	Theory of reasoned action (Fishbein 1975)
TT	Tax-Tim
UCT	University of Cape Town
UJ	University of Johannesburg
UK	United Kingdom
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOT	University of Technology
UP	University of Pretoria
USA	United States of America
UWC	University of the Western Cape
VAT	Value Added Tax
WITS	University of the Witwatersrand

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter introduces the purpose of the research study under investigation. The research study investigates students' perceptions towards using an e-learning tool, Tax-Tim, as a teaching and learning method in the Taxation 1 syllabus. Thereafter, an explanation into the background of the study is given. The research problem area' aims are discussed. The research questions are stated. The significance of the study is explained. The delimitations of the study are highlighted with the assumptions of the study and definition of key terms described. The chapter concludes with a brief explanation into the structure and the content of the chapters to follow.

1.2 Purpose of the study

The purpose of this research is to evaluate the perceptions of students using an e-learning tool, Tax-Tim, as a teaching and learning method in the Taxation 1 syllabus at the Durban University of Technology (DUT) (2015).

1.3 Background of the study

An e-learning tool, Tax-Tim, which is an integrated on-line e-filing simulation assessment to complete a tax return and taxable income calculations is used in the Taxation 1 course at DUT. The intention of the assessment is to determine students' ability to integrate the theoretical underpinnings of the Taxation 1 syllabus in an online simulation of the South African Revenue Service (SARS) e-filing system. The Tax-Tim assignment is administered after students had been lectured on the theoretical aspects of Taxation 1. The assessment is compiled and assessed by an independent company called Tax-Tim. Students are thus exposed to a very practical example (completing a tax return) and should be able to use the knowledge gained in lectures to complete the assignment. This practical component of the course should assist students entering the working environment.

The rationale behind this research study is that students are often faced with the unforgiving reality of the working environment as recent graduates, which together with the ever changing and e-commerce field, make it difficult for students to integrate the theory learnt at university level into the working environment. This is confirmed by a study by Griesel and Parker (2009) in the higher education sector in South Africa regarding employers' expectations of graduates and their required attributes.

Continuing developments in e-learning also make it difficult for educators to gauge a student's level of knowledge application. Griesel and Parker's (2009) study on graduates' abilities to manage in the working environment revealed that few students can integrate their knowledge into application and fall short in adapting to new changing environments.

The Taxation 1 syllabus at DUT introduces to students for the first time the field of taxation. The course, according to the syllabus module descriptor, introduces and teaches the theory of how to manage your taxes as a salaried individual.

Many students learn the theory and then find it difficult to transfer their theoretical knowledge into the practical competencies needed when they are exposed to these circumstances, for example e-Filing, in the working environment. Recent studies (Ott and Donnelly 1999; Oberholzer and Nel 2006; Paechter, Maier and Macher 2010) on syllabus vs. practice have demonstrated that there is a significant gap between the abilities of students' thinking and reasoning skills development which hinder their process towards transferring their theoretical knowledge into practical competencies.

The research conducted by Griesel and Parker (2009) for Higher Education South Africa on graduate attributes makes it apparent that there is an actual need to address gaps between employer expectations and higher education outcomes. The identified gaps have to do with proactive task-directed engagement and the application of knowledge (Griesel and Parker 2009). The report highlights an actual need for more innovative ways in which higher education and business can work

together to create a seamless interface between these two crucial sectors of society (Griesel and Parker 2009).

The continually changing e-commerce environment has created a need for individuals and graduates alike that are work ready, technologically adapted and critical thinkers. Specifically, these developments have led to the tax component of the e-commerce profession extending its role to the interpretation and communication of information, rather than just being a custodian of business information (Koornhof and Lubbe 2008). This, therefore, impacts the education and training of future tax specialists towards an e-learning environment. DUT has endeavoured to create a platform for students to engage in e-learning initiatives in the form of Blackboard, for example. The intention of Blackboard is to facilitate an online, e-learning environment that provides students access to the electronic environment. Thus educators are forced to re-evaluate the curricula that is being taught and how it is taught and delivered at South African universities (Koornhof and Lubbe 2008).

Consequently, for graduates to become worthy employees, effective managers and dynamic leaders in the continuing changing electronic business and professional environment, it is the responsibility of educators to provide them with a strong foundation, both technically and emotionally (Jones and Abraham 2007). It is therefore necessary that the topics specifically included in the syllabus be constantly reviewed and aligned as a result of the changes taking place (Koornhof and Lubbe 2008).

E-learning is being introduced as a fundamental part of the learning experience of students in tertiary education. It is not restricted only to those universities with a mission of distance education; its affordances are systematically integrated into the learning experience of students at predominantly campus-based universities (Ellis, Ginns and Piggott 2009). DUT, as a university of technology (UOT), along with many other universities throughout South Africa has begun to embrace these benefits by developing e-learning as an integrated tool into teaching and learning. Further evidence of this widespread uptake of e-learning can be seen in South

African research journals and on websites of international and national agencies to direct learning and teaching in higher education.

The rapid advancement of information and communication technologies (ICT), Internet technologies and web-based applications began an unparalleled transformation in universities around the world (Chau and Cheng 2010). E-learning is changing the way of implementing the activities of teaching and learning that is occurring on university campuses (Ahmed 2010). However, less systematic and continuous research into e-learning practices over the last two decades has resulted in comparatively few evidence-based e-learning research that specifically focuses on the key aspects affecting university students' attitudes and their experiences of using an e-learning tool (Ellis *et al*. 2009). Goodyear, Jones, Asensio, Hodgson and Steeples (2005) also note that e-learning research is relatively scarce regarding specific explorations on how key aspects of e-learning are associated with the experience of the students' face-to-face learning. Furthermore, there is relatively little research on how online and face-to-face contexts play a relational role in helping students achieve their learning objectives (Ellis *et al.* 2009).

Increased use of e-learning to support the face-to-face experiences of students assumes that there is an understanding of what the key aspects of e-learning are, how they are internally and externally related to each other, and how e-learning relates to the key aspects of the face to face experience. Without these fundamental understandings, the quality of experience for students exposed to both online education and face-to-face experiences is likely to be put at risk. Ellis *et al.* (2009) argue that there is a need for more evidence-based research to inform the ways we think about the creation and design of this type of the e-learning experience so that the quality of learning is likely to be higher.

Research by Prosser and Trigwell (1999) into the process product model of students' experiences of learning in higher education has focused on student characteristics, such as the perceptions of learning with which they enter courses; course context, such as teaching methods; learning context, such as student perceptions of the quality of teaching and quantity of work; student approaches to

learning, what they do and why they approach learning in particular ways; and the quality of their learning outcomes. Additionally, research by Martin, Prosser, Trigwell, Ramsden and Benjamin (2002) has shown that variations in the way students approach their learning is related to how they perceive their context, what they think they are learning and the quality of their learning outcomes. This study adds to this research by Ellis *et al.* (2009) considering associations between student approaches to learning and their experience of e-learning by exploring students' attitudes towards using an e-learning tool and their specific ability to integrate their theoretical taxation knowledge into a working practice using a simulated e-filing tool, Tax-Tim. The theoretical framework used for this study is the Technology Acceptance Model (TAM) (Davis 1989). The constructs in the TAM are used as the basis for the research objectives and questions. The constructs examined in this study are computer self-efficacy (CSE), perceived usefulness (PU), perceived ease of use (PEOU), attitude towards using (ATU) and behavioural intention (BI) to use.

1.4 The problem area and research aim

1.4.1 *Problem area*

Students' perceptions of e-learning are critical to incorporating and aligning e-learning into their teaching and learning outcomes. The study investigates whether the use of an e-learning tool, Tax-Tim, as a teaching and learning method, may affect their ability to integrate their theory into application and if this may lead to academic improvement.

1.4.2 *Research aim and objectives*

The aim of the study is to determine students' perceptions towards using an e-learning tool, Tax Tim, as a teaching and learning method in the Taxation 1 syllabus. To achieve the above aim, the following three research objectives are used in this study of students' perceptions:

i. To determine students' perceptions towards using e-learning tool, Tax-Tim in taxation syllabus using the TAM of Davis (1989);

ii. To determine the extent of effectiveness of using Tax-Tim as a case study e-learning tool; and
iii. To determine the benefits and challenges of using Tax-Tim.

1.4.3 *Research questions*

To achieve the research objectives, the following research questions are outlined:

(1a) What are students' perceptions towards perceived usefulness, perceived ease of use, attitude towards using, and behavioural intention to use, used in the TAM?

(1b) Are students' perceptions of the constructs in the TAM positive predictors of students' behavioural intention to use technology?

(2) What are students' perceptions of the effectiveness of Tax-Tim as an e-learning tool? and

(3) What do students perceive to be the main benefits and challenges of using Tax-Tim?

1.5 Significance of the study

The study addresses the gap students may have between theory and application using an e-filing system. The study provides guidance to developing an e-learning curriculum that is practically focused, enriches students' learning environment, and develops critical thinkers. The study could also be used as a basis to develop an e-filing short-course offered to individuals who want to learn how to submit their tax returns electronically.

The progressive advancement of technology towards e-commerce has created a shift in the way business environments operate and communicate. The annually changing taxation rates, together with the new technology advancements of SARS e-filing, is evidence of increasing changes in business environments. The 21st century students have been born into a world of technological advancement in the social media segment. Therefore, students have a greater understanding of and are more adapted to using technology as compared to the previous generation (Ellis *et*

al. 2009). However, there is a divide between using technology in the context of social media versus the educational context. Notably, there are many universities throughout South Africa implementing e-learning as part of their teaching and learning tools, e.g. Moodle, Blackboard and Tax-Tim, to bridge the gap towards focusing on educational technology (Ellis *et al*. 2009). These factors have led to the taxation syllabus offered at DUT in the Department of Auditing and Taxation being developed to include e-learning as part of their teaching and learning practices.

DUT has embraced e-learning by implementing the Blackboard platform, called *"learn-zone"*. The Auditing and Taxation Department at DUT has adopted e-learning by using a widely accepted e-filing simulator, Tax-Tim, and added it to their taxation syllabus outcomes of integrating theoretically aspects learned into application assessment. The innovative e-learning tool, Tax-Tim, is used by many universities, throughout South Africa, for example the University of Cape Town (UCT), the University of Johannesburg (UJ), the University of KwaZulu-Natal (UKZN), and the University of Western Cape (UWC) (Bandwidthblog 2013). The Tax-Tim tool also includes a "Student Assist" programme to assist students to learn the compliance of tax through an on-line assessment, which simulates the realistic process of SARS' e-filing programme.

1.6 Delimitations of the study

The research is limited to only students who are studying towards a Commerce Diploma and are registered for Taxation 1 at DUT. Therefore, the research is restricted geographically to the region of Durban.

1.7 Assumptions of the study

- All the Taxation 1 lecturers' delivery of the content are aligned with the module descriptor objectives and learning outcomes of the course.
- The Tax-Tim assessment was developed by an independent Tax-Tim individual with the necessary knowledge of the DUT syllabus.

- Students are attending lectures to gain the necessary knowledge required to complete the assessment effectively and express their perspectives honestly.

1.8 Definition of key terms

The study involved a variety of key concepts. The way the terms are used in the study is shown below:

Behavioural intention: refers to an individual's intention to use a specific information system for some purpose either presently of sometime in the future (Carter, Schaupp and McBride 2011).

Computer self-efficacy: refers to the judgement of one's ability to use a computer and information system (Wang and Newlin 2002).

Perceived ease of use: the degree to which an individual believes that using a particular information system will be free of effort (Davis 1989).

Perceived usefulness: the degree to which a person believes that using a particular information system would enhance his or her performance (Davis 1989).

E-learning: a type of learning supported by ICT, namely internet, intranets, extranets or many others, to improve the quality of teaching and learning.

Teaching and learning: "Teaching is undertaking certain ethical tasks or activities with the intention to induce learning" (Berg and Lune 2004).

Taxation: Defined as "a compulsory unrequited payment to the government" (Organisation for Economic Co-operation and Development 2005).

Perception: "The process by which people sense, select, and interpret stimuli" (Lumsden, Lumsden and Wiethoff 2009).

1.9 Summary of the dissertation

This study comprises six chapters, which are summarised below.

Chapter one – Introduction

Chapter one provides introduction of the context, the problem statement, the rationale, the aim and objectives of the study, the critical questions and definition of relevant terms.

Chapter two – Literature review

This chapter discusses the background to the study and relevant completed studies in the field of study.

Chapter three – Theoretical framework and development of the hypotheses

This chapter presents the theoretical framework and development of hypotheses to be used to conduct the study.

Chapter four – Research methodology

This chapter discusses the research design applied in the study. It provides the rationale used for the research process and collection of data process. The quality and rigour of the study together with the ethical considerations involved in survey research are described.

Chapter five – Presentation and discussion of findings

This chapter summarises the findings based on the research questions. The data is analysed and interpreted, and the results are presented in the form of tables and figures where applicable.

Chapter six – Conclusions and further research

This chapter presents the conclusions relating to the research objectives, the recommendations and areas for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter defines and discusses the background to taxation in South Africa, specifically the taxation system of individuals and the means of collection of taxation of salaried individuals. The chapter explains the significance of the study by breaking down the title into key words which are discussed. An examination of the taxation syllabus of individuals is also presented to link the research to the practice of the e-filing system, Tax-Tim.

2.2 Background to taxation in South Africa

2.2.1 *South African Revenue Service (SARS)*

Albert Einstein once said that *"the hardest thing in the world to understand is income tax." "Nevertheless, it is vital that income tax is understood as it forms a critical element of how a government affects the lives of its citizens."*

Taxation allows the South African government to collect funds to deliver many services that the private sector is not capable of delivering. Government spending is funded primarily from levying taxes on the members of the public and companies and is facilitated by SARS. A combination of direct and indirect taxes are used (De Hart, Smulders, Hamel and Steenkamp 2015), the former payable as income tax, employees' tax and provisional tax (SARS 2010), and the latter as payments on goods bought by customers, for example value added tax (VAT) and customs and duties (SARS 2010).

The South African taxation system is based on residence taxation. Prior to 1 January 2001, South African taxpayers were taxed on the source basis of taxation. The current residence taxation system requires that South Africans who are residents in South Africa are subject to tax in terms of the Income Tax Act on all the income that they earn, which includes their world-wide income (De Hart *et al.* 2015).

Established by the Income Tax Act of 1962, SARS facilitates the collection of tax revenue and ensures compliance with the Income Tax Act of 1962. SARS is an independent state parastatal. The main function of SARS is the collection and administration of all national taxes, duties and levies required by the law according to the Income Tax Act 58 of 1962 (Arcangeli 2014). The collection and administration of taxes and to encourage taxpayers to comply nationally is a demanding task for SARS. SARS has discovered through their experiences that the most effective way to get South Africans to comply and use their services was to become innovators (Arcangeli 2014). Furthermore, SARS' vision is to become an innovative revenue and customs organisation that will enhance economic growth and social development (Oberholzer and Nel 2006).

SARS received 2.3 million tax returns during the 2012-2013 tax season, which commences in July each year. This number of returns exceeded SARS' expectation from the previous tax season (2011-2012), when only 1.5 million tax returns were submitted. The average rate of submission per day since 1 July 2012 is over 40 300 (South African Revenue Services 2014). During the 2013 tax season, this number increased to 3.8 million and further, during the 2014 tax season to 5.32 million. The unintended consequence has been that queues at branches were much longer in 2014. The increase in submissions is obvious when compared to more recent dates.

Across South Africa, SARS' branch staff, on average, assist more than 20 000 taxpayers per day. Statistics indicated that branches were seeing 55% more taxpayers in the 2014 tax seasons than the same period in the previous year. The subsequent pressure on SARS branches led to queuing times which are on average between 60 and 90 minutes, although once members of the public are with a consultant, it takes only 10-12 minutes to capture a tax return (South African Revenue Services 2014).

Taxpayers of South Africa have always dreaded the submission of their personal tax returns due to the paperwork and queues associated with the process. This lengthy process discouraged taxpayers from the timely submission of their personal income tax returns (South African Revenue Services 2014). The beginning of democracy in South Africa has seen SARS develop and innovate the taxation

collection system making it easier for taxpayers to honour their obligation through various innovations, such as e-filing. Few, if any, would disagree that the introduction of e-filing has changed the way South Africans interact with the revenue service (South African Revenue Services 2014).

The South African Government is addressing its role in technology through the establishment of electronic Government (e-government) technology, which is discussed next.

2.2.2 *E-government*

E-government refers to the use of ICT to provide services to citizens, businesses and other arms of government (Rorissa and Demissie 2010). Rorissa and Demissie (2010) noted that many governments throughout Africa have some sort of web existence. Furthermore, there has been an increased growth in the quantity of projects directed at the development and improvement of delivery of services to members of the public other than through a mere static web presence.

The number of people in South Africa using ICT has grown significantly over the past decade. According to Internet World Statistics (2015) on South African internet usage, there were a total of 23,655,690 Internet users at December 2013, which is 48.9% of the population, out of a total population of 48,375,645 in 2014. The statistics reveal that the growth rate of South African internet users is on average 14% over the 10 years (2004-2014).

World Wide Worx (2014) revealed that the number of broadband subscriptions grew from 3,6 million at the end of 2010 to an expected 8,2 million by the end of 2012, a 128% growth. The report further shows that many users have multiple forms of broadband access, such as an ADSL account as well as 3G, while many switch between operators to take advantage of promotional offers. As a result, the number of individual broadband users is substantially lower, but has also more than doubled in the two years ending 2012. The number of broadband users has grown from 2,8 million to 6,7 million, a 140% growth in 2011-2012.

The dissemination of the internet amongst the population of South Africa has not only transformed the way South Africans communicate and share information but has also resulted in rising comfort and familiarity with the use of electronic technologies in many variations, for example transacting with businesses via e-commerce. The increase of broadband and internet usage throughout South Africa has contributed to businesses' success in connecting with their customers. The usage of internet technologies in business environment has brought about an improved appreciation of the prospective use of ICT in order to encourage access and as well as efficiency and effectiveness in the delivery of government services to the public (Rorissa and Demissie 2010) and has facilitated the interaction of the public with government.

The South African government has over the years acknowledged the benefits associated with e-government. During 2001 the Department of Public Service and Administration on behalf of the Government of South Africa, through consultation with the private sector and ordinary residents, developed the e-policy document entitled *Electronic Government, the Digital Future: A Public Service IT Policy Framework* (Rorissa and Demissie 2010).

In the document, the government outlined three major issues that e-government initiatives must address, namely:

- E-governance: the application of information technology (IT) to intra-governmental operations including interaction between central, provincial and local government (government to government).

- E-services: the application of IT to transform the delivery of public services from standing in line to online and in an interactive mode (government to citizens). The services affected include general information and regulations, education and culture, health consulting and telemedicine, benefits, taxation etc.

- E-business: the application of IT to operations performed by government in the manner of business transactions and other contractual relations (government to

business) for example in procurement of goods and services (Rorissa and Demissie 2010).

One well-known example of e-services by the South African Government is the e-filing system. This is discussed next.

2.2.3 *E-filing system*

As discussed in the section on e-government, one of the initiatives of the South African government by instituting the e-government policy is to improve services through offering on-line services, i.e. e-services. One such e-service is SARS' e-filing services.

SARS first launched e-filing services during 2003 to replace the manual system of filling in a tax return with an electronic system. Taxpayers and tax practitioners would first have to register on the SARS e-filing website and they would then be able to interact by submitting tax returns, declarations and payments in respect of taxes, duties, levies and contributions and various other communications (SARS 2010). The e-filing service is on a par with international standards and is being comparable with services offered in the United States of America (USA), Australia, Singapore, Ireland, Chile and France (Rorissa and Demissie 2010).

According to the SARS' (2014) annual report, "a total of 51,396 tax returns were submitted using e-filing in its first year of running". This increased in the 2nd year to "122,219, representing an annual growth of 138%". Statistics for the 2009/2010 financial year shows that "the number of returns submitted using e-filing reached 11,050,530 a growth of 82.60 % from the previous year" (SARS 2010). Statistics further shows that "for the 2009/2010 financial year 95% of all income tax returns were submitted using e-filing" (SARS 2010). Furthermore, SARS (2010) reported that "the average turnaround time in working days for processing of income tax stood at 1.93 days in the 2009/2010 financial year compared to 18.94 days in the 2008/2009 financial year". These statistics display good demonstration of the success of the e-filing project. This is further supported by the conclusions of a paper by Mpinganjira (2011) who analysed the e-filing system by SARS as an example of a successful e-government project in Africa. The results of the study

identified success factors of the SARS' e-filing system, recommended to the e-government initiatives in Africa.

A major advantage of e-filing system is that a taxpayer can interact with SARS through the free and secure e-filing system at their convenience. Taxpayers will not be waiting in long queues, nor having to finding parking or having to worry about office hours at the various SARS' branches nationally. A registered e-filer enjoys the benefits of submitting returns, viewing their tax status and making payments to SARS electronically 24 hours a day.

E-filers are also given more time to make their submissions and payments as their submissions are processed quicker than manual submissions. Additionally, e-filers have a full history of all submissions, payments and electronic correspondence available to them at the click of a button through the innovative reporting tool. E-filers can also receive SMS and email notifications to remind them when submissions are due. The simplicity of the process results in fewer errors and creates a quicker processing cycle for individuals and businesses.

2.2.4 *Summary of background*

This section discussed the background to income tax in South Africa. The e-government initiative, e-filing, was defined and discussed. The relevance of this background discussion was to establish the importance of the SARS' e-filing system.

2.3 Teaching and learning in an e-learning environment

The following sections of this chapter focus on explaining the context of teaching and learning in an e-learning environment and its relevance for the study. This section discusses students, perception, e-learning and Tax-Tim in the context of teaching and learning. Furthermore, the teaching and learning approaches are explained using the taxation syllabus of DUT and their place in professional taxation education.

2.3.1 *Students*

Students are the primary participants in any learning environment. The dominant learning environment today is still the classroom. Students are generally comfortable with the classroom environment. The noticeable difference and gap between the classroom and e-learning is the use of technology and the shift of control and responsibility to the learners that is promoted. Maturity and motivation have been linked to academic success in e-learning (Leidner and Jarvenpaa 1995). For example, effective learning in an electronic platform, when compared to the traditional classrooms, has been observed for mature and motivated learners while less motivated and mature students tend to suffer (Hiltz 1993). This may be result of the shift of responsibility to the student in an e-learning context compared to traditional classroom. The high levels of flexibility in terms of time, place, and space offered by e-learning may be a further source of motivation for mature non-traditional students who have work or family constraints.

E-learning platforms require all participants to interact extensively with computers. In such an e-learning environment, individuals who are comfortable with technology and who have positive attitudes toward it should thrive due to low levels of anxiety and likely excitement with the learning environment (Jonassen 1985). Previous experience with e-learning platforms may also be an antecedent of success. As students' experience with e-learning platforms increases, they should develop and fine-tune learning strategies (Jonassen 1985) that are appropriate for this environment. Moreover, if the experience has been positive, learners' positive attitudes toward technology-mediated learning environments should be strengthened and their anxiety reduced. Individual beliefs about the nature of learning and the structure of knowledge may also influence students' ability to learn effectively in a e-learning platform (Jacobson and Spiro 1995). If a student's conscious or unconscious epistemic beliefs do not fit a given e-learning platform, their failure to learn in that environment can be anticipated.

The students in the study are second year students studying towards a National Diploma in Taxation, Internal Auditing, Accounting and Cost and Management

Accounting. Thereby, they are more mature than first year students engaging in the e-learning platform.

2.3.2 ***Perception***

Lumsden *et al*. (2009) define perception as: “The process by which people sense, select, and interpret stimuli” and Allport (1955) states perceptions are “the way things look to us or the way they sound, feel, taste or smell”.

The Oxford Illustrated Dictionary (Baldick 2008) defines “perception” as “Act, faculty, of perceiving; intuitive recognition action by which the mind refers its sensations to external object as cause (Law) Collection”.

Webster’s Comprehensive Dictionary (International edition) expands on this as “The act, power, process, or product of perceiving; knowledge through the senses of the existence and properties of matter and the external world” (Morris and Voorhees 1998).

Perceptions of individuals refer to their awareness of the objects or conditions around them and depend largely on the impressions they make upon an individual’s senses. Rensburg and de Beer (2003) describes perception as “the first kind of knowledge we need about the world – particularly the business world”. “In order to communicate, we must be able to assign meaning to the world”. “We must know how to ‘see’ it”.

Therefore, the concept of perception and the way an individual perceives knowledge is based on the communication of such, and it is important to understand the power of perception. The importance is related to this study as it concerns students’ perceptions of their knowledge transfer activity using new technology that is relevant to the employment world they are entering.

The process of communicative competence is one which involves interpretation, which is the ability to label, organise and interpret conditions surrounding interactions. Hawkins, Best and Coney (1995) describe information processing as “a series of activities by which stimuli are perceived, transformed into information

and stored." "The four major steps in information processing are exposure, attention, interpretation and memory, of which the first three constitute perception".

The perception process occurs in three phases: selection, organisation and interpretation. The three phases take place relatively unconsciously and almost simultaneously (Gibson and Hodgetts 1986; Hawkins *et al.* 1995). Perception can therefore be described as a process whereby people acquire information about their environment through their five senses: hearing, sight, touch, taste and smell. People use these senses to gather information about physical objects, people and events. People then organise and interpret the information to explain what is happening around them (Gibson and Hodgetts 1986; Rensburg and de Beer 2003). People perceive through a frame of reference, a set of interlocking facts, ideas, beliefs, values and attitudes (Gibson and Hodgetts 1986; Rensburg and de Beer 2003). This frame of reference provides the basis for their understanding of people, events and experiences because it filters their perceptions. As people take in new information, they evaluate it in terms of their frame of reference and either reject it because it does not fit their frame of reference; or they make use of it to support or expand their existing frame of reference (Gibson and Hodgetts 1986; Rensburg and de Beer 2003).

To determine and evaluate the value-added benefits of students using an e-learning tool, Tax-Tim, to integrate their theory into practical application, this research needs to evaluate students' perceptions of e-learning.

Perception is thus not merely a physical or mechanical act; people play an active role in the process (Lumsden, Lumsden and Wiethoff 2009). A feature of perception is that it is a personal process that provides people with a unique view of the world (Hawkins, Best and Coney 1995). It does not, however, always provide an accurate representation of the world. People's perceptions are frequently inaccurate, and their understanding of many situations can often be distorted. In fact, some people distort the information that comes to them through their senses to such an extent that their perceptions of events around them have little resemblance to reality.

The way in which students perceive a teaching and e-learning tool, through processing their contact, attention, interpretation will determine whether they will commit such knowledge to use of e-learning tool.

2.3.3 *E-learning*

E-learning can be defined as the use of internet technologies to deliver a broad variety of solutions that can be developed to enhance knowledge and performance (Selim 2007). Furthermore, Selim (2007) extends this definition of e-learning as "the delivery of course content via electronic media, such as internet, intranet, extranet, satellite broadcast, audio/video tape, interactive TV and CD-ROMs." In many technology studies, e-learning is defined as a type of learning supported by ICT, namely internet, intranets, extranets or many others, to improve the quality of teaching and learning.

E-learning is transforming methodologies of teaching and learning delivery on university campuses (Alexander 2001; Ahmed 2010; Liu and Hwang 2010; Paechter *et al*. 2010). This is attributed to increased technology advancements and the development of ICT. Furthermore, this has led to significant changes in the way university education is being provided throughout the world (Chen, Hwang and Wang 2012) and more so in the developed countries (Macharia and Nyakwende 2010). Whilst universities in developed countries have made great advances in addressing issues of access, cost of higher education and quality through e-learning, developing countries, especially on the African continent, are still grappling with these issues in the 21st century (Macharia and Nyakwende 2009). Although the uptake of e-learning in Africa is slow compared to their western counterparts, the last decade has witnessed some university administrators initiate concentrated efforts to develop and implement e-learning strategies in order to catch up with their counterparts in developed countries (Ellis *et al.* 2009). DUT (2015) initiated e-learning as a driver to transform the institutional culture towards e-learning and developing an e-learning policy and implementation plan. This research adds value in supporting the e-learning plan by gaining an insight into students' perceptions of e-learning tool, Tax-Tim as a teaching and learning method in the Taxation 1 syllabus.

E-learning is divided into different types ranging from web supplement courses, through web-dependent to mixed mode courses and finally online course (OECD 2005).

Rosenberg (2001) proposed three fundamental criteria for e-learning as follows:

i. E-learning is networked, which makes it capable of instant updating, storage/retrieval, distribution, and sharing of the instruction of information;

ii. It is delivered to the end-user via a computer using standard internet technology; and

iii. It is focused on the broadest view of learning that goes beyond the traditional paradigms of training.

For this current research, e-learning is specific to one on-line system, Tax-Tim. The Tax-Tim platform used is an independent hosted on-line student assistant classroom session, which is used as a simulation of SARS' e-filing process.

Researchers have discussed that for the learning process to be established in quality frameworks, it is essential to have knowledge that is useable, robust and appropriate in engaging tasks and conditions that are realistic (Collins 1996; Vosniadou 1996). From an activity theory point of view, Jonassen (2002) points out that, "meaningful e-learning is an active, intentional, conscious, constructive, and socially mediated practice that includes reciprocal intention-action-reflection activities." In the context of e-learning, the Jonassen (2002) recommendations would need to be considered and applied.

In e-learning systems, learning activities are based on learner self-sufficiency and interactive learning actions and learning instruction is based on multiple media and well-structured formats (Jonassen 2002). Therefore, the research seeks to discover the perceptions of students of using the e-learning tool, Tax-Tim, to incorporate and integrate their knowledge gained from face-to-face lecturing into a meaningful teaching and learning realistic simulation of submitting their tax return.

E-learning is being integrated as a fundamental part of the student learning experience in tertiary education. This is seen not only in distance education but in many campus-based universities where its affordances are being systematically integrated into the student learning experience.

Although over the last two decades there has been recognised sustained research interest into e-learning in the student experience in higher education (Goodyear *et al.* 2005), there is a lack of more concentrated investigations into how significant characteristics of e-learning are associated with students' face-to-face experience of learning. Additionally, there is little research into how both online and face-to-face contexts play a rational role in helping students achieve their learning outcomes. A growing use of e-learning to support face-to-face experiences assumes that there is an understanding of what the significant characteristics of e-learning are, how they are internally constituted and externally associated with each other and how they are related to key aspects of the face-to-face experience (Goodyear *et al.* 2005). Without these fundamental understandings, the quality of the students' experience of learning comprising online and face-to-face experiences are likely to be put at risk. There exists a need for more evidence-based research to inform the ways university academics and administrators of e-learning think about creating and designing e-learning experiences, thus enhancing the quality of teaching and learning (Roca and Gagné 2008; Sun*,* Tsai, Finger, Chen, and Yeh 2008; Ellis *et al.* 2009).

E-learning is significantly influencing the delivery methods in higher education. Although, there has been a growth in popularity of e-learning, there have been concerns about the quality of the e-learning (Diaz 2002 ; Islam 2002).

An increasing body of research has demonstrated that the thrust of the forces of globalisation of higher education has paved the way for the emergence of virtual education (Knight and Yorke 2002). It was also observed by researchers that with the advent of the Internet technology, integration of the IT tools into the higher education stream has become an easy task (Altbach, Reisberg and Rumbley 2010). In this context, e-learning modes have emerged as a major higher education option to the student community in South Africa.

Many studies on the subject of e-learning have recognised both favourable and unfavourable perceptions by students on e-learning (Alexander 2001; Rosenberg 2001; Keller and Cernerud 2002; Chiu, Hsu, Sun, Lin, and Sun 2005; Roca, Chiu and Martínez 2006; Selim 2007; Sun *et al.* 2008; Ellis *et al.* 2009; Paechter, Maier and Macher 2010; Rhema 2013; Arkorful and Abaidoo 2015). Furthermore, studies (Collins 1996; Alexander 2001; Rosenberg 2001; Jones and Abraham 2007; Mahdizadeh and Mulder 2008; Macharia and Nyakwende 2010) have indicated that the instructor's interaction with students has a significant impact on the student's perceptions of e-learning. Swan, Shea, Fredericksen, Pickett, and Pelz (2000) discovered that reliability in course design, interaction with course instructors, and active discussion significantly influenced the success of online learning. Similarly, Jiang and Ting (1998) also found that the degree as instructional emphasis on learning through interaction significantly influenced students' perceptions of learning. Therefore, research studies into the quality issues surrounding e-learning delivery are gaining importance.

DUT, one of 22 universities and one of five universities of technology in South Africa, has been developing and implementing strategies towards fostering an e-learning environment which will improve students' experiences and the incorporation of an innovative teaching and learning approach (DUT 2015). This aims to provide students with the most competitive advantage in the working environment.

However, although the DUT online systems have made some advances with respect to payment of fees, registration of students online and posting of university events, little progress has been made with respect to incorporating e-learning into quality blended teaching and learning practice (DUT 2015). At most, the current Blackboard systems in the Faculty of Accounting and Informatics are being used as a repository for learning material except for a few courses that administer assessments and tutorials through their Blackboard system (DUT 2015).

Macharia and Nyakwende (2010) noted in a survey by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in Africa that e-learning is still very much in its infancy across most of the continent. However, there

is considerable enthusiasm among DUT administrators to fully develop e-learning systems into a quality blended teaching and learning assistant. Furthermore, studies by Macharia and Nyakwende (2010), Paechter *et al*. (2010), Chen, Hwang and Wang (2012) and Tagoe (2012) supported the rationale that there is a much needed development of e-learning systems on university campuses and an urgent need to increase understanding and knowledge on various systems to aid in the successful adoption and diffusion of e-learning systems.

Against this background, the research proposes to fill the gap in e-learning understanding using students' perceptions. This will aid in creating a value added blended e-learning taxation course that achieves quality, creates an integration of face-to-face teaching with an on-line tool and supports aligning DUT to its e-learning policies.

2.3.4 ***Tax-Tim***

Tax-Tim, a new online virtual tax assistant, offers businesses of all sizes an efficient way to assist employees with completing their tax returns easily and helping them interact with SARS (Bandwidthblog 2013).

The Tax-Tim system is easy to use and asks simple questions in basic language. By answering the simple questions, the system helps the taxpayer to complete their tax return. Tax-Tim then provides step-by-step assistance with submitting the return to SARS via e-filing, in person or through their tax practitioner (Bandwidthblog 2013).

Tax-Tim has also developed an employee assistant service that allows employers help employees become tax compliant. Employees register on the Tax-Tim site and receive prepaid use of the service, all year-round email/SMS notifications to ensure compliance and timely filing, a financial welfare program comprising tax tips and a financial advice newsletter, a vehicle logbook mobi-site for recording work trips on a mobile phone, plus a Tax-Tim introduction seminar followed up with assistance on their online helpdesk (Bandwidthblog 2013).

Tax-Tim is the innovative creation by two South African entrepreneurs, Marc Sevitz, a qualified CA and tax specialist, and Evan Robinson, an inventor and software developer, who after being selected to join the national Google Umbono programme in 2012, created a fun, easy and fast online tax return solution for young professionals (Bandwidthblog 2013).

In an interview, Sevitz and Robinson, the founders of Tax-Tim said (Bandwidthblog 2013):

"We understand the hassle and grief that comes with completing your tax returns, as well as the necessity and cost too. Doing taxes is now as easy as having a conversation. Tax-Tim is a fast, friendly and simple way of filing your tax returns at minimal cost and in record time."

"Tax-Tim helps you every step of the way: registering for a tax number, signing up for e-Filing, completing your return correctly and finally submitting to SARS - confident in the knowledge that you have done things right. We offer a professional service for all individual taxpayers regardless of income level".

During 2013, Tax-Tim launched a Student Assist programme to assist students at some of South Africa's top universities to learn about tax compliance. This started as an experiment separate from their employee services and over the past two years has grown into a valuable e-learning platform for thousands of commerce students at some of the South Africa's top educational institutions (Bandwidthblog 2013).

Tax-Tim first approached UCT during 2012 to offer its students assistance with learning how to complete income tax returns.

Marc Sevitz said that (Bandwidthblog 2013):

"When I was a student at university, we were never taught how to complete tax returns, only how to calculate the taxes owing",

“It was only when I began working that I first encountered the process and had to figure it out for myself.” “I feel this should be an integral part of the tax curriculum at a university level”.

Their prototype provided students with an interactive, online method of learning how to complete ITR12, previously IT12 income tax returns, while also giving them exposure to the kinds of questions tax professionals should be asking their clients when assisting them with their tax returns (Bandwidthblog 2013). Students are presented with a case-study representing an ordinary taxpayer along with copies of real-life supporting documents. Following the Tax-Tim dialogue on screen to completion, students then identify how to use this information and apply it to a tax return correctly.

With a positive response from students and their lecturers at UCT, soon other institutions began to hear about the service and wanted to provide it to their students, leading Tax-Tim to create a formal product called Student Assist. Tax-Tim recently expanded the product to include in-depth testing of the calculations for taxable income, provisional tax and VAT.

“I think part of the appeal of online learning, apart from the convenience for students, is that lecturers avoid the drudgery of marking, achieved here instantly and automatically, and can instead focus on addressing their students’ difficulties by viewing detailed feedback on what material they are struggling with,” says Evan Robinson, Tax-Tim co-founder.

Apart from offering its service to individuals and corporates, Tax-Tim also provides an educational module for tax students all over South Africa. The service is now in use by eight top South African institutions including the University of Cape Town (UCT), University of Johannesburg (UJ), DUT, the University of KwaZulu-Natal (UKZN) and University of the Western Cape (UWC), University of Pretoria (UP) and University of the Witwatersrand (WITS).

By providing students with a simulated case study containing real-life documents and tax related information, they learn first-hand what questions to ask, what

information to collect and most importantly, how to complete an individual income tax return later in their professional careers.

According to Tax-Tim, students at UCT, WITS, UJ, UKZN, UP and UWC enjoy the following benefits:

- Work is completed online or via mobile phone.
- Students see the results of their work (a completed return) instantly.
- Marks are calculated instantly and automatically, ready for download.
- Students gain computer skills and work with real documents.
- Students learn what questions to ask their future clients.
- Detailed post-analysis shows lecturers which areas need reinforcement.

There exists little formal research evaluating students' perceptions of using e-learning as an assessment tool to test their ability to digest the theoretical work and apply it to a practical e-learning system, Tax-Tim. This study provides some insights to fill that gap.

2.3.5 *Teaching and learning approaches*

The Taxation 1 course at DUT is traditionally taught using the deductive teaching and learning approach (DUT 2015). The deductive approach involves the lecturer teaching the students the relevant theoretical aspects of the course, moving onto the textbook exercises and eventually to real-world applications. The real-world applications of the Taxation 1 course are the completion and calculation of taxes, using the ITR12 form involving students as either taxpayers or practitioners. Often the only motivation for a student studying Taxation 1 course, beyond assessment marks, is the promise that it will be important later in the curriculum of Taxation 2 modules 1 and 2, or in their careers in the commerce field. Failure to connect the Taxation 1 course content to real world applications has been contributing to students' disinterest. Studies (Oberholzer 2005; Oberholzer and Stack 2009) on the

perceptions of taxpayers towards complying with tax legislation have shown that taxpayers are disinterested in paying their taxes regularly or not at all.

An alternative way to motivate the students' learning process is inductive learning, in which the lecturer begins by presenting students with a specific challenge, for example experimental data to interpret, a case study to analyse, or a complex real-world problem to solve (Oberholzer and Stack 2009). Students grappling with these challenges quickly recognize the need for facts, skills, and conceptual understanding, at which point the teacher provides instruction or helps students learn on their own.

Bransford, Brown and Cocking's (2000) survey on extensive neurological and psychological research provides strong support for inductive teaching methods. The literature also demonstrates that inductive methods encourage students to adopt a deep approach to learning (Norman and Schmidt 1992; Ramsden 2003) and that the challenges provided by inductive methods serve as precursors to intellectual development (Felder and Brent 2004).

There are various methods of inductive teaching and learning, namely discovery learning, inquiry-based learning, problem-based learning, project-based learning, case-based teaching and just-in-time teaching. Prince and Felder (2006) provide an extensive analysis of the conceptual frameworks and research bases for inductive teaching, review applications of inductive methods in engineering education, and state the roles of other student-centred approaches, such as active and cooperative learning in inductive teaching. Including a real-life simulation using Tax-Tim is a partial response towards inductive teaching.

2.3.6 *The Taxation syllabus*

Numerous articles have been published internationally concerning the inadequacies of the traditional tax curriculum (Schwartz 1987). In particular it has been noted that the tax curriculum is too technically focused with students not being able to cope with the changing business environment and the needs of the accounting profession (Tan and Veal 2005).

Albrecht and Sack (2001) mention three major developments that have impacted on the business environment, namely technological advances, globalisation and investor power in the capital markets. Technology has made the preparation and dissemination of information cheap and easily accessible; globalisation has made it possible for companies to buy products as easily as buying locally; and concentration of investor power has raised the competitive bar and shortened the time over which success is measured (Albrecht and Sack 2001).

These developments have led to the tax section of the accounting profession extending its role to interpretation and communication of information, rather than only objective oversight of business information. This, therefore, impacts the education and training of future tax specialists and thus educators are forced to re-evaluate the curricula that are being taught and how it is taught at universities (Koornhof and Lubbe 2008).

Abraham (2006) commented that for graduates to become worthy employees, effective managers and dynamic leaders in the changing business and professional environment, it is the responsibility of educators to provide them with a strong foundation, both technically and emotionally.

Therefore, it is necessary that the topics specifically included in the syllabus be constantly reviewed as a result of the changes taking place (Boley and Wilkie 1986; Rebele, Stout and Hassell 1991; Stara, Shoemaker and Brown 1991; Ott and Donnelly 2000; Koornhof and Lubbe 2008).

In South Africa, the tax syllabus, which forms part of a recognised tax professional programme, must be followed by all Department of Higher Education (DHET) accredited universities and is prescribed by South Africa institute of Tax Professionals (SAIT). Coetzee and Oberholzer (2009) undertook an exploratory study by comparing the tax knowledge of trainee accountants with employers' needs to determine the important tax topics that should be taught at universities in South Africa. The results indicated that universities did not equip first-year trainees sufficiently with the skills to be successful in practice, specifically regarding professional communication and exposure to computer software packages.

At DUT in the Faculty of Accounting and informatics, the various national diplomas all include Taxation 1 in their undergraduate diplomas, which are serviced by the Department of Auditing and Taxation. A comparison between the Taxation 1 syllabus, learning outcomes and assessment criteria as per the module descriptor and Tax-Tim are presented in Table 2.1.

Table 2.1: Comparison between Taxation 1 syllabus and Tax-Tim			
	Learning outcomes	**Assessment criteria**	**Tax-Tim**
A	Determine the components of gross income.	Components of the gross income definition are identified and applied to the normal income tax calculation for individuals.	Assessed in case study.
B	Identify and apply all the special inclusions for individuals.	Special inclusions to gross income definition are identified and applied to the normal income tax calculation for an individual.	Assessed in case study.
C	Determine which incomes are exempt for individuals	Exempt income for natural persons are identified and applied to the normal income tax calculation for an individual.	Assessed in case study.
D	Apply the general deduction formula for individuals.	Components of the general deduction formula are identified and applied to the normal income tax calculation for individual.	Assessed in case study.
E	Calculate the value of fringe benefits received for an individual.	Fringe benefits that are applied: • Travel allowance • Accommodation – Residential – Holiday • Right of use of motor vehicle • Medical aid	Assessed in case study.

Table 2.1 depicts the specific topics in the Taxation 1 syllabus which are aligned to the Tax-Tim computer simulation. The theoretical topics of the Taxation 1 syllabus of an individual taxpayer are important to real-life taxpayers and in practice.

2.3.7 ***Professional taxation education***

It has become necessary for tax practitioners who advise taxpayers to undertake specialised education and training. In training future tax practitioners, universities play a vital role in assisting employers who offer these specialised tax services. Various degrees, both undergraduate and postgraduate, that incorporate taxation as a subject are offered by South African universities. However, the curricula for these degree programmes are not yet regulated by a regulatory body. A regulatory

body is an external organisation empowered by legislation to administer and control a specific educational process (Harvey 2011).

Due to the complexity of the South African tax system, many individuals apply to become a tax professional. An individual seeking to become a SAIT member may do so to become a registered SARS practitioner, gain a tax designation or access to SAIT benefits. While SAIT has the responsibility for defining the tax syllabus for professional taxation individuals who want to become a tax practitioner, SAIT are not responsible for providing courses or education material. Thus, it is left to the relevant accredited education institutions to determine the content of their tax programme and the weighting of each subject.

Barac (2009) investigated employers' perceptions of the knowledge and skills of entry-level accountants in general, and Coetzee and Oberholzer (2009) focussed on tax-specific skills of entry-level accountants who were studying towards becoming a Chartered Accountant (South Africa) CA(SA). Although there are similarities between this current research and the research of Barac (2009) and Coetzee and Oberholzer (2009), the difference is that these research studies investigated employers' views and trainee accountants' preferences regarding any tax qualification that all newly qualified tax practitioners can obtain and not the viewpoints of taxation students.

From a practical perspective, the research of Coetzee and Oberholzer (2009) provided information on the current views and preferences of employers who employ newly qualified tax practitioners, irrespective of the type of qualification. Coetzee and Oberholzer's (2009) research entitled *The tax knowledge of South African trainee accountants: A survey of the perceptions of training officers in public practice* highlights the important topics to be included in a taxation syllabus and in this case specifically Taxation 1 which is the starting point to and foundation of gaining tax knowledge. This information therefore benefits both universities and employers as a possible expectation gap exists between educators and employers. Furthermore, Coetzee and Oberholzer (2009) contributed to the development of professional careers in taxation in South Africa.

A study by Doman and Nienaber (2012) on *Tax education: current views and preferences of South African employers* explored the gap of uncertainty as to whether or not employers are satisfied with tax education in South Africa. This article reported on the current and preferred composition of tax departments, considering South African qualifications. Furthermore, the research highlighted employers' current views and preferences regarding the theoretical knowledge and practical skills included in these qualifications.

The importance of these studies to the current research is to support the taxation syllabus relevance to the working environment as well as real-life application.

Internationally, studies (Flesher and Rescho 1986; Stara, Shoemaker and Brown 1991; Jones and Duncan 1995; Yeoh Oon 1998; Ott and Donnelly 1999; Ott and Donnelly 2000; Yin-Sum and Tak-Wing 2002; Tan and Veal 2005) on relevant curriculums of taxation have emphasised the importance of taxation on individuals to application in practice.

i. Analysis of curriculum objectives of professional education

For most employers, appointing new employees involves a structured recruitment process. Employers need to ensure that the candidates meet their expectations and that the candidates fit into the employers' corporate culture.

Employers search for certain general qualities in new employees. These qualities may include the following (Heathfield 2016):

- Qualifications, such as degrees, diplomas or certificates, awarded by registered authorities after the successful completion of a programme (Harvey 2011);

- Experience, which can be described as the way employees logically treat difficult situations encountered in the work place (Hager, Brown and Paloniemi 2006);

- Knowledge, defined as the understanding or being familiar with information (Cassam 2009);

- Skills, defined as the capability of a person to complete certain intellectual activities that add to the successful performance of the position (Mathis and Jackson 2011); and

- Characteristics, defined as typical features or qualities of a specific person (Soanes and Stevenson 2009).

Certain skills and knowledge of professionals are mostly only gained after employment starts (Cranmer 2006). Professionals are required to be able to deliberate, gain some understanding of concepts and find solutions to problems (Glaser, Abelson and Garrison 1983). In addition to technical knowledge, professionals should also have the ability to comprehend and apply difficult concepts within the specific profession (Wheelahan, Moodie, Billet and Kelly 2009). Employers may still expect educators to assist students in gaining some of these abilities.

Siegl, Bates, Berns, Carter, Kelly, Kurstak and Tattersal (1985) created a taxonomy tool to analyse curriculum objectives for professional education to identify qualities that employers prefer to feature in curricula of professional qualifications. Siegl *et al.* (1985) found that some qualities definitely do not feature in curricula for professional education. Cranmer (2006) determined that employer involvement in the design of curriculum contents constructively contribute towards acquiring certain skills that enhance employability.

ii. Computer skills

Computer skills can be defined as the skills possessed by a person who has enough ability to use a computer to do a task (Compeau and Higgins 1995).

Information technology is subject to regular change and development. This not only constantly challenges the professional competence of professional accountants (McCourt Larres, Ballantine and Whittington 2003), but also creates opportunities. Technology has become an inevitable part of today's accounting practice. Selecting tools, applying technology to certain tasks, and maintaining and tracing and correcting accounting errors using technological devices are necessary skills for the

average accountant (Mohamed and Lashine 2003). Mohamed and Lashine (2003) believe that knowledge of basic technology not only makes entry-level accounting trainees creative in the workplace, but also helps them to adapt to the new environment faster. Many members of the accounting profession have voiced concern over whether accounting education effectively and efficiently prepares graduates to meet these challenges (Chang, Yang, Lee and Hwang 2003). The inclusion of computer capabilities in the accounting curriculum has been widely recognised as a means of reflecting the fact that various forms of information systems are increasingly being used in accounting in today's business world (De Lange, Jackling and Gut 2006). According to Ainsworth (2001), IT is still not integrated throughout the accounting curriculum, and given that accounting programmes are already overcrowded, creating space for new IT courses within existing accounting programmes is difficult. However, Chang *et al.* (2003) found in their study that there had been a marked improvement in this area, because current entry level accounting trainees had received more exposure to IT in their tertiary training than had their seniors, which suggests that educators have modified accounting curricula by incorporating more exposure to IT.

Albrecht and Sack (2000) in their study on *Accounting Education: Charting the Course through a Perilous Future*, addressed the subject of the computer capabilities expected of accounting graduates. Burnett (2003) undertook a similar study in Texas to obtain a regional perspective. The results of Burnett (2003) study on the computer skills required of accounting graduates coincided with those obtained in the Albrecht and Sack (2000) study, namely that spreadsheet software such as Excel was ranked first, followed second by Windows, a word-processing program such as Word in the third position, and then Internet capabilities in the fourth position (Burnett 2003). In a study conducted in New Zealand by Bui and Porter (2010), most students, graduate trainees and employers of graduates in large and small firms perceived the essential skills to be limited to the ability to use computers and basic office and accounting software. Helliar, Monk and Stevenson (2006) found that the students from the profession included in their study assumed that trainee accountants that enter the profession would have already learnt to use word processors, spreadsheets and presentation software.

iii. The demand for tax practitioners

A broad range of professionals offering tax advice to taxpayers is currently evident in modern-day society (Doyle, Frecknall-Hughes and Summers 2009). Tax practitioners range from persons specialising in tax to accountants, lawyers and auditors. The issue of tax, which some still perceive to be a secondary segment of accounting, has, however, increased in complexity and significance. It is therefore a highly specialised discipline in itself (Doyle *et al.* 2009). Owing to the specialised nature of the discipline, there is currently a greater demand for tax practitioners than ever before. According to Sakurai and Braithwaite (2001), taxpayers obtain professional tax advice to lessen the perceptions of complexity and legal uncertainty surrounding taxation. They also found that another reason for obtaining professional tax advice is to explore grey areas in legislation that may result in lower tax liabilities being payable.

2.4 Summary of chapter two

The chapter reviewed the relevant background literature along with the defining e-learning, e-filing and their importance in the taxation system and relevance to the Taxation 1 syllabus. Furthermore, a comparison between the Taxation 1 syllabus and the Tax-Tim assessment was done to make sure the assignment students were given aligned with the e-learning tool, Tax-Tim. Relevant studies relating to taxation education in South Africa were reviewed. It was noted that although certain skills and knowledge of professionals are only gained after employment, opportunities to include computer capabilities and the demand for tax practitioners re-enforces the need to include software like Tax-Tim into the Taxation 1 syllabus. In the next chapter the theoretical framework is explained and the hypotheses are developed and discussed.

CHAPTER THREE: THEORETICAL FRAMEWORK AND DEVELOPMENT OF THE HYPOTHESES

3.1 Introduction

This chapter presents the theoretical framework and the development of the hypotheses which are discussed with reference to prior research. Technology acceptance by users, particularly of e-learning systems, has recently received extensive attention from information system researchers and practitioners. Furthermore, technology acceptance has been examined across a variety of information technology platforms and user populations and has gathered objectively reasonable empirical support for respective theories or models investigated. Many models have been suggested and examined with the most suitable model being the Technology Acceptance Model (TAM), originated by Davis (1989). TAM is an intention-based model developed specifically for explaining and/or predicting user acceptance of computer technology.

TAM has been used as the theoretical basis for many empirical studies of user technology acceptance/adoption and has accumulated ample empirical support in many studies (Brynjolfsson 1989; Davis 1989; Compeau and Higgins 1995; Togo and McNamee 1995; Venkatesh and Speier 1999; Arbaugh 2000; Bhattacherjee 2000; McLarres and Radcliffe 2000; Alexander 2001; Bhattacherjee 2001; Chau 2001; Rosenberg 2001; McFarland 2001; Keller and Cernerud 2002; Knight and Yorke 2002; Lizzio, Wilson and Simons 2002; Venkatesh, Speier and Morris 2002; Woszczynski, Roth and Segars 2002; Islam 2002 ; Chiu *et al*. 2005; Kim, Liu and Bonk 2005; Roca *et a*l. 2006; Ginns and Ellis 2007; Saade, Nebede and Tan 2007; Selim 2007; Jung, Loria, Mostaghel and Saha 2008; Liaw 2008; Mahdizadeh, and Mulder 2008; Roca and Gagné 2008; Sun *et al.* 2008; Samarasinghe and Tretiakov 2009; Cheng-Hsun 2010; Macharia and Nyakwende 2010; Paechter *et al.* 2010; Rhema 2013; Yuyun 2013; Merbach 2014; Arkorful and Abaidoo 2015; van Romburgh and van der Merwe 2015; Heathfield 2016). A list of studies that this research investigated is shown in Table 3.1.

Table 3.1: Studies using TAM (1989 – 2003)

Author	Sample size	Subject type	Software
Davis (1989)	107	MBA students	Word processor
Taylor and Todd (1995b)	786	Under graduate and MBA	Comp. resource centre
Agarwaletal. (1996)	230	USA Knowledge workers	Operating system
Davis and Venkatesh (1996)	708	MBA students	Word proc. and spread sheet
Venkatesh and Davis (1996)	108	Under graduate and MBA	Software packages
Wiedenbeck and Davis (1997)	173	Under graduate students	Word processor
Dillon et al. (1998)	78	Accounting students	Tax preparation s/w
Hu et al. (1999)	408	Physicians	Telemedicine technology
Karahanna and Straub (1999)	100	Knowledge workers	E-mail
Karahanna et al. (1999)	268	Knowledge workers	Operating system
Lin and Lu (2000)	139	Under graduate students	World wide web
Roberts and Henderson (2000)	108	Knowledge workers	Information technology
Ridings and Gefen (2000)	148	Knowledge workers	Software package
Venkatesh (2000)	282	Knowledge workers	Software packages
Bhattacherjee (2001)	172	Website users	Online brokerage service
Chau (2001)	360	Under graduate students	MS word, Excel, Access
Liaw (2002)	260	Under graduate students	World wide web
Hackbarth et al. (2003)	116	Graduate students	MS Excel
Lee et al. (2003)	31	Students	Black board systems
Liaw and Huang (2003)	114	Medical students	World wide web
Selim (2003)	403	Under graduate students	Course related websites
Hwang (2003)	109	Under graduate students	Black board systems

Source: Yousafzai, S & Foxall, G & Pallister, J. (2007)

3.2 **Theoretical framework**

IT has the potential to transform how we learn and access information in two important ways. Firstly, IT enables users to do many of the things we already do faster, more flexibly, more efficiently and with greater access for all (Venkatesh, Speier and Morris 2002). Secondly, IT enables users to do things that we cannot now do, or to do them in ways that are significantly different (Venkatesh *et al*. 2002). IT makes possible an entirely new environment and experience of learning that goes well beyond the classrooms, curricula, and text-based formats to which we are accustomed. Like any other information system (IS), the success of e-learning is influenced by user satisfaction and other factors that will eventually increase users' intention to continue using it.

In the IS domain, there is a considerable amount of academic research examining the determinants of IT acceptance and utilisation among users (Venkatesh and Speier 1999; Chau 2001; Venkatesh *et al*. 2002). There are some theoretical models that attempt to explain the relationship between user attitudes, satisfaction and behavioural intention to use and system usage. Among these models, one of the most widely accepted is the TAM proposed by (Davis 1989). TAM theorises that user perceptions of usefulness and ease of use determine attitudes toward using the system.

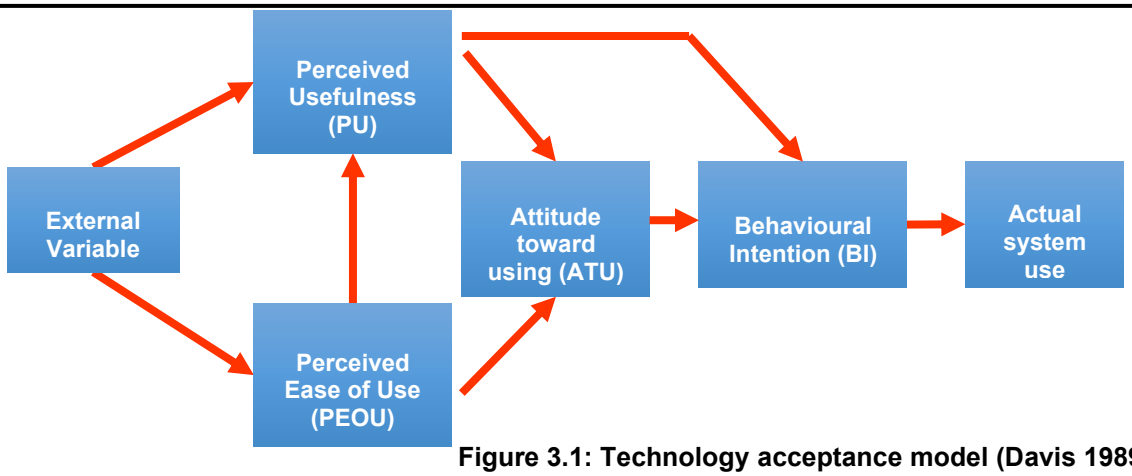

Figure 3.1: Technology acceptance model (Davis 1989)

The theoretical framework, TAM, adopted for this research is depicted in Figure 3.1.

The TAM theoretical framework was first introduced by Davis (1989), as a theoretical extension of the theory of reasoned action (TRA), which was a popular model in the social psychology domain. TAM is derived from the TRA (Fishbein and Ajzen 1975) and predicts user acceptance based on the influence of two factors: perceived usefulness and perceived ease of use. The TRA model suggested that a persons' behaviour was determined by the individual's intention to perform the behaviour and that this intention is, in turn, a function of his/her attitude towards the behaviour and his/her subjective norm. Attitudes toward the behaviour describe the positive or negative feelings toward a specific behaviour, and subjective norm assesses the social pressures on the individual to perform or not to perform a behaviour. The theory of planned behaviour (Fishbein and Ajzen 1975) can be considered as an extension of the TRA. It theorizes that behavioural intention is jointly determined by attitude and subjective norm, like TRA, but with the addition of perceived behavioural control. Perceived behavioural control is the individual's ''perception of easy or difficult of performing the behaviour of interest'' (Fishbein and Ajzen 1975).

TAM (Davis 1989) proposes that two particular beliefs, perceived usefulness and perceived ease of use, are the primary drivers for technology acceptance. Perceived usefulness is defined as ''the degree to which a person believes that using a particular system would enhance his/ her job performance'', and perceived ease of use is defined as ''the degree to which a person believes that using a particular system would be free of physical and mental effort'' (Davis 1989). Further, perceived usefulness and perceived ease of use both affect a person's attitude toward using the system, and consistent with TRA, these attitudes toward using the system determine behavioural intentions, which in turn lead to actual system use. The causal relationships have been validated empirically in many studies of user acceptance (Davis, Bagozzi and Warshaw 1992; Venkatesh and Davis 1996; Venkatesh and Speier 1999; Venkatesh and Davis 2000; Venkatesh, Speier and Morris 2002; Woszczynski *et al*. 2002). TAM has been extended by the addition of other constructs such as computer self-efficacy (Compeau and Higgins 1995), internet self-efficacy (Chau 2001; Park 2009), subjective norm (Brynjolfsson 1989;

Taylor and Todd 1995a; Venkatesh and Davis 1996, 2000; Bhattacherjee 2001) or playfulness (Chau 2001; Piccoli, Ahmad and Ives 2001).

Students' perceptions of e-learning in university education may be influenced by several variables. Keller and Cernerud (2002) identified variables such as age, gender, previous experience of computers, technology acceptance and individual learning styles as major predictive factors when discussing acceptance of technology by students. Although TAM's ultimate goal is actual usage, it could also be used to explain why individuals may or may not accept a particular technology such as e-learning (Jung *et al.* 2008). Prior technical skills or computer experiences may be influenced by age and gender and may influence intent to use a variety of technology applications (Pituch and Lee 2006). Saade *et al*. (2007) have noted that individuals will use technology when they perceive that the technology will enhance their performance.

In this research, the following variables were selected; perceived usefulness, perceived ease of use, computer self-efficacy, attitude towards using, and behavioural intention to use e-learning. The rationale for the use of these variables were considered using previous studies of the TAM theoretical framework.

Figure 3.2 presents the summarised hypotheses and where they fit into the TAM model.

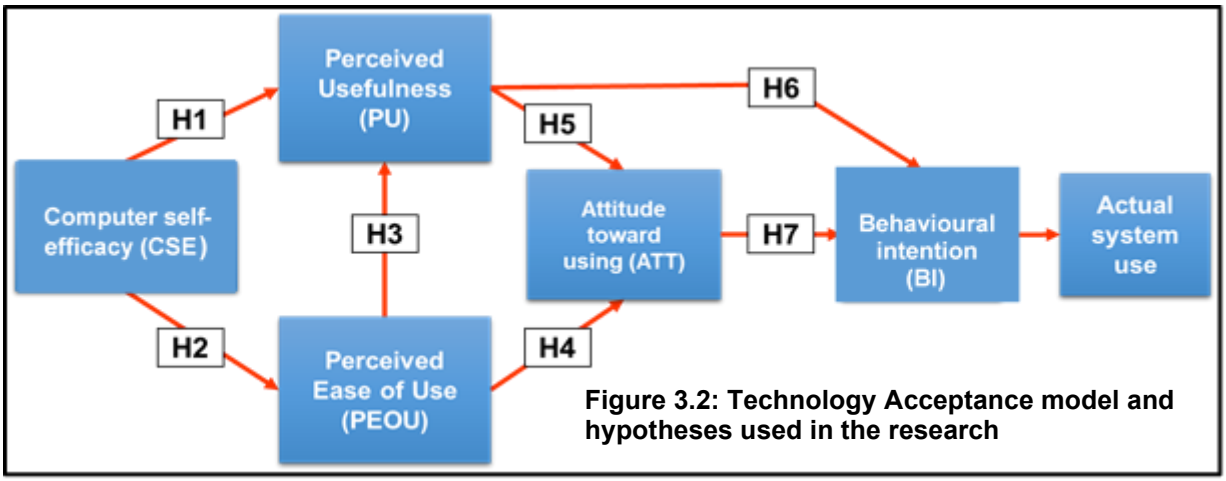

Figure 3.2: Technology Acceptance model and hypotheses used in the research

3.3 Development of the hypotheses

3.3.1 *Hypotheses 1 & 2 – Computer self-efficacy*

Bandura (1986) defined self-efficacy *as ‘‘people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances”.*

Self-efficacy relates to what an individual believes they can do with the skills they possess and not question whether they possess a skill to perform a task. Self-efficacy, then, is an individual’s belief that he or she can perform a task or behaviour which indicates an individual’s feeling towards performing a practical task.

Bandura (1986) conceptualises perceived self-efficacy in terms of self-referential decisions arrived at through cognitive processing of diverse sources of efficacy information. Theory seeks to clarify how self-efficacy judgment effects human action, thought, and effect, rather than treating perceived self-efficacy as a trait-like entity (Bandura 1986). Self-efficacy decisions could influence human behaviour through their impact on respective choice, on effort expenditure and perseverance on self-hindering (Bandura 1986).

Evaluation of self-efficacy is an inferential process in which the relative contribution of ability and non-ability factors to performance must be weighted. The extent to which people will alter their perceived self-efficacy based on performance feedback will depend on such factors as the difficulty of the task, the amount of effort they expend, the amount of external aid they receive, the situational circumstances under which they perform, and their mood and physical state at the time.

Compeau and Higgins (1995) defined computer self-efficacy as the “self-assessment of individual ability to apply computer skills to complete the specified tasks”. Compeau and Higgins (1995) examined people’s beliefs in their abilities to utilise computers in their fulfilment of a task. Their study was undertaken to create an acceptable measure of computer self-efficacy and to survey its effects. An individual’s computer self-efficacy was observed to be affected by the support of others in their work team, and additionally by others’ utilisation of computers. In this

manner, self-efficacy speaks to an imperative individual quality, which directs categorised impacts, on an individual's choice to utilise computers (Compeau and Higgins 1995).

Understanding self-efficacy, then, is essential to the successful accomplishment of TAM framework in a computer environment as well as determining TAM adoption (Schunk 1981; Barling and Beattie 1983; Wood and Locke 1987). Furthermore, self-efficacy has been identified with participation (Frayne and Latham 1987), ability decision and improvement (Betz and Hackett 1986), exploration productivity (Taylor and Todd 1995b), and transactions performance (Barling and Beattie 1983). Other studies (Gist, Schwoerer and Rosen 1989; Burkhardt and Brass 1990; Webster and Martocchio 1992) have inspected the relationship between self-efficacy towards using computer and a variety of computer practices.

Wang and Newlin (2002), using a population of 122 undergraduate students, established that students with higher computer self-efficacy are more willing to receive e-learning and acquire better final marks. This study investigated university students' personal decisions for taking online courses and whether their self-efficacy for the course content would predict their performance in on-line sections of a class.

Self-efficacy also relates to an individual's expectation of his or her capacity to sort out and execute the practices expected to effectively finish an assignment (Schunk 1981; Bandura, Reese and Adams 1982). In this perspective, "efficacy convictions work as a key component in a generative arrangement of human ability" (Bandura 1997).

Self-efficacy has been observed to be valuable in knowledge behaviour in a variety of situations including clinical intercessions (Williams, Turner and Peer 1985; Bandura 1986), work settings (Frayne and Latham 1987; Wood and Bandura 1989), ability decisions (Lent and Hackett 1987; Rotberg, Brown and Ware 1987), computer programming ability (Gist *et al.* 1989) and performance (Lent, Brown and Larkin 1984; Wurtele, Currier, Gillispie and Franklin 1992). Moreover, research has demonstrated that apparent computer self-efficacy and states of mind toward

computers are indicative of students' performance in a computer class and in computer aided tests (Pierce and Henry 1993; Henry and Stone 1997). Self-efficacy had a more grounded influence on the choice of computer course than past involvement with computers (Hill, Smith and Mann 1987). Considering these findings, the authors looked to focus on the systems through which students' expectations toward the computer section of the course would be indicative of performance in an electronic course. Hence, estimated measures of self-efficacy for course content and innovation abilities would be indicative of on-line student performance. In addition, Hill *et al.* (1987) estimated that the self-efficacy for these two spaces would efficiently identify with the reasons why students chose to enrol in a web-based course.

Prior studies have showed that computer self-efficacy influenced perceived ease of use (Compeau and Higgins 1995; Venkatesh and Davis 1996; Agarwal and Karahanna 2000; Chau 2001). Students who possess a high computer self-efficacy are more confident in accomplishing e-learning. Studies have confirmed a relationship between self-efficacy and registration in computer courses at universities (Hill, Smith, and Mann 1986), the adoption of high technology products (Hill *et al.* 1986) and innovations (Burkhardt and Brass 1990), as well as performance in software training (Gist *et al.* 1989; Webster and Martocchio 1992). All the studies argue for the need for further research to explore fully the role of self-efficacy in use of computing behaviour.

Therefore, computer self-efficacy is defined in this study as students' evaluation of their ability to use a computer to perform activities related to e-learning.

The following hypotheses were formulated:

H1: Computer self-efficacy (CSE) will have a positive effect on students' perceived usefulness (PU) of e-learning technology.

H2: Computer self-efficacy (CSE) will have a positive effect on students' perceived ease of use (PEOU) of e-learning technology.

3.3.2 *Hypothesis 3 & 4 – Perceived ease of use*

In an investigation of TAM literature related to perceived ease of use, Legris, Ingham and Collerette (2003) suggested that perceived ease of use is positively correlated with attitude towards using.

Roca and Gagné (2008) empirically investigated the TAM framework and established that perceived ease of use is a significant factor in the TAM context. The study investigated the TAM in the context of an e-learning service using a sample of 172 students. The results suggest that users' intention to continue using is determined by satisfaction, which in turn is jointly determined by perceived usefulness, information quality, service quality, system quality, perceived ease of use and cognitive absorption.

According to Karahanna and Straub (1999), the TAM has identified the role of the perceived usefulness and perceived ease of use constructs in the IT adoption process. Whereas past research has been valuable in explaining how such beliefs lead to system use, it has not explored how and why these beliefs develop. Facilitating conditions such as the availability of training and support for the use of IT had no impact on perceptions of ease of use or usefulness of e-mail. (Brynjolfsson 1989), Venkatesh *et al*. (2002) supported the significance of perceived ease of use within the TAM framework and added that perceived ease of use had a significant effect on behavioural intention to use e-learning technology. Brynjolfsson (1989), Davis, Bagozzi and Warshaw (1992) and Taylor and Todd (1995a) found that perceived ease of use has significant effects on perceived usefulness. Mathieson (1991), Taylor and Todd (1995b) and Bajaj and Nidumolu (1998) found that perceived ease of use affected attitude. Bhattacherjee (2001) excluded perceived ease of use from his research because Karahanna and Straub (1999) found that when users continually use the system, they gain experience with the system which displaces ease of use by perceived usefulness.

This current research on e-learning will be used in a lab session, where a student will see the system for the first time and submit their assignment on-line. Therefore, students will therefore not be able to gain experience from repeated use of system.

Experience gained with the system will therefore not be a factor to displace perceived ease of use by perceived usefulness.

The following hypotheses were formulated:

H3: Perceived ease of use (PEOU) has a positive effect on perceived usefulness (PU) of e-learning technology.

H4: Perceived ease of use (PEOU) has a positive effect on attitude towards using (ATU) e-learning technology.

3.3.3 *Hypotheses 5 & 6 - Perceived usefulness*

Perceived usefulness refers to users' subjective probability that IS use will improve their performance, and therefore captures the instrumentality component of their usage decision. Bhattacherjee (2000) determined that human behaviours are influenced by their subjective perceptions, even if such perceptions are biased or inaccurate; hence usefulness is perceived rather than objectively assessed.

This evaluation effect is identical to the notion of attitude in the IS literature, and hence, the attitude association confirmed in IS research provides additional support for the hypothesised link between perceived usefulness and continuance intention (Bhattacherjee 2001). Empirical support for the positive association between perceived usefulness and information system use intention is provided by Davis (1989) and Mathieson (1991).

The determinants of behavioural intention follows from Ajzen (1985). Self-efficacy, an individual's self-confidence in skills or ability to perform the intended behaviour, is an internal constraint affecting e-commerce acceptance, while facilitating conditions of beliefs about availability of resources to facilitate behaviour is an external constraint. Taylor and Todd (1995a) distinguished between two types of facilitating conditions resources, namely time, money and technology compatibility. Technology compatibility is not meaningful in this context, since e-commerce is based on open systems which are compatible across diverse hardware, operating systems and browser platforms. Also, Taylor and Todd (1995b) found technology

compatibility to have a non-significant effect on behavioural control. Access to computers and the Internet, which may constrain e-commerce acceptance, are resource issues and can be subsumed under resource facilitating conditions. Hence, they dropped technology facilitating conditions from their model, and defined behavioural control solely in terms of self-efficacy and resource availability. Several Theory of Planned Behaviour based (TPB) studies have observed strong correlations among behavioural intention (Taylor and Todd 1995b).

TAM-based studies indicate strong correlations between ease of use and usefulness, leading Davis, Bagozzi and Warshaw (1989) to propose a direct empirical link from ease of use to usefulness. Davis *et al.* (1989) argued that ease of use of an IS, as perceived by adopters, are related to feelings about self-efficacy, which in turn may affect perceived usefulness of the IS. Xia and King (2002) contended that "although behavioural and normative beliefs may be conceptually independent, they are not causally independent." Even Ajzen (1985) admitted that "crossover effects*"* may be unavoidable between belief sets because these beliefs are intertwined to some extent.

Rai, Lang and Welker (2002) established that user attitude was impacted by perceived usefulness and ease of use. Moreover, they investigated different on-line training environments with different degrees of social presence and found that perceived usefulness was positively correlated with satisfaction. Webster and Martocchio (1995) proposed that client fulfilment is a result of the active conduct, and that more satisfied clients will tend to keep on carrying on even more energetically in their computer communications. Even though that this infers an input circle between client fulfilment and their likely conduct, their model does exclude this circle. The authors concluded that perceived usefulness was a substantial determinant of user satisfaction.

This current research aims to build an understanding of users, in this case students using e-learning technology, by determining whether its perceived usefulness to the students is a determinant of their attitudes towards using IS and their behavioural intention to use IS.

The following hypotheses were formulated:

H5: Students' perceived usefulness (PU) while using e-learning technology positively affects attitude towards using (ATU).

H6: Students' perceived usefulness (PU) while using e-learning technology positively affects behavioural intention (BI).

3.3.4 *Hypothesis 7 – Attitude towards using and behavioural intention*

Research studies by Arbaugh (2000), Piccoli *et al.* (2001) and Hong (2002) that investigated students' attitudes towards using e-learning technology supports the importance of including attitude towards using in behavioural intention to use computer technology.

Attitude towards using e-learning technology is defined by Davis (1989) as the negative or positive feeling towards using information technology. Behavioural intention is defined as an interest of a person to perform certain behaviours in using e-learning technology (Davis 1989). Studies by Taylor and Todd (1995b) regarding acceptance of IS use and Venkatesh *et al*. (2002) on acceptance of technology show that attitude has a positive significant influence on behavioural intention. Additionally, research by Wixom and Todd (2005) proved that attitude directly affected intention to use e-learning technology. However, the Teo, Wong and Chai (2008) study concluded that attitude did not positively affect the intention to use technology.

Research by Arbaugh (2001) on the impact of attributes of the innovation used in online courses, and of classroom practices by undergraduates and educators on learning and fulfilment, found that the behavioural qualities tended to be more grounded indicators of undergraduate learning and fulfilment.

According to the TAM, beliefs that a technology is useful and easy to use influence the users' attitudes toward the technology and thereby their decision to adopt it (Davis 1989). Feelings toward innovation selection have regularly been operationalised utilising the TAM (Davis 1989, Davis, Bagozzi and Warshaw 1989).

Three of the distinctive variables in this model are the perceived usefulness and perceived ease of use of a technology, and the user's attitude toward it.

Perceived usefulness refers to the extent to which an individual trusts that the utilisation of a specific innovation will be free of exertion, and is in this way an indicator of an individual's natural inspiration to utilise an innovation (Davis 1989; Atkinson and Kydd 1997). In conjunction with the TAM, opinions that use of innovative technology is valuable and simple to utilise then impacts the individual's state of mind toward the innovation and subsequently influences their choice to utilise the innovative technology. This model has turned out to be very much acknowledged in the innovation writing and has been observed to be a substantial indicator of use of Personal Computing (PC) programming (Davis *et al.* 1992), email (Gefen and Straub 1997), and the World Wide Web (Atkinson and Kydd 1997).

Piccoli, Ahmad and Ives (2001) suggest that internet technologies are having a significant impact on the e-learning industry. Furthermore, attitudes influence learning interest. Positive attitudes toward computers increase the chances of successful computer learning and negative attitudes decrease interest in computer learning. Student attitude can be defined as a student's impression of participating in e-learning activities by using computers (Piccoli, Ahmad and Ives 2001).

In this current research, e-learning is dependent on computer usage as a tool to integrate students' theoretical knowledge into practical application to enhance work-readiness. Their simulating the practice of e-filing a tax return is a real-life situation experienced as an individual taxpayer or employee in the workplace. Therefore, this research considers students' attitude towards using computers an important factor in their behavioural intention to use e-learning.

The following hypothesis was formulated:

H7: Attitude towards using (ATU) e-learning technology has a positive effect on behavioural intention (BI) to use.

3.4 **Summary of chapter three**

The chapter introduced the theoretical framework and used evidence from prior research using the TAM to identify hypotheses of user acceptance. The research developed hypotheses aligned to the TAM.

The hypotheses developed from the TAM model are summarised in Table 3.2 below:

Table 3.2: Summary of Hypotheses

Hypothesis	Description
H1	Computer self-efficacy **(CSE)** will have a positive effect on students' perceived usefulness **(PU)** of e-learning technology
H2	Computer self-efficacy **(CSE)** will have a positive effect on students' perceived ease of use **(PEOU)** of e-learning technology.
H3	Perceived ease of use **(PEOU)** has a positive effect on perceived usefulness **(PU)** of e-learning technology.
H4	Perceived ease of use **(PEOU)** has a positive effect on attitude towards using **(ATU)** e-learning technology.
H5	Students' perceived usefulness **(PU)** while using e-learning technology positively affects attitude towards using **(ATU).**
H6	Students' perceived usefulness **(PU)** while using e-learning technology positively affects behavioural intention **(BI).**
H7	Attitude towards using **(ATU)** e-learning technology has a positive effect on behavioural intention **(BI)** to use.

The following chapter discusses the research methodology used in the study.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter presented the theoretical framework and development of the hypotheses used in this study.

This chapter details the research design selected for this study, including the research strategy, as well as the questionnaire design, research instrument used, population, sampling method and procedure for data collection. Thereafter, the data analysis, reliability and validity, limitations and validation of the constructs using factor analysis are discussed.

4.2 Research design

Hair, Wolfinbarger, Money, Samouel and Page (2015) defined a research design as the basic guidelines or procedures for carrying out the research project. According to Zikmund (2003), a research design is a master plan specifying the methods and procedures for collecting and analyzing the needed information. Hair, Babin, Money and Samouel (2003) state that the researcher must choose a design that will provide relevant information on the research questions and will do the job most efficiently. Creswell (2012) suggests that research designs are plans and the procedures for research that extent the decisions from broad assumptions to detailed methods of data collection and analysis and that there are three types of research design namely quantitative, qualitative, and mixed methods.

4.2.1 *Quantitative research*

Cooper, Schindler and Sun (2006) define quantitative research as “the precise count of some behaviour, knowledge, opinion or attitude, which is frequency of a certain phenomenon”. Hair *et al*. (2003) state that “quantitative research is recorded directly with numbers and they are in a format that lends itself to statistical analysis”.

4.2.2 *Qualitative research*

Cooper *et al.* (2006) define qualitative research as "interpretive techniques that seek to describe, decode, translate, and otherwise come to terms with the meaning, not frequency of a certain phenomenon". Hair *et al*. (2003) state that "in qualitative research, rather than collecting information by assigning numbers, the data is collected by recording words and sometimes pictures".

The difference between qualitative and quantitative data is summarised in Table 4.1.

Table 4.1: Difference between quantitative and qualitative data

Description	**Quantitative**	**Qualitative**
Purpose	• More useful for testing • Provides summary information on many characteristics. • Useful in tracking trends.	• More useful for discovering • Provides in-depth information on few characteristics. • Discovering hidden motivations and values.
Properties	• More structured collection technique and objective ratings. • High concern for representations. • Relative short interviews. • Interviewer is passive • Larger samples (over 50) • Results objective.	• More structured collection technique requiring a subjective interpretation • Little concern for representativeness • Relative long interviews • Interview is active and should be highly skilled. • Small samples (1-50) • Results subjective.

Source: Cooper *et al.* (2006); *Hair et al*. (2003)

To determine students' perceptions of e-learning and considering previous research on various methods of e-learning, most authors who make use of the TAM theoretical framework, as adopted in this study, collected their data using predominantly quantitative research methods and very few used qualitative methods. In this research study, the population and properties are consistent with the quantitative aspects in Table 4.1.

Therefore, the research method to be used is a quantitative analysis using a questionnaire survey consisting of 33 closed and 3 open-ended questions.

The reason for the use of a quantitative analysis is that the number of the population is large (more than 50) and to ensure the measurability, accuracy and reliability of the findings. Quantitative research methods attempt to maximize objectivity, reliability and the generalisability of findings, and are typically interested in prediction. Integral to this approach is the expectation that a researcher will set aside his or her experiences, perceptions, and biases to ensure objectivity in the conduct of the study and the conclusions that are drawn (Garner and Raudenbush 1991; Howell, Wolf, Campbell, and Peterson 2002; Jacob and Lefgren 2004).

4.3 Research process

Weirich, Pearson and Churyk (2010) define accounting, auditing and tax research "as a scientific method of inquiry and a systematic study of a specific field of knowledge in order to discover scientific facts or principles". The authors also state that research encompasses the following processes:

- investigate and analyze a clearly defined issue or problem;
- use an appropriate scientific approach;
- gather and document adequate and representative evidence;
- employ logical reasoning in drawing conclusions; and
- support the validity or reasonableness of the conclusions.

4.4 Population and sample

The following section describes the target population and sampling method.

4.4.1 *Target population*

Defining the target population for the study is critical in order to achieve the research objectives. Sekaran and Bougie (2010) refer to a population as the entire group of people, events, or things of interest that the researcher wishes to investigate.

The target population for this study were DUT students studying Taxation 1 in the following National Diplomas:

- Internal auditing,
- Accounting,
- Cost and management accounting, and
- Taxation.

DUT students were chosen as the target population as the research was conducted at DUT, using the Taxation 1 syllabus with Tax-Tim as the electronic tool.

4.4.2 ***Sampling method***

The process of sampling involves any procedure using a small number of items of parts of the whole population to make conclusions regarding the whole population (Zikmund 2003). Zikmund (2003) defines a sample as a subset or some part of a large population. Hair *et al.* (2003) support this and state that representative samples are generally obtained by following set of well-defined procedures.

This is broken down into the following steps:

- defining the target population,
- choosing the sample frame,
- selecting the sampling method,
- determining the sample size, and
- implementing the sampling plan.

The selection of the sampling method to use in a study is dependent, amongst others, on the nature of the study, the objectives of the study, and the time and budget available (Hair *et al*. 2003).

Traditional sampling methods can be divided into two broad categories: probability and non-probability (Hair *et al*. 2003). In probability sampling, every element in the population has a known non zero probability of selection (Zikmund 2003). In non-probability sampling, the probability of selecting population elements is unknown. As the current study used all students in one computer lab session, the purposive sampling method is a non-probability census.

Questionnaires were given to the following students enrolled in the respective diplomas:

Table 4.2: Profile of students		
2nd year National Diploma Students	**Number**	**Percentage**
Financial Accounting	56	30%
Internal auditing	80	43%
Taxation	23	12%
Cost and management accounting	27	15%
Total	**186**	**100%**

4.5 Data collection Instrument

Hussey and Hussey (1997) defined a research instrument as an alternative term for a method of data collection. It usually refers to questionnaires which have been used and tested in a prior studies and can be adopted by any researcher. Hair *et al.* (2003) state that a questionnaire is a prepared set of questions (or measures) to which students or interviewers record the answers. Thus, before developing a questionnaire, the researcher must be clear as to exactly what is being studied and what is expected of the study.

4.6 Questionnaire design

A questionnaire can be regarded as a set of questions used for the gathering of information from individuals. Sekaran and Bougie (2010) explain that a questionnaire is a pre-formulated set of questions where respondents record their answers, usually within rather closely defined alternatives. They add that

questionnaires are an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest.

McMillan and Schumacher (2014) further explain that the questionnaire is the most widely used technique for obtaining information from subjects as a questionnaire is relatively economical, has the same questions for all subjects, and can ensure anonymity.

Wilson (2014) states that the advantages of using a questionnaire are that they allow the researcher to obtain accurate information, provide a cost-effective and reliable means of gathering feedback that can be qualitative as well as quantitative, and provide accurate and relevant data through thoughtful design, testing and detailed administration.

The disadvantages of a questionnaire as identified by Sekaran and Bougie (2010) are as follows: the response rate is generally low, students cannot clarify questions that may be confusing and follow-up procedures for non-responses are necessary. It is therefore important that the questionnaire is properly designed.

The questionnaire administered in this research included both closed and open-ended questions.

4.6.1 *Closed-ended questions*

Closed-ended questions are where the respondent is given the option of choosing from a number of predetermined answers (Hair *et al.* 2003). The questionnaire administered in this research included both closed and open-ended questions. The use of closed-ended questions and open-ended questions ensured that not only the facts regarding a student's perceptions are established during the research, but that the opinions and views of the students are also solicited.

4.6.2 *Open-ended questions*

Open-ended questions places no constraints on respondents who are free to answer in their own words (Hair *et al*. 2003). Open-ended questions are worded in a way such that the respondents provide a narrative response (Treiman 2009).

Wilson (2014) explains that advantage of open-ended questions is that they allow the students to provide an unrestricted and elaborated view. However, Junpath (2013) noted that sometimes it is more difficult for respondents to complete open-ended questions as it requires more effort.

Therefore, the response rate on open-ended questions may be low whereas closed-ended questions may have a high response rate (Ruane 2005).

The research instrument, a questionnaire, consisted of 33 closed ended and 3 open ended items, with a level of measurement at a nominal or an ordinal level. To gauge students' opinions the questionnaires also made use of questions where students were required to record their responses on a Likert-scale.

4.6.3 *Likert-scale*

A Likert-scale research instrument requires that students specify one option at varying levels from "agree" to "disagree" or "not at all effective to extremely effective" to questions related to the research study to determine their perceptions.

The scale contains two parts, namely the item (statement/question) and the evaluation (agree or disagree). The evaluation part usually consists of a 5 point scale (Du Plooy-Cilliers, Davis and Bezuidenhout 2014). The assumption made in using a 5-point scale is that each item measures some aspect of a single common construct.

4.7 Questionnaire layout

The measures used in this research were mainly adapted from relevant prior studies using the theoretical model for e-learning, TAM (Davis 1989) (refer to Table 3.1: Studies using TAM 1989 – 2003). The questionnaire is shown in Appendix A.

The questionnaire was divided into the following four sections:

Section A: Biographical data

Questions 1 to 7a/b focused on the background information. Students had to answer closed-ended questions regarding their gender, age, national diploma,

Taxation 1 lecture attendance, Blackboard sessions, English first language (EL) or English second language (ESL).

The following biographical questions were asked:

- What is your gender?
- What is your age (in years)?
- What is the national diploma you are studying towards?
- How many times do you attend Taxation 1 lectures per week?
- What is your level of computer skills/literacy?
- How many e-learning sessions have you attended on Blackboard?
- Is English your first language (that is, do you use it at home)?
- If English is not your first language, please indicate which is your first language?

Section B: TAM framework

Questions 8-21 were based on the TAM framework using the factors of perceived usefulness, perceived ease of use, behavioural intention and attitude towards using. These were measured using a five-point Likert scale with anchors from ‘‘strongly disagree (1)’’ to ‘‘strongly agree (5)’’. This section of the questionnaire was aligned to the first research objective and was used to test the hypotheses developed in chapter three.

The following TAM questions were used:

i. Perceived Usefulness (PU)

- Using Tax-Tim helps me become more effective at e-filing.
- Tax-Tim helps me be more productive at e-filing.
- Tax-Tim is a useful system for learning e-filing.

ii. Perceived Ease of use (PEOU)

- Tax-Tim is an easy to use e-learning system.
- Tax-Tim system is user friendly.

- Tax-Tim requires the fewest steps possible to accomplish e-filing.
- I can use it without written instructions.
- I can recover from mistakes made quickly and easily.

iii. Attitude towards using (ATU)

- I learned to use the Tax-Tim system quickly.
- I can easily remember how to use it.
- I can quickly become skilful at using the Tax-Tim system to e-file.
- I am satisfied with the Tax-Tim programme.
- I would recommend it to a friend to complete their e-filing tax return.

iv. Behavioural intention (BI)

- I can use it successfully in the future, every time.

Section C: Tax-Tim

Questions 22-32 was based on the Tax-Tim case study and used a five-point scale with anchors from “not at all effective (1)” to “extremely effective (5)”. This section of the questionnaire was aligned to the second research objective.

The following questions were used:

- Help you to integrate your understanding of the different components of Taxation 1?
- Help you to develop skills in interpreting (defined as the ability to understand and decipher data)?
- Help you to develop your ability to think critically about issues?
- Improve your analytical skills (defined as the ability to think in a logical and enquiring manner)?
- Develop your ability to synthesize (combine) the essential elements of a given situation?
- Help you consolidate your prior knowledge of the discipline?
- Increase your motivation to study the course?

- Help you relate theory to real-life practice?
- Encourage you to apply your knowledge to new situations?
- Give you the insight into practical business operations?
- Teach you to integrate your technical knowledge of the discipline?

Section D: Benefits and challenges

Questions 33-36 were closed-ended questions to explore the benefits and challenges of Tax-Tim. This section of the questionnaire was aligned to the third research objective.

The following questions were used:

- From the preceding questions (22 – 32), please select and enter the three most valuable benefits of the Tax-Tim project to you.
- How valuable did you find the use of Tax-Tim as a learning method in the taxation course?
- Are there any other learning benefits, not mentioned in the questionnaire, that you gained from the use of the Tax-Tim in the course.
- What was the most difficult area of the Tax-Tim project?

4.8 Procedure for data collection

4.8.1 *Pre-testing of the questionnaire*

Aaker, Kumar and Day (1998) state that the purpose of a pre-test is to ensure that the questionnaire meets the researcher's expectations in terms of the information that will be obtained. For this study, five lecturers were selected to pre-test the questionnaire so that the necessary revisions could be made before administration of the questionnaire. Each completed questionnaire was then reviewed to ensure that the students would understand the questions. Thereafter each lecturer was asked how long it took them to complete the questionnaire, whether any of the questions were unclear, and whether they felt uneasy in answering any of the questions.

4.8.2 *Pilot testing*

According to Fox, Bayat and Ferreira (2007), a pilot study is a trial run done on a small scale to determine whether the research design and methodology is relevant and effective. The questionnaire was reviewed by a statistician who suggested that the Likert scale be revised from 7 responses to 5 responses. Pilot testing also enabled an assessment of the questionnaire's reliability and validity and ensured that there was no ambiguity or bias in the questions and instructions.

4.8.3 *Administration of the questionnaire*

To collect the required data, the questionnaire was presented and explained to the students who had completed the Tax-Tim online assignment during a lecture period. Students were then requested to voluntarily fill in the questionnaire.

4.9 Response rate

In total, 186 questionnaires were despatched and 186 were returned which gave a 100% response rate. However, the total number of students registered for the Taxation 1 module was approximately 300 students. Therefore, the sample comprised 62% of the total students who could have been available to answer the questionnaire. The rest of the students (114) did not attend this computer lab session.

4.10 Data analysis and interpretation

Hair *et al.* (2003) believe that data becomes knowledge only after analysis has identified a set of descriptions, relationships and differences which are used in decision making. Zikmund (2003) defines analysis as the application of reasoning to understand and interpret the data that has been collected. On completion of the survey by students, the data was edited and coded on EXCEL. According to Cooper *et al.* (2006), editing detects errors and omissions, corrects them when possible, and certifies that maximum data quality standards are achieved. Coding involves assigning numbers or other symbols to the answers so that responses can be grouped into limited number of categories. The data was first captured in EXCEL

and then imported into SPSS version 23.0. Descriptive statistics were used to answer most of the research questions; however inferential statistics were used for testing the hypothesis. The type of inferential statistics used were comparisons between genders, female vs. male, correlations and regression analysis.

4.11 Reliability and validity

4.11.1 *Reliability*

Hussey and Hussey (1997) state that reliability is concerned with the findings of the research. Sekaran and Bougie (2010) note that the reliability of a measure indicates the extent to which it is without bias and hence ensures consistent measurement across time and across the various items in the instrument. In other words, the reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of a measure.

Saunders, Saunders, Lewis, and Thornhill (2011) refer to reliability as the extent to which the data collection techniques or analysis procedures will yield consistent findings. They add that if a research finding can be repeated, it is reliable. If a measure is not reliable then it cannot be valid and if it is reliable then it may or may not be valid. To address reliability in this study therefore, the data collection instruments were carefully structured to answer the research questions.

4.11.2 *Validity*

Validity is the extent to which the research findings accurately represent what is really happening in the situation (Hussey and Hussey 1997).

Validity refers to the quality of the data which needs to be precise enough for the purpose of the research and the data need to be sufficiently detailed (Denscombe 2014). Validity is whether the measuring instrument actually measures what it is intended to measure (Riley 2000). Denscombe (2014) and Riley (2000) add that the concern is not whether there is error but rather what potential there is for error and what the researcher has done to reduce error in the study thus increasing the

validity and reliability of the findings. To ensure validity in this study, the questionnaires were both pre-tested and pilot tested to ensure that the questions asked directly addressed the research aim and objectives.

4.11.3 ***Ethical considerations***

The goal of ethics in research is to ensure that no one is harmed or suffers adverse consequences from the research activities (Cooper *et al.* 2006).

The researcher was aware of the ethical obligations in terms of the study. In this regard, all the information that was made available remained confidential and was utilised only for the purposes of this study. A covering letter to the questionnaire informed the students of the purpose of the research and confirmed the confidentiality of the information. The letter of information was also translated into the majority dominant language of the population of students, IsiZulu. The letter of informed consent is included in Appendix B.

The Heads of Departments of Auditing and Taxation, Accounting and Cost and Management provided gatekeepers' permission to conduct the research. This letter is included in Appendix C. The research participants were also provided with a letter of consent to sign before undertaking the assessment.

4.11.4 ***Anonymity and confidentiality***

Data was only collected once the informed consent had been obtained from the student. Student participation was voluntary, and the confidentiality and anonymity of students was maintained, and any student could withdraw from the study. Confidentiality was maintained by assuring participants' information would not be made available to anyone except himself and anonymity of the participants was assured by not requesting any personal information from the participants.

4.12 **Limitations**

The study focuses on students' perceptions of using an e-learning tool to integrate their theory into application.

The different diplomas may have different notions of the importance of Taxation. If a student was studying specifically the National Diploma in Taxation, this student would have much more buy-in as opposed to a student doing another diploma. Only one campus of DUT was chosen to administer the questionnaire. Therefore, the results cannot be generalised to other universities within KZN.

4.13 **Reliability statistics**

The two most important aspects of precision are reliability and validity. Reliability is computed by taking several measurements on the same subjects. A reliability coefficient of 0.70 or higher is considered as “acceptable”.

Cronbach alpha was developed by Lee Cronbach in 1951 to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1 (Tavakol and Dennick 2011). Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test (Tavakol and Dennick 2011). Additionally, Cronbach alpha can be applied to a single item or a set of items (Tavakol and Dennick 2011).

Table 4.3 reflects the Cronbach’s alpha score for all items that constituted the questionnaire.

Table 4.3: Reliability statistics

Construct	**Questions**	**Cronbach's Alpha**
Perceived Usefulness	8 - 10	.913
Perceived Ease of use	11 – 15	.883
Attitude towards using	17 – 19	.871
Behavioural intention	16	.857
Benefits and challenges	22 – 32	.959
Overall	**8 - 32**	**.959**

The overall reliability score exceeds the recommended Cronbach’s alpha value of 0.700. All the individual sections also had reliability scores greater than the recommended value. This indicates a degree of acceptable, consistent scoring for the various sections which formed part of the research questions.

4.14 Factor analysis

Factor analysis was used to validate the questions used in each construct. The results of the Kaiser-Meyer-Olkin and Bartlett's test are shown in Table 4.4.

4.14.1 *KMO and Bartlett's Test*

Table 4.4 below shows that all the conditions are satisfied for factor analysis. That is, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value is than 0.500 and the Bartlett's Test of Sphericity sigma value is less than 0.05.

Table 4.4: KMO and Bartlett's Test results

Construct	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Perceived Usefulness	.740	397.555	3	.000
Perceived Ease of use	.834	575.380	15	.000
Attitude towards using	.692	306.811	3	.000
Behavioural intention	.500	156.361	1	.000

4.14.2 *Rotated Component Matrix*

Table 4.5 depicts the rotated component matrix broken down into the Tam constructs scores, perceived usefulness, perceived ease of use, behavioural intention and attitude towards using.

The variables that constituted each construct loaded perfectly along a single component. This means that the constructs measured what they set out to measure.

Table 4.5: Rotated Component Matrix TAM constructs

Q	Perceived Usefulness	Component 1
8	Using Tax-Tim helps me become more effective at e-filing.	.928
9	Tax-Tim helps me be more productive at e-filing.	.943
10	Tax-Tim is a useful system for learning e-filing.	.899

Table 4.6: Rotated Component Matrix TAM constructs (continued)		
	Perceived Ease of use	
11	Tax-Tim is an easy to use e-learning system.	.855
12	Tax-Tim system is user friendly.	.756
13	Tax-Tim requires the fewest steps possible to accomplish e-filing.	.773
14	I can use it without written instructions.	.827
15	I can recover from mistakes made quickly and easily.	.770
	Behavioural intention	
16	I can use it successfully in the future, every time.	.787
	Attitude towards using	
17	I learned to use the Tax-Tim system quickly.	.844
18	I can easily remember how to use it.	.934
19	I can quickly become skilful at using the Tax-Tim system to e-file.	.899
20	I am satisfied with the Tax-Tim programme.	.937
21	I would recommend it to a friend to complete their e-filing tax return.	.937

4.15 Summary of chapter four

This chapter discussed the research methodology used in this study. The chosen theoretical framework was TAM which is widely used to gather research on e-learning perceptions. The questions were aligned to gather data that related to the achievement of the objectives of this current study. This study used a questionnaire as the data collection tool. Questionnaires were administered in a controlled lecture venue to 186 students who had completed the on-line Tax-Tim assignment. Reliability and validity were maintained by pre-testing the questionnaire using lecturers before it was administered. A statistician was used to pilot-test the completed questionnaire from the pre-testing phase. Additionally, privacy and confidentiality were maintained during the administration of the questionnaires and the research writing. The next chapter presents and discusses the findings of the research.

CHAPTER FIVE: PRESENTATION AND DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter presents the findings related to the research questions: (1a) What are students' perceptions towards perceived usefulness, perceived ease of use, attitude towards using, and behavioural intention to use used in the TAM, and (1b) Are students' perceptions of the constructs in the TAM positive predictors of students' behavioural intention to use technology; (2) What are students' perceptions of the effectiveness of Tax-Tim as an e-learning tool; and (3) What do students perceive to be the main benefits and challenges of using Tax-Tim. The results from the analysis of the data obtained from the questionnaires are presented in the form of cross-tabulations and other tables.

5.2 Information on students

This section summarises the biographical characteristics of the students. The age and gender of the students are shown in Table 5.1.

5.2.1 Age and gender

Table 5.1: Age and Gender

Age Group (years)	Female		Male		Total	
	No	%	No	%	No	%
18 – 19	23	51%	22	49%	45	24%
20 – 24	71	55%	58	45%	129	70%
25 – 29	2	25%	6	75%	8	4%
> 30	4	100%	0	0%	4	2%
Total	**100**		**86**		**186**	

Table 5.1 shows that most students 129 (70%) who responded to the questionnaire were between the ages of 20 to 24. This is to be expected as this would be the general age group for 2nd year students in tertiary education. However, 45 students (24%) were aged between 18-19 years. With respect to gender overall there were

100 (54%) female students and 86 (46%) male students who responded to the questionnaire. In all categories the number of female students exceeded the male students, except for the 25 to 29 year category, where there were more male students (6) compared to female students (2).

5.2.1 *Qualification*

Table 5.2: National Diploma

National Diploma	Female		Male		Total	
	No	%	No	%	No	%
Financial accounting	36	64%	20	36%	56	30%
Cost and management accounting	12	44%	15	56%	27	15%
Internal auditing	40	50%	40	50%	80	43%
Taxation	12	52%	11	48%	23	12%
Total	**100**		**86**		**186**	

Table 5.2 indicates that 80 (43%) students were enrolled for the Diploma in Internal Auditing with a further 56 (30%) studying for the Diploma in Financial Accounting. Twenty-seven (15%) students were enrolled for Diploma in Cost & Management accounting and twenty-three (12%) students were studying towards the diploma in Taxation. The reason for the low response rate in the diplomas of cost & management, accounting and taxation were because these students were not present at the time of the data collection. However, the students are all in the same field of study, as Taxation 1 is a compulsory module across all disciplines. With respect to gender, 36 (64%) female students are studying financial accounting compared to male students 20 (36%). This may indicate that more female students choose to study the Diploma in Financial Accounting when compared to male students. Overall, a higher percentage of female students are studying the Diploma in Internal Auditing 40 (40%) out of 100; this is similar to the higher percentage of male students studying the same diploma (40 out of 86 or 47%).

5.2.2 *Lecture attendance*

The results of the question asking students to indicate their lecture attendance are shown in Table 5.3.

Table 5.3: Lecture attendance

Lecture per week	Female		Male		Total	
	No	%	No	%	No	%
1 per week	6	100%	0	0%	6	3%
2 per week	26	44%	33	56%	59	32%
3 per week	36	55%	29	45%	65	35%
4 per week	32	58%	24	42%	56	30%
Total	**100**		**86**		**186**	

Likert scale: 1=0; 2=1 per week; 3=2 per week; 4=3 per week; 5=4 per week.

Although the questionnaire gave students the option to record that they never attended lectures, no students chose this option. The mean score for this question was 4.0. Most of the students, 121 (65%), attended 3-4 lectures per week. According to the gender profile, females, 68 (56%), outweighed males, 53 (44%), in attendance. Therefore, the students' lecture attendance was respectable and demonstrates that they should have gained the knowledge needed to handle the Tax-Tim assignment.

5.2.3 *Computer knowledge*

Table 5.4: Level of computer skills/literacy

Level of computer skills/literacy	Female		Male		Total	
	No	%	No	%	No	%
Poor	4	50%	4	50%	8	4%
Average	24	56%	19	44%	43	23%
Good	35	54%	30	46%	65	35%
Excellent	37	53%	33	47%	70	38%
Total	**100**		**86**		**186**	

One hundred and thirty-five (135) (73%) students indicated that they had good to excellent computer skills, while 43 (23%) indicated that their computer skills were average. Eight students (4%) indicated that their computer knowledge was poor.

With regards to gender, male students, although having less representation, indicated a higher level of good to excellent computer skills (77%) than females (72%). Students at DUT have access to labs on campus and as part of their diploma course it is compulsory to take a computer skills module, Business Information Systems. As Tax-Tim is a computer-based e-filing simulation, most students seemed comfortable with using a computer and a lack of computer skills/literacy should not impact the effectiveness of Tax-Tim as a learning method.

5.2.4 *Blackboard attendance*

Students were next asked as to the number of e-learning sessions they had attended on Blackboard. These sessions were made up of interactions with Blackboard, e.g. retrieving files and participating in discussion boards. These responses are shown in Table 5.5.

Table 5.5: Blackboard sessions

Number of Blackboard sessions	Female		Male		Total	
	No	%	No	%	No	%
0	37	36%	66	64%	103	55%
1	18	100%	0	0%	18	10%
2	15	79%	4	21%	19	10%
3	10	83%	2	17%	12	6%
>4	20	59%	14	41%	34	19%
Total	**100**		**86**		**186**	

Table 5.5 shows that many students 103 (55%) did not attend any Blackboard sessions. The mean score for this question was 1.23 indicating how few Blackboard sessions on average students attended. This low attendance on Blackboard sessions can be contrasted to the results in Table 5.4, which showed that many students 135 (73%) believed their computer skills/literacy were good to excellent, and this may have led them to perceive attending Blackboard sessions as being a waste of time as the sessions are voluntary.

5.2.5 *Language demographics*

Table 5.6: Language demographics						
Language	**Female**		**Male**		**Total**	
	No	**%**	**No**	**%**	**No**	**%**
IsiZulu	80	61%	51	39%	131	100%
IsiXhosa	8	61%	5	39%	13	100%
English	10	26%	28	74%	38	100%
Other	2	50%	2	50%	4	100%
Total	**100**		**86**		**186**	

Table 5.6 depicts that 148 (80%) students did not speak English as a first language and isiZulu was identified as the dominant home language. All DUT teaching is delivered in English. However, many of the students 135 (73%) have good to excellent computer skills/literacy, and as it can be assumed that the language of computers are important in this context, the home language of students should not have a negative bearing on the effectiveness of the Tax-Tim project.

5.2.6 *Summary of information on students*

Generally, most students are aged between 18 to 24, which is to be expected of a student base studying a second year national diploma. The gender of the students tends towards a majority of females and many students have good to excellent computer skills/literacy. The language demographics showed that majority of the students were English second language (ESL) students.

In the next section of the chapter, statistics addressing the research objectives are presented.

5.3 Students' perceptions towards the e-learning tool, Tax-Tim

The first research objective was investigated by (1a) examining the students' perceptions of the constructs which make up TAM (Davis 1989) and (1b) using the hypotheses developed in chapter three, testing to determine whether students' perceptions of the constructs in the TAM are positive predictors of students' behavioural intention to use technology. To determine students' perceptions towards using e-learning tool, Tax-Tim in taxation syllabus, this section first

examines students' perceptions on the individual constructs which make up the TAM as depicted in Figure 5.1.

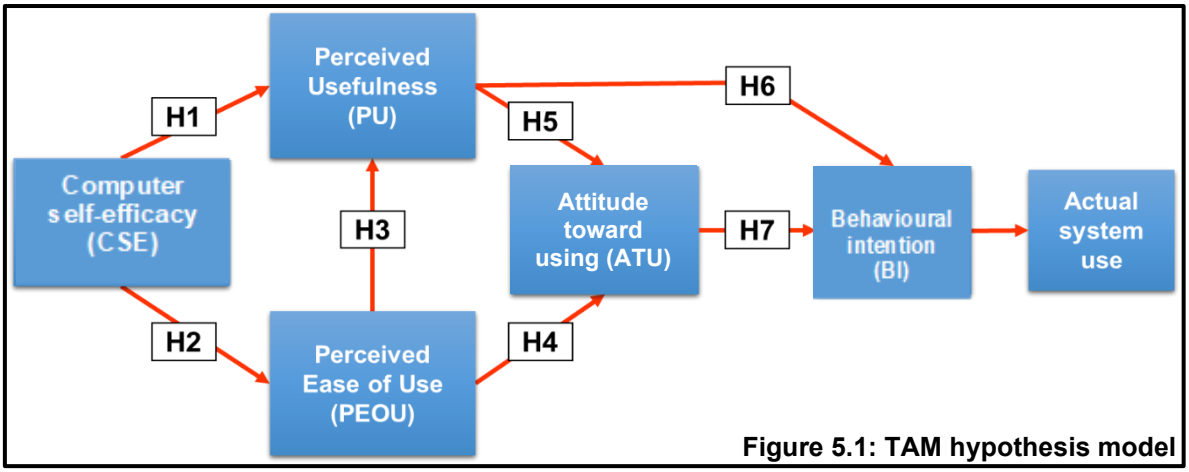

Figure 5.1: TAM hypothesis model

Note: although hypotheses in the model are usually labelled 1a, 1b, 2 and 3, etc. the hypothesis have been labelled numerically for clarity purposes.

5.3.1 *Students' perceptions towards the constructs of TAM*

The first construct to be examined is Computer self-efficacy (CSE).

i. Computer self-efficacy (CSE)

The external variable investigated in the TAM is computer self-efficacy (CSE). Although this was discussed earlier in the background section, CSE is included here as it is a construct in the TAM. Students were asked to indicate their level of computer skills/literacy. Their responses are summarised in Table 5.7.

Table 5.7: Computer self-efficacy

Q	*N = 186*	Poor	Aver age	Good	Excell ent	Total	Chi-Square	df	Asymp. Sig.
5	What is your level of computer skills/literacy?	7	43	65	72	186	51.4	3	.000[a]
		4%	23%	35%	38%	100%			

Notes:
A Likert scale of poor = 1; average = 2; good = 3; excellent = 4 was used.
a = significant at 1% level.

Table 5.7 shows that most students (136 or 73%) judged their computer skills to be good to excellent. This would suggest that the students already had good computer skills, which may be a reason for the poor attendance at Blackboard sessions. Consequently, students who noted that they do have enough computer skills/literacy should perceive the Tax-Tim, e-filing simulation more comfortable to use than those students who have poor to average computer skills (50 or 27%).

ii. Perceived usefulness (PU)

Questions on the perceived usefulness (PU) construct and the students' responses are shown in Table 5.8.

Table 5.8: Perceived usefulness

Q	Usefulness (N = 186)	Disagree	Neutral	Agree	Total	Mean	SD	Chi-Square	df	Asymp. Sig.
8	Using Tax-Tim helps me become more effective at e-filing	29%	38%	33%	100%	2.91	1.13	2.6	2	.271
		53	71	62	186					
9	Tax-Tim helps me be more productive at e-filing	26%	37%	37%	100%	3.05	1.06	4.1	2	.129
		49	69	68	186					
10	Tax-Tim is a useful system for learning e-filing	22%	40%	38%	100%	3.20	1.07	10.7	2	.005[a]
		41	74	71	186					

Notes:
A Likert scale of strongly disagree = 1; disagree = 2; neutral = 3; agree = 4; strongly agree = 5 was used. In this table the scores were collapsed into disagree, neutral, agree.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%

For all three questions shown in Table 5.8, students' responses were mainly neutral in their opinions towards the statements. However, for all three statements, the levels of agreement were higher than the levels of disagreement. To determine whether the scoring patterns per statement were significantly different, a chi-square test was done. The null hypothesis claims that a similar number of students (students) scored similarly across each option for each statement. The alternate hypothesis states that there is a significant difference between the levels of agreement and disagreement. The results of the chi-square showed an insignificant

trend. Statement 10 was the only significant statistical difference at the 1% level indicating that it is a difference in students' opinions on this question.

To provide a deeper analysis of the PU construct, the results were also analysed on a gender basis. These results are shown in Table 5.9

Table 5.9: Level of agreements with perceived usefulness (PU) & Gender

Q	Statements Questions 8 - 10	Female n = 100		Male n = 86		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
8	Using TT helps be become more effective at e-filing	2.96	1.09	2.86	1.18	2.91	1.13	-0.506	0.61
9	TT helps me be more productive at e-filing	3.10	1.05	3.00	1.08	3.05	1.06	-0.525	0.59
10	TT is a useful system for learning e-filing	3.27	1.04	3.13	1.10	3.20	1.07	-0.473	0.63

Notes:
The p-value from the Kolmogorov-Smirnov test indicated that none of the distributions are normal. Hence non-parametric tests are used.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

Table 5.9 shows that the mean scores for the female students and the male students were very similar, although the female students' means were higher for all the three statements when compared to the males and that the responses were mainly neutral in respect of all three statements. However, the Mann-Whitney U test showed that any differences between the male and female responses were statistically insignificant.

The PU construct was also analysed in terms of students' first language. These results are shown in Table 5.10. For question 10 *Tax-Tim is a useful system for learning e-filing,* ESL students find the system more useful (*m=3.27*) than students with English as their first language (EL) (*m=2.95*). This is significant as more students are ESL students. However, The Mann-Whitney U test showed that none of these differences were statistically significant. It can be therefore stated that students on a gender basis and language basis, have similar opinions on PU.

Table 5.10: Level of agreement with perceived usefulness (PU) & language

Q	Statements Questions 8 - 10	EL n = 38		ESL n = 148		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
8	Using TT helps be become more effective at e-filing	2.95	1.49	2.91	1.03	2.91	1.13	-0.177	0.86
9	TT helps me be more productive at e-filing	3.00	1.54	3.07	0.91	3.05	1.06	-0.057	0.95
10	TT is a useful system for learning e-filing	2.95	1.41	3.27	0.96	3.20	1.07	-1.085	0.27

Notes:
The p-value from the Kolmogorov-Smirnov test indicated that none of the distributions are normal. Hence non-parametric tests are used.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

Table 5.11 shows a cross-tabulation using the computer skills of the students and PU. For two of the statements, *Using TT helps me become more effective at e-filing* and *TT is a useful system for learning e-filing,* there were significant differences at the 10% level. This indicates that students with very poor/ poor and average computer skills found TT more useful than students with good/excellent computer skills.

Table 5.11: Level of agreement with perceived usefulness (PU) & Computer skills

Q	Statements Questions 8 –10	Good/ excellent n = 136		Very poor/ poor/ average n = 50		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
8	Using TT helps me become more effective at e-filing	2.69	1.01	3.00	1.17	2.91	1.13	-1.909	0.056[c]
9	TT helps me be more productive at e-filing	2.92	1.11	3.10	1.05	3.05	1.06	-1.020	0.308
10	TT is a useful system for learning e-filing	3.00	0.96	3.28	1.10	3.20	1.07	-1.747	0.081[c]

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

The next construct to be examined is perceived ease of use (PEOU).

iii. Perceived ease of use (PEOU)

The results of the question on the PEOU construct, and students' responses are shown in Table 5.12.

Table 5.12: Perceived ease of use (PEOU)

Q	Perceived ease of use N = 186	Disagree	Neutral	Agree	Total	Chi-Square	df	Asymp. Sig.
11	Tax-Tim is an easy to use e-learning system	32%	32%	36%	100%	0.42	2	.811
		60	60	66	186			
12	Tax-Tim system is user friendly	28%	38%	34%	100%	2.36	2	.308
		52	71	63	186			
13	Tax-Tim requires the fewest steps possible to accomplish e-filing	32%	35%	33%	100%	0.23	2	.893
		60	65	61	186			
14	I can use it without written instructions	47%	24%	29%	100%	18.29	2	.000[a]
		87	45	54	186			
15	I can recover from mistakes made quickly and easily	26%	24%	50%	100%	23.45	2	.000[a]
		48	45	96	186			

A Likert scale of strongly disagree = 1; disagree = 2; neutral = 3; agree = 4; strongly agree = 5. In this table the scores were collapsed into disagree, neutral, agree.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

Table 5.12 shows that many students had neutral opinions towards the statements. The question *I can use it without written instructions* shows a higher disagreement (87 or 47%) by students and a statistically significant difference at the 1% level. This would suggest that students cannot use the Tax-Tim e-filing system without having written instruction indicating that the system is not user friendly. Alternatively, *I can recover from mistakes made quickly and easily* displays higher agreement (96 or 50%) and this is significant at the 1% level. This higher agreement suggests that students feel comfortable to use the system and won't be afraid to make mistakes, knowing they will be able to recover quickly and easily.

To provide a deeper analysis of PEOU, the responses were also analysed in terms of gender. This is shown in Table 5.13.

Table 5.13: Level of agreement with Perceived ease of use (PEOU) & Gender

Q	Statements Questions 11 – 15	Female n = 100		Male n = 86		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
11	TT is an easy-to use e-learning system	3.08	0.99	2.77	1.22	2.94	1.11	-1.43	0.154
12	TT system is user friendly	3.06	0.96	2.88	1.21	2.98	1.09	-0.87	0.384
13	TT requires the fewest steps possible to accomplish e-filing	3.03	0.97	2.76	1.25	2.90	1.12	-1.61	0.107
14	I can use it without written instructions	2.63	1.08	2.53	1.29	2.59	1.18	-0.55	0.585
15	I can recover from mistakes made quickly and easily	3.23	1.01	3.10	1.35	3.17	1.18	-0.25	0.806

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
All p values are >10% and are therefore statistically insignificant.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

Table 5.13 shows that overall, for all statements comprising this construct, the female students were more frequently in agreement with the statements than male students, although the levels of agreement tended towards neutral *(m=3.00)*. The Mann-Whitney U test showed no statistically significant differences.

The PEOU construct was also analysed in terms of language. These results are shown in Table 5.14.

Table 5.14: Level of agreement with perceived ease of use (PEOU) & language

Q	Statements Questions 11 - 15	EL n = 38		ESL n = 148		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
11	TT is an easy-to use e-learning system	2.68	1.58	3.00	0.95	2.94	1.11	-1.116	0.264
12	TT system is user friendly	2.68	1.40	3.05	0.98	2.98	1.09	-1.538	0.124
13	TT requires the fewest steps possible to accomplish e-filing	2.42	1.55	3.03	0.94	2.90	1.12	-2.403	0.016[b]
14	I can use it without written instructions	2.26	1.43	2.67	1.10	2.59	1.18	-1.821	0.069[c]
15	I can recover from mistakes made quickly and easily	2.82	1.52	3.26	1.06	3.17	1.18	-1.312	0.190

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.14 depicts that for all the statements, the ESL students were more in agreement with the statements, although all the responses tended towards neutral *(m=3.00).* Furthermore, two of the statements *TT requires the fewest steps possible to accomplish e-filing* and *I can use it without written instruction* had statistically significant differences at the 5% and 10% level respectively. These results show that ESL speaking students found more value in TT's PEOU.

A further analysis of PEOU was conducted using students' perceptions of their computer skills/literacy. The results are shown in Table 5.15.

Table 5.15: Level of agreement with Perceived ease of use (PEOU) & Computer skills

Q	Statements Questions 11 - 15	Good/ excellent n = 136		Very poor/poor /average n = 50		Total n = 186		Mann-Whitney U test[1]	
		Mean	SD	Mean	SD	Mean	SD	Z	P
11	TT is an easy-to use e-learning system	2.84	0.95	2.97	1.17	2.94	1.11	-0.89	0.38
12	TT system is user friendly	2.78	1.05	3.05	1.09	2.98	1.09	-1.73	0.08[c]
13	TT requires the fewest steps possible to accomplish e-filing	2.88	1.03	2.91	1.15	2.90	1.12	-0.32	0.75
14	I can use it without written instructions	2.27	0.92	2.70	1.25	2.59	1.18	-2.23	0.02[b]
15	I can recover from mistakes made quickly and easily	3.16	1.07	3.18	1.22	3.17	1.18	-0.30	0.77

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.15 shows that the students with very poor/poor or average computer skills/literacy were more in agreement with the statements, although their scores tended to be very close to neutral (*m=3.00).* The statement which had the most support was *I can recover from mistakes made quickly and easily* (*m=3.18)* for the students with very poor, poor and average computer skills/literacy and (*m=3.16*). For students with good and excellent computer skills. Statements (12) *TT is user friendly* was statistically significant at the 10% and (14) *I can use it without written instructions* was statistically significant at the 5% level. This indicates that students with very poor/poor/average computer skills had a statistically significant different opinion on these two statements when compared to the students with good/excellent computer skills.

iv. Attitude towards using (ATU)

The items which tested the attitude towards using (ATU) e-learning technology construct, are shown in Table 5.16.

Table 5.16: Analysis of Attitude towards using (ATU) construct

Q	Attitude towards using N = 186	Disagree	Neutral	Agree	Total	Chi-Square	df	Asymp. Sig.
17	I learned to use the Tax-Tim system quickly	27%	37%	36%	100%	3.52	2	.172
		50	69	67	186			
18	I can easily remember how to use it	27%	29%	44%	100%	9.71	2	.008[a]
		50	54	82	186			
19	I can quickly become skillful at using the Tax-Tim system to e-file	27%	33%	40%	100%	5.07	2	.079[c]
		50	61	75	186			
20	I am satisfied with the Tax-Tim programme	30%	40%	30%	100%	4.74	2	.093
		55	76	55	186			
21	I would recommend it to a friend to complete their e-filing tax return	31%	37%	32%	100%	1.26	2	.533
		57	69	60	186			

A Likert scale of strongly disagree = 1; disagree = 2; neutral = 3; agree = 4; strongly agree = 5 was used. In this table the scores were collapsed into disagree, neutral and agree.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

Table 5.16 shows that for two statements *I can easily remember how to use it and I can quickly become skillful at using the Tax-Tim system to e-file* had the most support compared to the other statements where the students expressed neutral opinions. This may suggest that students have a positive attitude towards using the TT system and that they may continue using the system in the future. The results of the chi-square test showed that there were significant differences to statements 18 and 19 at 1% and 10% respectively.

To provide a deeper analysis of the ATU construct, the responses were also sorted using gender. The results are shown in Table 5.17.

Table 5.17: Level of agreements with Attitude towards using (ATU) & Gender

Q	Statements Questions 17 – 21	Female n = 100		Male n = 86		Total n = 186		Mann-Whitney U test[1]	
		Mean	SD	Mean	SD	Mean	SD	Z	P
17	I learned to use the TT system quickly	3.13	1.05	3.01	1.29	3.08	1.16	-0.286	0.775
18	I can remember how to use it	3.33	1.05	3.00	1.19	3.18	1.13	-1.718	0.086[c]
19	I can quickly become skillful at using the TT system to e-file	3.30	0.96	2.90	1.16	3.11	1.07	-1.975	0.048[b]
20	I am satisfied with the TT programme	2.83	0.97	2.92	1.13	2.87	1.05	-0.688	0.492
21	I would recommend it to a friend to complete their e-filing tax return	2.75	1.10	3.08	1.29	2.90	1.20	-1.972	0.049[b]

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.17 shows that the three statements (17-19), the female students were more in agreement with the statements, with means slightly above *3.00*. For the last two statements (20-21) the male students were more in agreement with the statements, although the means were close to 3.00 (i.e. neutral). The Mann-Whitney U test indicates that there is a significant difference at the 5% level for the statements *I can quickly become skillful at using the TT system to e-file* and *I would recommend it to a friend to complete their e-filing tax return*. Furthermore, at the 10% level of significance was the statement *I can remember how to use it*. These results suggest that overall, the female students are more positive towards the ATU statements based on their means for the statements being >3.00 and that two of the statements had a statistically significant difference at 5% on gender basis.

Examining ATU in terms of language is shown in Table 5.18.

Table 5.18 shows that the ESL students expressed more agreement with all the statements, albeit with means less than 4.00 (agree).

Table 5.18: Level of agreements with Attitude towards using (ATU) & language

Q	Statements Questions 17 - 21	EL n = 38		ESL n = 148		Total n = 186		Mann-Whitney U test[1]	
		Mean	SD	Mean	SD	Mean	SD	Z	P
17	I learned to use the TT system quickly	2.55	1.57	3.21	1.00	3.08	1.16	-2.58	0.010[a]
18	I can remember how to use it	2.61	1.42	3.32	0.99	3.18	1.13	-2.95	0.003[a]
19	I can quickly become skillful at using the TT system to e-file	2.61	1.50	3.24	0.89	3.11	1.07	-2.41	0.016[b]
20	I am satisfied with the TT programme	2.45	1.22	2.98	0.97	2.87	1.05	-2.30	0.021[b]
21	I would recommend it to a friend to complete their e-filing tax return	2.45	1.39	3.02	1.13	2.90	1.20	-2.24	0.025[b]

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.18 depicts that the means for most ESL students' scores on the statements tended to be more than *m=3.00*, when compared to the EL. For one statement, *I can remember how to use it,* there was a significant difference between EL *(m=2.61)* as compared to ESL students *(m=3.32),* which would suggest that the ESL students were not hindered by language and had a more positive attitude to use the system again than EL students. All the statements showed statistically significant differences at the 1% and 5% levels, indicating that for ATU, the ESL students had a statistically significant difference in their attitudes towards using TT compared to the EL students.

The final analysis sorted ATU using computer skills as indicated by the students. These results are shown in Table 5.19.

Table 5.19: Level of agreements with Attitude towards using (ATU) & Computer skills

Q	Statements Questions 17 - 21	Very poor/ poor/ average n = 50		Good/ excellent n = 136		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P[2]
17	I learned to use the TT system quickly	3.06	1.08	3.08	1.20	3.08	1.16	-0.349	0.727
18	I can remember how to use it	2.88	1.07	3.29	1.13	3.18	1.13	-2.490	0.013[b]
19	I can quickly become skillful at using the TT system to e-file	2.76	0.93	3.24	1.10	3.11	1.07	-2.895	0.004[a]
20	I am satisfied with the TT programme	2.84	0.81	2.88	1.13	2.87	1.05	-0.668	0.504
21	I would recommend it to a friend to complete their e-filing tax return	2.92	1.04	2.90	1.27	2.90	1.20	-0.005	0.996

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.19 shows that for the first three statements, the students who perceived they had excellent computer skills/literacy were more in agreement with the statements, with the means exceeding 3.00. The last statement shows a different pattern, although the difference is negligible. For two of the statements *I can quickly become skillful at using TT system to e-file* (19) and *I can remember how to use it* (18), there were statistically significant differences at the 1% and 5% level respectively.

v. Behavioural Intention (BI)

Table 5.20: Behavioural intention

Q	Behavioural Intention n = 186	Disagree	Neutral	Agree	Total	Mean	Chi-Square	df	Asymp. Sig.
16	I can use it successfully in the future, every time	20%	29%	51%	100%	3.31	26.839	2	.000[a]
		37	54	95	186				

A Likert scale of strongly disagree = 1; disagree = 2; neutral = 3; agree = 4; strongly agree = 5 was used. In this table the scores were collapsed into disagree, neutral, agree.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

The behavioural intention (BI) towards using e-learning technology construct was tested with the statement shown in Table 5.20.

The results of the analysis revealed that 95 (51%) students who had used Tax-Tim agreed with the statement *I can use it successfully in the future, every time.* Ninety-one (49%) students were either neutral or disagreed with this statement. The chi-square test showed a statistically significant difference at the 1% level. This weak support to the BI statement may reflect that students were only exposed to Tax-Tim once. More frequent use of the system would enhance students' confidence to use the Tax-Tim I the future.

To provide more information on BI, this construct was analysed in terms of gender.

Table 5.21: Level of agreement with Behavioural intention (BI) & Gender

Q	Statements Question 16	Female n = 100		Male n = 86		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
16	I can use it successfully in the future, every time	3.42	0.91	3.19	1.35	3.31	1.14	-0.946	0.344

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.21 shows that the female students were more in agreement (*m=3.42*) with the BI statement, although the means tended towards neutral.

The language analysis of BI is shown in Table 5.22.

Table 5.22: Level of agreement with Behavioural intention (BI) & Language

Q	Statements Question 16	EL n = 38		ESL n = 148		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
16	I can use it successfully in the future, every time	2.89	1.50	3.42	1.00	3.31	1.14	-1.78	0.074[c]

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

The ESL students were more in agreement with the BI statement with a mean of 3.42. The Mann-Whitney U test indicated that there was a statistically significant difference at 10% between the opinions of the EL and ESL students. Further analysis of BI was done in terms of students' perceived computer skills/literacy.

Table 5.23 shows the level of agreement of BI and computer skills level.

Table 5.23: Level of agreement with Behavioural intention (BI) & Computer skills

Q	Statements Question 16	Very poor/ poor/ average n = 50		Good/ excellent n = 136		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
16	I can use it successfully in the future, every time	3.29	1.08	3.32	1.16	3.31	1.14	-0.21	0.831

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

The analysis shown in Table 5.23 shows very little difference when the responses to BI of those students who perceived their computer skills were very poor/poor/average were compared to students with good/excellent computer skills. However, there was more agreement with the statement by students who had good/excellent computer skills. This difference is not statistically significant.

Table 5.24: Level of agreement with CSE, PU, PEOU, ATU, BI overall and Gender

Constructs	Female n = 100		Male n = 86		Total n = 186		Mann-Whitney U test	
	Mean	SD	Mean	SD	Mean	SD	Z	P
CSE	3.11	0.96	3.00	1.06	3.06	1.01	-0.41	0.68
PU	3.08	0.78	2.87	1.02	2.98	0.90	-1.16	0.24
PEOU	3.25	0.86	2.97	1.13	3.12	1.00	-0.93	0.35
ATU	2.79	0.95	3.00	1.17	2.89	1.06	-1.89	0.05[b]
BI	3.11	0.76	2.94	1.02	3.03	0.89	-1.15	0.25

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

5.3.2 *Constructs of the TAM*

The constructs of the TAM model CSE, PU, PEOU, ATU and BI towards using e-learning technology are shown overall and broken down by gender in Table 5.24.

Table 5.24 depicts overall across the constructs that have a higher mean (*m=3.00*) were computer self-efficacy (*m=3.06*); perceived ease of use (*m=3.12*) and behavioural intention (*m=3.03*). There were gender differences. Female students displayed a neutral or slightly higher mean than that of the male students. The constructs that show a higher mean were PU (m=*3.08),* PEOU *(m=3.25)* and BI (*m=3.11*) and CSE (*m=3.11*). Furthermore, the Mann-Whitney U test showed that there was statistically significant difference at 5% for ATU.

Table 5.25 shows the students' level of agreement with all the hypotheses constructs broken down by language.

Table 5.25: Level of agreement with CSE, PU, PEOU, ATU, BI overall & Language

Constructs	EL n = 38		ESL n = 148		Total n = 186		Mann-Whitney U test[1]	
	Mean	SD	Mean	SD	Mean	SD	Z	P
CSE	2.96	1.45	3.08	0.86	3.06	1.01	-1.38	0.16[c]
PU	2.63	1.37	3.07	0.72	2.98	0.90	-1.58	0.11[c]
PEOU	2.59	1.44	3.26	0.80	3.12	1.00	-2.47	0.01[b]
ATU	2.45	1.27	3.00	0.97	2.89	1.06	-0.60	0.54[c]
BI	2.49	1.32	3.17	0.68	3.03	0.89	-1.21	0.22[c]

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.25 shows that ESL students' means across all constructs are much higher than the EL students. However, the Mann-Whitney U test showed that the only construct PEOU was statistically significant at 5%.

Table 5.26 depicts the level of students' agreement with all the hypotheses constructs broken down by computer skills.

Table 5.26: Level of agreement with CSE, PU, PEOU, ATU, BI overall & Computer skills

Constructs	Very poor/ poor/ average		Good/ excellent		Total n = 186		Mann-Whitney U test	
	Mean	SD	Mean	SD	Mean	SD	Z	P[2]
CSE	2.87	0.99	3.13	1.01	3.06	1.01	-0.29	0.76
PU	2.87	0.65	3.02	0.98	2.98	0.90	-1.87	0.06
PEOU	2.90	0.89	3.20	1.03	3.12	1.00	-2.36	0.01[b]
ATU	2.88	0.81	2.89	1.14	2.89	1.06	-2.03	0.04
BI	3.14	0.81	2.99	0.92	3.03	0.89	-2.36	0.01

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.
A Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree was used.

Table 5.26 shows that the students with good to excellent computer skills' means were higher than the means of students with very poor/poor/average computer

skills. Additionally, the Mann-Whitney U test showed that the construct PU is statistically significance at 10% and constructs PEOU, ATU and BI were significant at 5%.

5.3.3 *Relationships between the constructs*

This section further examines the correlations between the constructs CSE, PU, PEOU, ATU and BI and tests the hypotheses. To determine the relationships between students' measures of the constructs, a Pearson's correlation (r) analysis was done. The results are shown in Table 5.27.

Table 5.27: Correlations between constructs

Constructs	CSE	PU	PEOU	ATU	BI	Mean	SD
CSE	**1.00**	-	-	-	-	3.05	1.00
PU	.581[1]	**1.00**	-	-	-	2.98	.902
PEOU	.403[1]	.675[1]	**1.00**	-	-	3.12	1.00
ATU	.490[1]	.581[1]	.699[1]	**1.00**	-	2.88	1.05
BI	.470[1]	.415[1]	.446[1]	.563[1]	**1.00**	3.03	.890

Notes:
Correlation significant at the 0.01 level (2-tailed).
N=186

The correlations presented in the Table 5.27 reveal positive and significant relationships between all research variables; CSE and PU *(r=0.581, P<0.01)*, CSE and PEOU *(r=0.403, P<0.01)*, CSE and ATU *(r=0.490, P<0.01),* CSE and BI *(r=0.470, P<0.01)*, PU and PEOU *(r=0.675, P<0.01)*, PU and ATU *(r=0.581, P<0.01)*, PU and BI *(r=0.415, P<0.01)*, PEOU and ATU *(r=0.699, P<0.01)*, PEOU and BI *(r=0.446, P<0.01)*, ATU and BI *(r=0.563, P<0.01)*. A high correlation between PEOU and ATU *(r=0.699, P<0.01)* indicates that students that have a higher positive PEOU are more positive in their attitudes towards Tax-Tim. A similar conclusion can be made for PU and PEOU *(r=0.675, P<0.01)*.

5.3.4 *Summary of students' perceptions towards the constructs of TAM*

The constructs were analysed, and low means were noted throughout the constructs. However, the better a student's computer knowledge/skill, the more positive their behavioural intention to use an e-learning tool. Based on these findings, it is seen that perceived usefulness while using the e-learning technology has a strong correlation to positively affect students' behavioural intention towards TT thus supporting the constructs being tested. Additionally, students with high levels of computer skills/literacy viewed the Tax-Tim as a useful system for e-filing. The statistics revealed that Tax-Tim is a system that facilitates ease of learning. Many students with good to excellent computer skills/literacy agreed that they could learn the system quickly, can easily remember how to use the system and that they can quickly become skilfully in their use of the Tax-Tim system. Therefore, ease of learning had a positive effect on attitude to use the e-learning system.

In the next section the TAM is tested to determine whether the constructs were positive or negative predictors of BI.

5.4 Hypothesis testing of the TAM

A standard regression model was conducted to determine whether the constructs were positive predictors of students' perceptions of using e-learning technology to address the second part of the first research objective (1b). The results from the seven hypotheses using the regression model are presented below.

5.4.1 *Hypothesis 1*

The first hypothesis is that computer self-efficacy (CSE) will have a positive effect on students' perceived usefulness (PU) of e-learning technology.

Table 5.28: Hypothesis 1 – CSE and PU					
Variables	**Adjusted R square**	**R square**	**Standardized coefficient β**	**F**	**Sig.**
Computer self-efficacy (CSE)	-.010	.002	.047[a]	.177	.675[b]
Perceived usefulness (PU)					
a. Predictors: constant, Computer self-efficacy. b. Dependent variable – perceived usefulness.					

As shown in Table 5.28, the value of R square is .002 which indicates that students' CSE and PU explain 0.2% of the variance in BI. The adjusted R value (-*.010*) is close to zero implying little correlation between the variables. Since the ANOVA p-value >0.05 (*p = 0.675*), it implies that predictor (CSE) does not accurately predict the dependent variable (PU). This means that the coefficient (*.047*) of the independent variable is essentially not that different from zero. Therefore, the dependent variable does not contribute to the model and hypothesis 1 is rejected.

5.4.2 ***Hypothesis 2***

The second hypothesis is that Computer self-efficacy (CSE), will have a positive effect on students' perceived ease of use (PEOU) of e-learning technology.

Table 5.29: Hypothesis 2 – CSE and PEOU					
Variables	**Adjusted R square**	**R square**	**Standardized coefficient β**	**F**	**Sig.**
Computer self-efficacy (CSE)	-.012	.001	.027[a]	.059	.808[b]
Perceived ease of use (PEOU)					
a. Predictors: constant, Computer self-efficacy. b. Dependent variable – perceived ease of use.					

Table 5.29 shows that the value of R square is .001 which indicates that students' CSE and PU explain 0.1% of the variance in BI. The adjusted R value *(-.012*) is close to zero implying little correlation between the variables. Since the ANOVA sig. p-value >0.05 (*p = 0.808*), it implies that the predictor (CSE) does not accurately predict the dependent variable (PEOU). This means that the coefficient (*.027*) of the independent variable is essentially not that different from zero. Therefore, the dependent variable does not contribute to the model and hypothesis 2 is rejected.

5.4.3 *Hypothesis 3*

The third hypothesis is that Perceived ease of use (PEOU) has a positive effect on perceived usefulness (PU) of e-learning technology.

Table 5.30: Hypothesis 3 – PEOU and PU

Variables	Adjusted R square	R square	Standardized coefficient β	F	Sig.
Perceived ease of use (PEOU)	.109	.12	.347[a]	11.07	.001[b]
Perceived usefulness (PU)					

a. Predictors: constant, Perceived ease of use.
b. Dependent variable: Perceived usefulness.

As shown in Table 5.30, the value of R square is .12 which indicates that students' PEOU and PU explain 12% of the variance in BI. The adjusted R value (*.109*) implies there exists a reasonably strong correlation between the variables. Since the ANOVA sig. p-value <0.05 (*p = 0.001*), it implies that the independent variable (PEOU) is a good predictor of the dependent variable (PU). The coefficient (*.347*) means that the independent variable (PU) is not zero. Therefore, the dependent variable does contribute to the model and hypothesis 3 is accepted.

5.4.4 *Hypothesis 4*

The fourth hypothesis is that Perceived ease of use (PEOU), has a positive effect on attitude towards using (ATU) e-learning technology.

Table 5.31: Hypothesis 4 – PEOU and ATU

Variables	Adjusted R square	R square	Standardized coefficient β	F	Sig.
Perceived ease of use (PEOU)	.491	.498	.705[a]	80.22	.000[b]
Attitude towards using (ATU)					

a. Predictors: constant, Perceived ease of use.
b. Dependent variable: Attitude towards using.

As depicted in Table 5.31, the value of R square is .498 which indicates that students' PEOU and ATU explain 50% of the variance in students' BI. The adjusted R value (*.491*) implies there exists an extremely strong correlation between the variables. Since the ANOVA sig. p-value <0.05 (*p = 0.000*), it implies that the independent variable is a good predictor of the dependent variable. The coefficient (*.705*) means that the independent variable is not zero. Therefore, the dependent variable (ATU) does contribute positively to the model and Hypothesis 4 is accepted.

5.4.5 ***Hypothesis 5***

The fifth hypothesis is that Perceived usefulness (PU) while using e-learning technology positively affects attitude towards using (ATU).

Table 5.32: Hypothesis 5 – PU and ATU

Variables	Adjusted R square	R square	Standardized coefficient β	F	Sig.
Perceived usefulness (PU)	.011	.023	.152[a]	1.93	.169[b]
Attitude towards using (ATU)					

a. Predictors: constant, Perceived usefulness.
b. Dependent variable: Attitude towards using.

As shown in Table 5.32, the value of R square is .023 which indicates that students' PU and ATU explain 2% of the variance in students' BI. The adjusted R value *(0.011)* is close to zero implying little correlation between the variables. Since the ANOVA p-value >0.05 (*p =0.169*), it implies that the predictor (PU) does not accurately predict the dependent variable (ATU). This means that the coefficient (*0.152*) of the independent variable is essentially not that different from zero. Therefore, the dependent variable (ATU) does not contribute to the model and Hypothesis 5 is rejected.

5.4.6 *Hypothesis 6*

The sixth hypothesis is that Perceived usefulness (PU) while using e-learning technology positively affects behavioural intention (BI).

Table 5.33: Hypothesis 6 – PU and BI

Variables	Adjusted R square	R square	Standardized coefficient β	F	Sig.
Perceived usefulness (PU)	.064	.075	.274[a]	6.60	0.012[b]
Behavioural intention (BI)					

a. Predictors: constant, Perceived usefulness.
b. Dependent variable: Behavioural intention.

As shown in Table 5.33, the value of R square is .075 which indicates that students' PEOU and PU explain 7.5% of the variance in students' BI. The adjusted R value *(.064)* implies that there exists a strong correlation between the variables. Since the ANOVA sig. p-value <0.05 (*p=0.012*), it implies that the independent variable (PU) is a good predictor of the dependent variable (BI). The coefficient (*.274*) means that the independent variable is not zero. Therefore, the dependent variable (PU) does contribute positively to the model and Hypothesis 6 is accepted.

5.4.7 *Hypothesis 7*

The seventh hypothesis is that attitude towards using (ATU), e-learning technology has a positive effect on behavioural intention (BI) to use.

Table 5.34: Hypothesis 7 – ATU and BI

Variables	Adjusted R square	R square	Standardized coefficient β	F	Sig.
Attitude towards using (ATU)	.356	.354	.595[a]	44.43	.000[b]
Behavioural intention (BI)					

a. Predictors: Constant, Attitude towards using.
b. Dependent variable: Behavioural intention.

As shown in Table 5.34, the value of R square is .354 which indicates that students' ATU and BI explain 35% of the variance in BI. The adjusted R value (*.356*) implies that there exists a strong correlation between the variables. Since the ANOVA sig. p-value <0.05 (*p=0.000*), it implies that the independent variable (ATU) is a good predictor of the dependent variable (BI). The coefficient *(.595)* means that the independent variable is not zero. Therefore, the dependent variable (BI) does contribute positively to the model and Hypothesis 7 is accepted.

5.4.8 ***Summary of hypothesis testing***

Four hypotheses, H3: Perceived ease of use (PEOU) and perceived usefulness (PU); H4: Perceived ease of use (PEOU) and Attitude towards using (ATU); H6: Perceived usefulness (PU) and Behavioural intention (BI); H7: Attitude towards using (ATU) and Behavioural intention (BI) positively supported the TAM model.

Alternatively, three hypotheses, H1: Computer self-efficacy (CSE) and Perceived usefulness (PU); H2: Computer self-efficacy (CSE) and Perceived ease of use (PEOU); H5: Perceived usefulness (PU) and Attitude towards using (ATU) did not contributed to the TAM model. CSE was rejected as positively supporting the hypothesis. This could be attributable to the students having good to excellent computer skills that had an influence on their decisions affecting PU and PEOU.

In the next section, the statistics for research objective two will be discussed.

5.5 Students' perceptions of the effectiveness of Tax-Tim

The second research objective was achieved by research question two:

To what extent did the Tax-Tim case study effectively aid students an e-learning tool?

Questions 22-34 were designed to ascertain students' perceptions of the benefits and challenges experienced during the Tax-Tim project. Additionally, students were also given the opportunity to add any other benefits they may have gained from the use of Tax-Tim in the course, and what they perceived the most difficult area of the Tax-Tim project.

Table 5.35: Analysis of extent of Tax-Tim effectiveness

Q	Extent of TT effectiveness:	Slightly effective	Moderate effective	Very effective	Total	Chi-Square	df	Asym Sig.
22	Integrate your understanding of the different components of Taxation 1	30%	45%	25%	100%	12.22	2	.002[a]
		56	84	47	186			
23	Develop skills in interpreting	32%	45%	24%	100%	12.48	2	.002[a]
		59	84	45	186			
24	Develop your ability to think critically about issues	26%	39%	34%	100%	4.74	2	.093
		49	73	64	186			
25	Improve your analytical skills	23%	36%	41%	100%	9.38	2	.009[a]
		43	67	76	186			
26	Develop your ability to synthesize the essential elements of a given situation	26%	46%	27%	100%	13.96	2	.001[a]
		49	87	50	186			
27	Consolidate your prior knowledge of the discipline	22%	40%	38%	100%	9.80	2	.007[a]
		40	74	71	186			
28	Increase your motivation to study the course	30%	34%	36%	100%	1.25	2	.533
		56	63	67	186			
29	Relate theory to real-life practice	27%	37%	36%	100%	3.51	2	.172
		50	69	67	186			
30	Encourage you to apply your knowledge to new situations	23%	36%	41%	100%	9.38	2	.009[a]
		43	67	76	186			
31	Give you the insight into practical business operations	28%	32%	40%	100%	4.48	2	.106
		52	60	74	186			
32	Teach you to integrate your technical knowledge of the discipline	22%	39%	39%	100%	10.67	2	.005[a]
		40	73	73	186			

Notes: The question used a Likert scale of 1 = not at all; 2 = slightly effective; 3 = moderately; 4 = effective 5 = very effective. In the table the responses have been summarised into slightly effective; moderately and very effective.
[a] = significant at 1%; [b] = significant at 5%; [c] = significant 10%.

Table 5.35 shows that for the eleven statements, students mostly agreed that Tax-Tim was moderately to very effective. The statements that obtained the highest response rate on moderately effectiveness were *develop your ability to synthesize the essential elements of a given situation (26), integrate your understanding of the different components of Taxation 1 (22) and develop skills in interpreting (23).* Additionally, statements that had the highest response rate on very effectiveness were *improve your analytical skills (25), encourage you to apply your knowledge to new situations (30), and give you the insight into practical business operations (31).* Furthermore, seven out of eleven statements were significant at the 1% level.

To provide a deeper analysis of the students' responses on the benefits of using TT, the responses were divided by gender. The results are presented in Table 5.36.

Table 5.36: Level of agreement with the benefits of TT project & Gender

Q	*Extent of TT effectiveness:*	Female n = 100		Male n = 86		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
22	Integrate your understanding of the different components of Taxation 1	3.02	0.93	2.70	1.11	2.87	1.03	-2.35	0.018[b]
23	Develop skills in interpreting	2.85	0.95	2.78	1.09	2.82	1.01	-0.47	0.635
24	Develop your ability to think critically about issues	3.08	0.97	2.97	1.13	3.03	1.05	-0.33	0.741
25	Improve your analytical skills	3.27	0.90	2.97	1.15	3.13	1.03	-1.59	0.112
26	Develop your ability to synthesize the essential elements of a given situation	2.95	0.81	2.94	1.18	2.95	1.00	-0.06	0.950
27	Consolidate your prior knowledge of the discipline	3.26	0.96	2.90	1.12	3.09	1.05	-2.55	0.011[b]
28	Increase your motivation to study the course	3.15	1.06	2.88	1.12	3.03	1.09	-1.71	0.086[c]
29	Relate theory to real-life practice	3.03	1.08	2.93	1.14	2.98	1.10	-0.60	0.548
30	Encourage you to apply your knowledge to new situations	3.25	0.97	3.03	1.15	3.15	1.06	-1.11	0.266
31	Give you the insight into practical business operations	3.24	1.09	3.00	1.22	3.13	1.16	-1.26	0.207
32	Teach you to integrate your technical knowledge of the discipline	3.13	0.91	3.20	1.23	3.16	1.07	-0.56	0.574

Notes:
The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
a = significant at 1%; b = significant at 5%; c = significant 10%.
The question used a Likert scale of 1 = not at all; 2 = slightly effective; 3 = moderately; 4 = effective 5 = very effective.

Table 5.36 shows that all 11 statements had low means indicating moderate effectiveness (*m=3.00*). All but one statement had higher means when comparing the means of the female students to that of the male students. This indicates that female students saw more benefit in the TT project than the males, although the means were low. The Mann-Whitney U tests depicts that statements that are significant at the 5% level are *integrate your understanding of the different components of Taxation 1 (22)* and *consolidate your prior knowledge of the*

discipline (27). Additionally, a statement that was significant at the 10% level, was *increase your motivation to study the course (28)*. For those statements, the female students had statistically significant opinions to that of the male students.

Further analysis involved splitting students' responses into EL and ESL. Table 5.37 shows the results.

Table 5.37: Level of agreement with the benefits of TT project & Language

Q	Extent of TT effectiveness:	EL n = 38		ESL n = 148		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
22	Integrate your understanding of the different components of Taxation 1	2.42	1.33	2.99	0.90	2.87	1.03	-2.09	0.036[b]
23	Develop skills in interpreting	2.26	1.31	2.96	0.87	2.82	1.01	-3.38	0.001[a]
24	Develop your ability to think critically about issues	2.58	1.45	3.14	0.89	3.03	1.05	-1.91	0.056[b]
25	Improve your analytical skills	2.47	1.41	3.30	0.84	3.13	1.03	-3.27	0.001[a]
26	Develop your ability to synthesize the essential elements of a given situation	2.47	1.29	3.07	0.87	2.95	1.00	-2.64	0.008[a]
27	Consolidate your prior knowledge of the discipline	2.47	1.45	3.25	0.86	3.09	1.05	-3.25	0.001[a]
28	Increase your motivation to study the course	2.63	1.51	3.13	0.94	3.03	1.09	-2.09	0.037[b]
29	Relate theory to real-life practice	2.53	1.52	3.10	0.94	2.98	1.10	-2.13	0.033[b]
30	Encourage you to apply your knowledge to new situations	2.53	1.37	3.31	0.90	3.15	1.06	-3.19	0.001[a]
31	Give you the insight into practical business operations	2.42	1.41	3.31	1.01	3.13	1.16	-3.53	0.000[a]
32	Teach you to integrate your technical knowledge of the discipline	2.63	1.32	3.30	0.95	3.16	1.07	-2.33	0.020[b]

Notes:
[1]The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
a = significant at 1%; b = significant at 5%.
The question used a Likert scale of 1 = not at all; 2 = slightly effective; 3 = moderately; 4 = effective 5 = very effective.

Table 5.37 shows that the ESL students' means tended towards moderately effective, however all were higher than the EL means. The ESL students found the TT more helpful as compared to the EL students. Additionally, a Mann-Whitney U test was performed, and all statements were statistically significant. This indicates that ESL benefited more from the Tax-Tim project than EL students.

To provide a deeper analysis on the students' responses on their benefits of using TT, the responses were divided into two groups based on their computer skills, i.e. very poor/poor/average and good/excellent. The results are presented in Table 5.38.

Table 5.38: Level of agreement with the benefits of TT project & level of computer skill/literacy

Q	Extent of TT effectiveness:	Poor, average		Good, excellent		Total n = 186		Mann-Whitney U test	
		Mean	SD	Mean	SD	Mean	SD	Z	P
22	Integrate your understanding of the different components of Taxation 1	2.80	0.98	2.90	1.05	2.87	1.03	-0.70	0.479
23	Develop skills in interpreting	2.98	0.97	2.76	1.03	2.82	1.01	-1.54	0.123
24	Develop your ability to think critically about issues	3.08	1.00	3.01	1.07	3.03	1.05	-0.49	0.620
25	Improve your analytical skills	2.96	0.96	3.19	1.05	3.13	1.03	-1.95	0.051[c]
26	Develop your ability to synthesize the essential elements of a given situation	3.22	0.97	2.84	0.99	2.95	1.00	-2.60	0.009[a]
27	Consolidate your prior knowledge of the discipline	3.25	0.98	3.03	1.07	3.09	1.05	-1.78	0.074[c]
28	Increase your motivation to study the course	3.33	0.97	2.91	1.12	3.03	1.09	-2.57	0.010[a]
29	Relate theory to real-life practice	3.08	0.91	2.95	1.17	2.98	1.10	-0.58	0.561
30	Encourage you to apply your knowledge to new situations	3.25	0.96	3.11	1.10	3.15	1.06	-0.73	0.463
31	Give you the insight into practical business operations	3.31	1.09	3.06	1.18	3.13	1.16	-1.46	0.142
32	Teach you to integrate your technical knowledge of the discipline	3.24	1.05	3.13	1.08	3.16	1.07	-0.38	0.703

Notes:
[1]The p-value from the Kolmogorov-Smirnov test indicates that none of the distributions are normal. Hence non-parametric tests are used.
a = significant at 1%; b = significant at 5%; c = significant 10%.
The question used a Likert scale of 1 = not at all; 2 = slightly effective; 3 = moderately; 4 = effective 5 = very effective.

Table 5.38 shows that for statement *improve your analytical skills (25)*, the mean of those students who have good/ excellent computer skills were (*m=3.19*) higher than that of students with very poor/poor/average computer skills. This may indicate that the TT case study only benefits students with good/excellent computer skills. However, for all the other statements (except statement 22) the means for the students with poor/average computer skills were higher.

Alternatively, the means of students with poor/average computer skills and the statements on d*evelop your ability to synthesize the essential elements of a given situation (24), consolidate your prior knowledge of the discipline (27), increase your motivation to study the course (28), relate theory to real-life practice (29), encourage you to apply your knowledge in new situations (30), give you the insight into practical business operations (31)* and *teach you to integrate your technical knowledge of the discipline (32),* were higher than that of students with good/excellent computer skills. This does indicate that students with poor or average computer skills did see a benefit from TT.

5.5.1 *Summary of students' perceptions of the effectiveness of Tax-Tim*

The second research objective set out to gain feedback on the research question on students' perceptions of the effectiveness of Tax-Tim as an e-learning tool. Students mostly agreed that Tax-Tim was an effective tool and added value to their experience of an e-learning tool. Additionally, ESL students found Tax-Tim to be more helpful than EL students.

5.6 Benefits and challenges of using Tax-Tim

The third research objective was to determine what students perceived to be the main benefits and challenges of using Tax-Tim.

Question 33 asked the students to identify which the three most valuable benefits of the Tax-Tim project were using statements 22 to 32 of the questionnaire. The results are shown in Table 5.39.

Table 5.39: Three ranked most valuable benefits					
RANK	**QUESTION**	**%**	**Chi-Square**	**df**	**Asymp. Sig.**
1	Q32:"Teach you to integrate your technical knowledge of the discipline?"	31%	17.435	9	.042[b]
2	Q28:"Increase your motivation to study the course?"	24%	11.92	12	.452
3	Q22:"Help you to integrate your understanding of the different components of Taxation 1?"	22%	12.519	10	.252
Note: a = significant at 1%; b = significant at 5%; c = significant 10%.					

Table 5.39 shows the top three ranked benefits that students indicated they had received from the Tax-Tim project. Two of the statements focused on the value of Tax-Tim as an integrated case study that helps improve students' ability to understand, apply and reinforce their knowledge. The first statement *Teach you to integrate your technical knowledge of the discipline,* was statistically significant at the 5% level and indicates that Tax-Tim provided a positive benefit towards students' knowledge.

5.6.1 *First ranked benefit of Tax-Tim*

The first ranked benefit was cross-tabulated with the computer skills that students had identified. The results are shown in table 5.40.

Table 5.40: Benefit 1 & level of computer skills/literacy cross-tabulation						
N = 186		**What is your level of computer skills/literacy?**				**Total**
		Poor	**Average**	**Good**	**Excellent**	
Teach you to integrate your technical knowledge of the discipline?	Slightly effective	2	7	7	25	41
		25%	16%	11%	36%	22%
	Moderately effective	2	21	29	20	72
		25%	49%	45%	29%	39%
	Very effective	4	15	29	25	73
		50%	35%	45%	36%	39%
Total		8	43	65	70	186
		100%	100%	100%	100%	100%
Note: A Likert scale where 1 = poor, 2 = average, 3 = good, 4 = excellent was used.						

Table 5.40 shows that the students that had poor computer skills found value in Tax-Tim in helping them integrate their technical knowledge. Furthermore, students who indicated that they had average, good and excellent computer skills also found more value in using Tax-Tim to integrate their technical knowledge of taxation. The

majority of the respondents for all levels of computer skills were in the moderately effective to very effective category.

5.6.1 *Second ranked benefit of Tax-Tim*

The second ranked benefit was cross-tabulated with the computer skills that students had indicated. The results are shown in Table 5.41.

Table 5.41: Benefit 2 & level of computer skill/literacy cross-tabulation

N = 186		**What is your level of computer skills/literacy?**				**Total**
		Poor	**Average**	**Good**	**Excellent**	
Increase your motivation to study the course?	Slightly effective	2	5	18	30	55
		25%	12%	28%	43%	30%
	Moderately effective	2	17	25	20	64
		25%	40%	39%	29%	34%
	Very effective	4	21	22	20	67
		50%	49%	34%	29%	36%
Total		8	43	65	70	186
		100%	100%	100%	100%	100%

Note:
A Likert scale where 1 = poor, 2 = average, 3 = good, 4 = excellent was used.

The cross-tabulation shows that the students who indicated that they have poor computer skills still found value in Tax-Tim in helping them increase their motivation to study the course. Furthermore, most of the students who had average, good and excellent computer skills found using Tax-Tim added to their motivation in using the e-learning tool. The majority of responses, regardless of the level of computer skills, were in the moderately to very effective categories.

5.6.1 *Third ranked benefit of Tax-Tim*

The third ranked benefit was cross-tabulated with students' level of computer skills. The results are shown in Table 5.42.

Table 5.42: Benefit 3 & level of computer skills/literacy cross-tabulation

N = 186		**What is your level of computer skills/literacy?**				**Total**
		Poor	**Average**	**Good**	**Excellent**	
Help you to integrate your understanding of the different components of Taxation 1?	Slightly effective	2	14	6	33	55
		25%	33%	9%	47%	30%
	Moderately effective	4	21	40	19	84
		50%	49%	62%	27%	45%
	Very effective	2	8	19	18	47
		25%	19%	29%	26%	25%
Total		8	43	65	70	186
		100%	100%	100%	100%	100%

Note:
A Likert scale where 1 = poor, 2 = average, 3 = good, 4 = excellent was used.

The cross-tabulation shows that the students that had poor computer skills (8) didn't find as much value in Tax-Tim as students with better computer skills. Two students who indicated poor computer skills found Tax-Tim very effective. Students that had average *(29*), good *(59)* and excellent *(37)* computer skills found Tax-Tim moderately to very effective in helping them integrate their understanding of the different taxation components.

Question 34 asked students How valuable did you find the use of Tax Tim as a learning method in the taxation course. These results are shown in Table 5.43.

Table 5.43: Analysis of the value added Tax-Tim as a learning method

N = 162	**Not valuable**	**Neither valuable nor not valuable**	**Valuable**	**Chi-Square**	**df**	**Asymp. Sig.**
How valuable did you find the use of Tax Tim as a learning method in the taxation course**?**	10%	33%	44%	103.98	4	.000[a]

Note:
a = significant at 1%; b = significant at 5%; c = significant 10%.

Table 5.43 shows that only 87% of the students answered the question, where forty-four percent (44%) of the students rated Tax-Tim as valuable as a learning and teaching method in the taxation course. Furthermore, the results are statistically significant at the 1% level.

5.6.2 *Other benefits and challenges of Tax-Tim*

i. E-learning benefits

Students were asked to highlight other benefits not mentioned in the questionnaire, that they gained from the use of the Tax-Tim in the course.There were only 4 responses to the question and all the four students agreed that the major benefit of Tax-Tim was that it teaches them about the calculations involved in taxation and this be applied to their learning and submitting their own tax return.

ii. E-learning challenges

The final question asked students to highlight the most difficult area in the Tax-Tim program. Table 5.44 depicts the challenges students faced while doing the Tax-Tim assignment. Only 25 students to this open-ended question. Their responses are summarised in Table 5.44.

Table 5.44: Difficult areas of the Tax-Tim project

Summary of challenges *(N=25)*	**Rank**	**No.**	**%**
Calculations used in Tax-Tim	1	10	40%
Understanding the questions of Tax-Tim assignment	2	7	28%
Structure of Tax-Tim	3	5	20%
Everything	4	3	12%
TOTAL		**25**	**100%**

Three out of 186 students that found the whole project difficult. The biggest challenge students identified were the calculations used in Tax-Tim, followed by understanding the questions and the structure of Tax-Tim.

5.7 Summary of benefits and challenges of using Tax-Tim

Most students found Tax-Tim to be a valuable teaching and learning tool. Students highlighted the three most valuable benefits that they perceived from the use of an online e-learning tool. These were that Tax-Tim helped them integrate their understanding of the different components of Taxation 1, increased their motivation to study the course and taught them to integrate their technical knowledge of the discipline. Very few challenges were identified by the students.

5.8 Summary of chapter five

The chapter presented and analysed the data collected for the study through descriptive statistics.

The first section examined and presented the background statistics which were broken down into categories of age and gender, qualification, lecture attendance, computer knowledge, Blackboard sessions and language demographics. The

biographical information showed a normal spread of general demographic data for DUT.

The second section examined the first research question was students' perceptions towards the constructs of TAM (1a) and the hypothesis testing of the TAM. A regression analysis was used to determine whether the seven hypotheses were positive predictors of students' perceptions of using e-learning technology. Four of the seven constructs positively supported BI.

The third section investigated the third research objective which was the benefits and challenges of using Tax-Tim in integrating their theory knowledge with online application.

The next chapter outlines the conclusions and recommendations which follow from this current study.

CHAPTER SIX: CONCLUSIONS AND FURTHER RESEARCH

6.1 Introduction

In the previous chapter, the findings of the study were presented. This chapter provides a summary of the study together with the conclusions drawn and the resulting recommendations. The limitations encountered in conducting the study are described and possible avenues for future research are mentioned. The chapter concludes with a summary of the value of this study.

6.2 Summary of the study

The aim of the study was to determine students' perceptions towards using an e-learning tool, Tax Tim as a teaching and learning method in the Taxation 1 syllabus.

Chapter one discussed and defined the purpose of the study, the problem area and research focus. Three research questions with three research objectives were defined to explore students' perceptions of using technology.

Chapter two presented an overview of the relevant literature and the terminologies related to students' perceptions of using e-learning technology tool as a teaching and learning method in the Taxation 1 syllabus.

Chapter three described the theoretical framework chosen, TAM, with specific reference made to previous use of the model by authors thereby developing the hypothesis used in the study.

Chapter four discussed the research methodology of the study and described the research design, target population, sample, data analysis and interpretation, reliability and validity and ethical considerations. The instrument used to collect data and methods implemented to maintain validity and reliability of the instrument are described.

Chapter five presented the analysis and discussion of the findings. This was divided into background questions and hypothesis testing against the TAM theoretical framework constructs. The benefits and challenges of the Tax-Tim project were also presented.

6.3 Achievement of the research objectives

The study sets out to understand and investigate students' perceptions towards using an e-learning tool, Tax-Tim as a teaching and learning method in the Taxation 1 syllabus. Conclusions in this regard are provided for each of the three research objectives together with their hypothesis to achieve the stated objective, were applicable.

6.4 Students' perceptions towards an e-learning tool, Tax-Tim

The first research objective was to determine students' perceptions towards using an e-learning tool, Tax-Tim, in the taxation syllabus.

This was achieved by the following research questions,

(1a) What are students' perceptions towards perceived usefulness, perceived ease of use, attitude towards using, and behavioural intention to use, used in the TAM?, and

(1b) Are students' perceptions of the constructs in the TAM positive predictors of students' behavioural intention to use technology?

In accordance with TAM, Perceived usefulness had a strong direct effect on usage, while Perceived ease of use had indirect effect on usage through Perceived usefulness. Computer self-efficacy had both direct and indirect effects on usage, demonstrating its importance in the decision to use computer technology. It also had a strong direct effect on Perceived ease of use, but only an indirect effect on Perceived usefulness through perceived ease of use. Computer knowledge and previous e-learning experience was found to have a positive direct effect on Computer self-efficacy, perceived ease of use, Perceived usefulness and usage.

6.5 **Students' perceptions of the effectiveness of Tax-Tim**

The second research objective were to determine the extent of effectiveness of using Tax-Tim as an e-learning tool.

This was achieved by research question two:

(2) What are students' perceptions of the effectiveness of Tax-Tim as an e-learning tool?

This current study found that the Tax-Tim case study was moderately to very effective in aiding their e-learning. Additionally, statements on very effectiveness of Tax-Tim case study students indicated that Tax-Tim improved their analytical skills, encourage them to apply their taxation knowledge to new situations and gave them an insight into practical business operations.

Furthermore, on a gender basis, female responses showed a slightly higher means than male students, especially, for the statements *Encourage you to apply your knowledge in new situations, give you the insight into practical business operations, and Teach you to integrate your technical knowledge of the discipline*. These results indicate that the extent to which females found benefit in Tax-Tim as a case study tool was higher than male students.

Students mostly agreed that Tax-Tim was an effective tool and added value to their experiencing an e-learning tool. Additionally, ESL students found Tax-Tim to be more helpful than EL students. Furthermore, The Tax-Tim case study benefitted mostly students with good/excellent computer skills as compared to students with poor computer knowledge. In conclusion, self-efficacy has a significant influence on students' intention to use a Tax-Tim e-filing tool.

6.6 **Benefits and challenges of using Tax-Tim**

The third research objective were to determine the benefits and challenges of using Tax-Tim, this was achieved by research question three:

(3) What do students perceive to be the main benefits and challenges of using Tax-Tim?

6.6.1 *Benefits and challenges*

The study determined the benefits and challenges students may be faced with when integrating their theory into application using an online e-filing system, Tax-Tim.

The three most valuable benefits that students indicated from using the e-filing tool, Tax-Tim, as an e-learning method were Q22: “Help you to integrate your understanding of the different components of Taxation 1” Q28: “Increase your motivation to study the course” and Q32: “Teach you to integrate your technical knowledge of the discipline”.

Other benefits obtained from the open-ended questions were that Tax-Tim helped the students reinforce their knowledge of the calculations in e-filing.

The challenges that the students identified on using the Tax-Tim case study were mainly: calculations of Tax-Tim, understanding the questions of the Tax-Tim assignment, the structure of Tax-Tim.

6.7 Contribution of the study

This exploratory study was initiated to determine students’ perceptions towards using an e-learning tool, Tax-Tim, as a teaching and learning method in the Taxation 1 syllabus. This study can provide a basis for future e-learning technology adoption within the DUT campus. Additionally, the study can be used by other institutions as an idea for creating a blended learning platform that will add a practical component to their theory component. The study also has provided evidence of the degree of technology acceptance using Tax-Tim in a real-world context for tax e-filing training for undergraduate students and even individual taxpayers.

The findings highlight that the better the computer skills or computer literate the student, the greater value they found in using a system, Tax-Tim, to e-file, and additionally, the greater adoption usage of the e-learning programme. Furthermore, students become more comfortable and unrestricted by technology adoption barriers the better their skills. Addressing these barriers can positively affect system utilisation and individual optimal use of e-learning systems.

The findings of this study will inform the DUT Department of Auditing and Taxation and even other commerce faculties of other universities on the approach to take in blending technology as a practical component in their courses. The more the system is used, the better and more comfortable the students will feel, and this will ultimately enhance the value that Tax-Tim e-filing adds to support the syllabus in terms of blended learning.

6.8 Limitations of this study

The research made use of the TAM as its theoretical framework. Further studies could be done using a different theoretical framework of technology adoption. The research was conducted only at DUT therefore the results of this study cannot be generalised to other universities.

6.9 Further research

Continued similar research is needed to improve and build on this study on e-learning. Similar research in other South Africa institutions and within other disciplines should extend these findings on the adoption and integration of blended learning.

6.10 Overview of Dissertation

This exploratory study set out to determine students' perceptions towards using an e-learning tool, Tax-Tim, as a teaching and learning method in the Taxation 1 syllabus.

Seven constructs of the TAM model were investigated using an e-learning tool, Tax-Tim. Students identified that perceived ease of use, perceived usefulness, attitude towards using and behavioural intention to use had a significant effect on their adoption and usage of an e-learning tool, Tax-Tim. The extent to which the Tax-Tim case study was valuable to the students was determined and the top three most valuable benefits were ranked.

Understanding how students perceive technology adoption in incorporating and aligning e-learning into their teaching and learning outcomes and determining how the use of an e-learning tool, Tax Tim, affected their ability to integrate their theory into application was addressed in this dissertation.

Continued research in the e-learning, specifically the e-filing arena is needed to improve on this study and address its limitations. As such, it is hoped that this study will provide insight and some understanding of students' perceptions towards using an e-learning tool, Tax-Tim.

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APPENDIX A - RESEARCH INSTRUMENT

TAX-TIM QUESTIONNAIRE

In this questionnaire you will be asked your opinion on various issues. This questionnaire is concerned only with assessing your opinions about the perception regarding usefulness, ease of use and satisfaction of an E-learning tool, Tax-Tim as a teaching and learning method. Your views will contribute to the ongoing improvement of this project, so please use this opportunity responsibly. You do not need to sign your name.

For questions 1 – 8, please tick the appropriate block.

1.	What is your gender?	Female		Male		
2.	What is your age (in years)?	18 – 19	20 – 24	25 – 29	>30	
3.	What is the national diploma you are studying towards?	Financial accounting	Cost and Mngt Accounting	Internal Auditing	Taxation	
4.	How many times do you attend Taxation 1 lectures per week?	Never	1 per week	2 per week	3 per week	4 per week
5.	What is your level of computer skills/literacy?	1 Very poor	2 poor	3 average	4 good	5 excel-lent
6.	How many e-learning sessions have you attended on Blackboard?					
	0	**1**	**2**	**3**	**>4**	
7a.	Is English your first language (that is, do you use it at home)?	Yes	No			
7b.	If English is not your first language, please indicate which is your first language? (If your chosen language is not here, please choose “other”.					
	1 IsiZulu	**2 IsiXhosa**	**3 other**			

For questions 8 to 22, circle the appropriate number according to the rating scale, where;
1 = strongly disagree, 2 = disagree, 3 = neutral (neither agree nor disagree), 4 = agree and 5 = strongly agree.

		Strongly disagree	Disagree	Neutral (neither agree nor disagree)	Agree	Strongly agree
Perceived Usefulness (PU)						
8	Using Tax-Tim helps me become more effective at e-filing.	1	2	3	4	5
9	Tax-Tim helps me be more productive at e-filing.	1	2	3	4	5
10	Tax-Tim is a useful system for learning e-filing.	1	2	3	4	5
Perceived Ease of use (PEOU)						
11	Tax-Tim is an easy to use e-learning system.	1	2	3	4	5
12	Tax-Tim system is user friendly.	1	2	3	4	5
13	Tax-Tim requires the fewest steps possible to accomplish e-filing.	1	2	3	4	5
14	I can use it without written instructions.	1	2	3	4	5
15	I can recover from mistakes made quickly and easily.	1	2	3	4	5
Behavioural intention (BI)						
16	I can use it successfully in the future, every time.	1	2	3	4	5
Attitude towards using (ATU)						
17	I learned to use the Tax-Tim system quickly.	1	2	3	4	5
18	I can easily remember how to use it.	1	2	3	4	5
19	I can quickly become skillful at using the Tax-Tim system to e-file.	1	2	3	4	5
20	I am satisfied with the Tax-Tim programme.	1	2	3	4	5
21	I would recommend it to a friend to complete their e-filing tax return.	1	2	3	4	5

For questions 22– 33 circle the appropriate number according to the rating scale, where;
1 = not at all effective, 2 = slightly effective, 3 = moderately effective, 4 = very effective and 5 = extremely effective.

	TO WHAT EXTENT DID THE TAX-TIM CASE STUDY……	Not at all effective	Slightly effective	Moderately effective	Very effective	Extremely effective
22	Help you to integrate your understanding of the different components of Taxation 1?	1	2	3	4	5
23	Help you to develop skills in interpreting (defined as the ability to understand and decipher data)?	1	2	3	4	5
24	Help you to develop your ability to think critically about issues?	1	2	3	4	5
25	Improve your analytical skills (defined as the ability to think in a logical and enquiring manner)?	1	2	3	4	5
26	Develop your ability to synthesize (combine) the essential elements of a given situation?	1	2	3	4	5
27	Help you consolidate your prior knowledge of the discipline?	1	2	3	4	5
28	Increase your motivation to study the course?	1	2	3	4	5
29	Help you relate theory to real-life practice?	1	2	3	4	5
30	Encourage you to apply your knowledge to new situations?	1	2	3	4	5
31	Give you the insight into practical business operations?	1	2	3	4	5
32	Teach you to integrate your technical knowledge of the discipline?	1	2	3	4	5

33	From the preceding questions (22 – 32), please select and enter the below the three most valuable benefits of the Tax Tim project to you. Insert the number of the most valuable benefit next to number 1, the number of the second most valuable benefit to number 2 and the number of the third most valuable benefit next to number 3.
	1.
	2.
	3.

34	How valuable did you find the use of Tax Tim as a learning method in the taxation course? (Circle the appropriate number.)	not at all valuable 1	not valuable 2	neither valuable nor not valuable 3	Valuable 4	very valuable 5

35	**Are there any other learning benefits, not mentioned in the questionnaire, that you gained from the use of the Tax-Tim in the course.**

If so, please specify.

_____

_____

_____

_____

36	**What was the most difficult area of the Tax-Tim project?**

If so, please specify.

_____

_____

_____

_____

APPENDIX B - LETTER OF INFORMED CONSENT

LETTER OF INFORMATION

Title of the Research Study: Students' perceptions towards e-learning as a teaching and learning method, applying theory into application in Taxation 1 Syllabus

Principal Investigator/s/researcher: Andre Sheik-Essop, Post Graduate Diploma: Internal Auditing (UNISA)

Co-Investigator/s/supervisor/s: Prof L.Stainbank

Brief Introduction and Purpose of the Study:

The research is focused towards identifying students' perceptions of e-learning as a teaching and learning method in the taxation 1 syllabus. The e-learning tool to be used is an integrated on-line simulation assessment to complete a tax return and taxable income calculations. The Tax-Tim assignment which will be administered after students have been lectured on the theoretical aspects of Taxation 1.

The purpose of this study is to investigate students' perceptions of using an, e-learning, e-filing tool to determine their abilities to integrate theory into application. The intention of the assessment is to investigate students' ability to integrate the theoretical underpinnings of the Taxation 1 syllabus in an online simulation of SARS e-filing system. The assessment is compiled and assessed by an independent company called Tax-Tim.

The rationale for the research is that students are often faced with the harsh reality of the working environment, which together with the ever changing and e-commerce field find it difficult to integrate their theory learnt at university level into the working environment application. This is also evident from the employer's expectations of graduates and their required attributes.

The continuing developments also make it difficult for educators to gauge a student's level of knowledge application. Studies on the preparedness of graduates to cope with the working environment reveals that few students can integrate their knowledge into application as well as falling short in adapting to new changing environments.

Outline of the Procedures: Population\target population: DUT commerce students studying taxation 1 in National Diploma: internal auditing, accounting, cost and management accounting and taxation. Approximately +- 600 students

Commerce students: These students are studying diplomas relevant to the commerce field with the intentions of working in the commerce field.

- Sampling method

The type of sampling method to be used is a census.

- Measuring instrument

Design of questionnaire

Questionnaire consisting of 30 closed-ended questions (and some open-ended questions to elicit further explanations).

Recruitment process/ data collection

Tax-Tim students completed assessment - census through on-line Survey-monkey and Students

that don't complete assessment - written

Invitation to participate\informed consent will be given at their respective lecture rooms.

Collection of survey instrument will be done online after the students have completed the assessment and written for those that haven't completed the assessment.

Risks or Discomforts to the Participant: There are no risks of discomforts to the participants.

Benefits: The participant benefit from the improved in their teaching and learning application. The researcher benefit from publication of article and conference attendance.

Reason/s why the Participant May Be Withdrawn from the Study: Students may withdraw from the study due to Non-compliance, illness and no attendance.

Remuneration: The participant will not receive any monetary or other types of remuneration.

Costs of the Study: The participant will not be expected to cover any costs towards the study.

Confidentiality: Data will only be collected once the informed consent has been obtains from the student. Student participation will be voluntary and the confidentiality and anonymity of students will be maintained.

Research-related Injury: Any Research-related injury will be covered by DUT insurance.

Persons to Contact in the Event of Any Problems or Queries:

(Supervisor and details) Please contact the researcher (tel no.), my supervisor (tel no.) or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or dvctip@dut.ac.za.

General:

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu.

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher,_____(name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number:_____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____ _____ _____ _____

Full Name of Participant Date Time Signature / Right Thumbprint

I,_____(name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher Date Signature

_____ _____ _____

Full Name of Witness (If applicable) **Date** **Signature**

_____ _____ _____

Full Name of Legal Guardian (If applicable) **Date** **Signature**

_____ _____ _____

Please note the following:

Research details must be provided in a clear, simple and culturally appropriate manner and prospective participants should be helped to arrive at an informed decision by use of appropriate language (grade 10 level - use Flesch Reading Ease Scores on Microsoft Word), selecting of a non-threatening environment for interaction and the availability of peer counseling (Department of Health, 2004)

If the potential participant is unable to read/illiterate, then a right thumb print is required and an impartial witness, who is literate and knows the participant e.g. parent, sibling, friend, pastor, etc. should verify in writing, duly signed that informed verbal consent was obtained (Department of Health, 2004).

If anyone makes a mistake completing this document e.g. wrong date or spelling mistake a new document has to be completed. The incomplete original document has to be kept in the participant file and not thrown away and copies thereof must be issued to the participant.

References:

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LETTER OF INFORMATION

Isihloko the Study Research: kunemibono Students 'towards e-learning njengoba indlela yokufundisa nokufunda, besebenzisa theory zibe isicelo Ukukhokhwa 1 Syllabus

Uthishanhloko Umphenyi / s / umcwaningi: Andre Sheik-Essop, Post Graduate Diploma: Auditing Internal (UNISA)

Co-Umphenyi / s / umphathi / s: Prof L.Stainbank

Isingeniso Brief Nenjongo iSifundo:

Ucwaningo igxile ekwenzeni ekuboneni imibono abafundi 'e-learning njengoba ukufunda nokufundisa indlela Syllabus intela 1. The e-learning ithuluzi ukuba kusetshenziswe kuyinto oludidiyelwe on-line sekulingisa kuhlola ukuqedela entela kanye intela izibalo engenayo. Isabelo Tax-Tim okuzokwenziwa zaphathwa emva abafundi bebelokhu ozongitshela ezicini ezincwadini Ukukhokhwa 1.

Inhloso yalolu cwaningo ukuphenya kunemibono abafundi 'basebenzisa, e-learning, ithuluzi e-filling ukuba anqume amakhono abo ukuhlanganisa theory zibe isicelo. Inhloso yokuhlolwa ukuphenya ikhono abafundi 'ukuhlanganisa isisekelo ezincwadini Syllabus Ukukhokhwa 1 in a sekulingisa inthanethi SARS e-nokufakwa uhlelo. Ukuhlolwa is ihlanganiswe futhi ahlolwa yinkampani ezimele ebizwa Tax-Tim.

Isizathu sokuba ucwaningo ukuthi abafundi babhekana babona kabuhlungu imvelo ukusebenza, okuyinto kanye e-commerce field lihlale lishintsha futhi bakuthola kunzima ukuhlanganisa imfundiso yokuziphendukela zabo zifunda ezingeni enyuvesi isicelo sokusebenza. Lokhu kuba sobala kuloko womqashi abaphothule nezimfanelo zabo edingekayo.

Izenzakalo luyaqhubeka futhi zenza kube nzima kothisha ukuba ukulinganisa ezingeni umfundi kwesicelo ulwazi. Studies on the ukulungela sabantu asebegogodile ukubekezelela isimo sokusebenza kwembula ukuthi abafundi abambalwa bayakwazi ukudidiyela ulwazi lwabo zibe isicelo kanye esilela e yokuvumelana nokushintshashintsha ezindaweni ezintsha.

Uhlaka of the Izinqubo:

Population \ target labantu
Commerce abafundi DUT ukutadisha intela 1 in National Diploma: ukucwaningwa kwangaphakathi, accounting, izindleko kanye nokuphathwa kwezimali kanye intela.

Balinganiselwa + - 600 abafundi Abafundi Commerce

Laba bafundi basafunda diploma efanele ukuba insimu kwezentengiselwano ne izinhloso esebenza ensimini commerce.

• Isampula indlela

Uhlobo izibonelo indlela okumele kusetshenziswe kuyinto abantu.

• yokulinganisa instrument

Design lwemibuzo

Lwemibuzo ehlanganisa 30 imibuzo closed nalevulekile (and eminye imibuzo levulekile ayokwenza izincazelo eminye).

Inqubo Recruitment / iqoqo idatha

Tax-Tim abafundi ligcwaliswe wokuhlola - ukubalwa kwabantu ngokusebenzisa on-line Survey-monkey futhi

Abafundi ukuthi bengayi ukuhlola - ezibhaliwe

Isimemo iqhaza \ kwemvume unolwazi izonikezwa emihlanganweni inkulumo amakamelo abakuzo.

Ukuqoqwa Ucwaningo instrument kuzokwenziwa online emva abafundi usuqede ukuhlolwa kanye kwentelwe labo abangazange usuqede ukuhlolwa.

Izingozi noma ukungazizwa kahle ukuze umhlanganyeli: Azikho izingozi ukungazizwa kahle ukuze ababambiqhaza.

Izinzuzo: I umhlanganyeli bayazuza izinga ekufundiseni kwabo kanye nesicelo ukufunda. Umcwaningi bayazuza ukushicilelwa sihloko nezinkomfa abakhona.

Isizathu / s kungani Participant ingakhishwa iSifundo: Abafundi emke cwaningo ngenxa Non-ukuhambisana, ukugula futhi akukho abakhona.

Amaholo: The umhlanganyeli ngeke usathola izinhlobo eyimali noma eminye amaholo.

Izindleko of the Study: The umhlanganyeli ngeke kulindeleke ukuba ukumboza yiziphi izindleko ekufezeni cwaningo.

Imfihlo: Data kuyomane kuqoqwe uma imvume unolwazi bekulokhu uthola kusukela umfundi. Student iqhaza kuyoba yokuzithandela futhi ubumfihlo kanye yokufihla labafundi uzobe zigcinwe.

Ukulimala ezihlobene Research: Any ulimale Research-uzobe umshuwalense DUT.

Abantu Xhumana in the Indawo nganoma yiziphi izinkinga noma Imibuzo:

(Induna kanye nemininingwane) Sicela uxhumane umcwaningi, umqondisi wami noma umlawuli Institutional Research Ethics 031 373 2900. Complaints ingabikwa ku- DVC (tel akukho.) (Tel akukho.): TIP, Prof F. Otieno 031 373 2382 noma dvctip@dut.ac.za.

IMVUME

Isitatimende Sivumelwano Bamba iqhaza Study Research:

- I ngiyafunga ukuthi Ngiye chazela umcwaningi, _____ (igama umcwaningi), mayelana nemvelo, ukuziphatha, izinzuzo kanye nezingozi yalolu cwaningo –

Ethics Research Clearance Number:_____,

- I nawo aye athola, kufundwe futhi kuqondwe ulwazi ngenhla ebhaliwe (Participant Incwadi ka Information) mayelana cwaningo.
- ngiyaqaphela ukuthi imiphumela yocwaningo, kuhlanganise nemininingwane siqu mayelana sex, age, usuku lokuzalwa, zokuqala futhi uphethwe uzobe ngokungaziwa kukhishwe umbiko ucwaningo lwami.
- Ngenxa nezidingo zocwaningo, ngiyavuma ukuthi ukubhalwa kwemininingwane eqoqwe ngenkathi kulolu cwaningo zingahlukaniswa in a uhlelo lwekhompuyutha by the umcwaningi.
- I, nganoma isiphi isigaba, ngaphandle kokubandlululwa, ukuhoxisa imvume yami futhi iqhaza ocwaningweni.
- ngiye ngaba nethuba elanele ukubuza imibuzo kanye (siqu intando yami khulula) amemezele ngedwa ukulungele ukubamba iqhaza ocwaningweni.
- Ngiyaqonda ukuthi okutholakele ezintsha ephawulekayo athuthukiswe phakathi kwalesi yocwaningo isho ukuhlanganyela kwami izotholakala kimi

Igama Participant Usuku	**Time Isiginesha / Right**	**ugingqe isithupha**
I _____	_____	_____

(igama umcwaningi) lapha ukuqinisekisa ukuthi umhlanganyeli ngenhla azisiwe ngokugcwele mayelana nohlobo, ukuziphatha kanye nezingozi yocwaningo ngenhla.

Igama Umcwaningi	**Date**	_____	**Signature**	_____
Igama Witness (Uma kusebenza)	**Date**	_____	**Signature**	_____
gama Legal Guardian (Uma kusebenza)	**Date**	_____	**Signature**	_____

APPENDIX C - PERMISSION TO CONDUCT RESEARCH

Directorate for Research and Postgraduate Support
Durban University of Technology
Tromso Annexe, Steve Biko Campus
P.O. Box 1334, Durban 4000
Tel.: 031-3732576/7
Fax: 031-3732946
E-mail: moyos@dut.ac.za

22 January 2016

Mr Andre Sheik-Essop
c/o Department of Auditing & Taxation
Durban University of Technology

Dear Mr Sheik-Essop

PERMISSION TO CONDUCT RESEARCH AT THE DUT

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research Committee (IRC) has granted full permission for you to conduct your research "Students' perceptions towards using e-learning as a teaching and learning method in Taxation 1 Syllabus" at the Durban University of Technology.

We would be grateful if a summary of your key research findings can be submitted to the IRC on completion of your studies.

Kindest regards.
Yours sincerely

PROF. S. MOYO
DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT