STUDENT PERCEPTIONS OF BLENDED LEARNING INTERVENTIONS IN TEACHING AUDITING

by

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DECLARATION

I, Bernice Beukes (student number: 04144007), hereby declare that the dissertation

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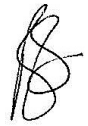
submitted for the degree of M Com in Auditing at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at another university. Where secondary material is used, this has been carefully acknowledged and referenced in accordance with university requirements.



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ABSTRACT

Education, and especially accounting education, has been criticised for not delivering graduates for the work place with the necessary skills and attributes. In an effort to address this criticism, lecturers incorporate more experiential learning into the curriculum. However, in a quest to include more experiential learning activities in the course delivery, lecturing time is reduced, and lecturers have to innovate in order to fit all the subject/course content into the allotted time. Incorporating technology to extend the classroom into the digital realm is one way to relieve the pressure of covering subject/course content. It opens up avenues for a blended or hybrid learning model, where a carefully considered combination of online and face-to-face teaching and learning is applied.

Auditing as a discipline poses another challenge to educators. The subject is perceived by students to be very theoretical, while in fact it is an application subject which requires critical thinking and professional judgment. Students incur difficulties in comprehending how the theoretical knowledge is applied in practice, which manifests in them following a superficial approach to mastering the auditing subject matter. In an effort to breach the gap between theory and practice, various implementations of experiential learning in auditing, often in a blended learning environment, have been reported by scholars. However, those studies report the effect of fragmented interventions and fail to provide a holistic view of the effect of multiple blended learning interventions. Furthermore, literature on the effect of a blended learning approach incorporating experiential learning which focuses on learning is limited, and studies are mainly done in small class settings.

This study aims to expand on the body of knowledge, by reporting on how students perceived different blended learning elements (flipped classroom, an online simulation and cooperative learning initiatives), incorporated in the holistic blended learning model in an auditing module/course, to contribute to their learning and engagement with the subject matter. Furthermore, the study investigates how the perceived

contribution differs between students with different academic performance levels. The study also determines whether one of the blended learning elements (an online simulation) was perceived by students to be useful, easy to use and influenced their emotional perception (affect) of the learning experience. In order to achieve the objective of the study, a quantitative research approach was followed, whereby a custom-developed survey was distributed amongst third year auditing students at the university where the study was performed.

The findings in this study indicate that respondents perceived weekly tutorials to contribute highly towards their learning of and engagement with auditing, while the other flipped classroom elements (videos and lectures) had a moderate contribution. Respondents perceived the online simulation, and peer feedback and mentoring (TUT Buddy and the BuddyM) elements to contribute least to their learning and engagement with the auditing subject matter.

Statistically significant differences were identified between high performing and low performing students, with regard to the weekly tutorials, the online simulation and the TUT Buddy and BuddyM elements. Low performing students perceived the online simulation, the TUT Buddy and BuddyM elements to contribute more to their learning and engagement, than high performing students. These latter three elements (online simulation and Buddy activities) included more cooperative learning and were regarded as student-driven activities. The results also indicate that high performing students coped well with the blended learning model and exhibited characteristics of becoming self-directed learners, as they did not require as much support. The low performing students were more positive about cooperative learning activities. They also perceived the online simulation to be more useful, easy to use and enjoyed the experience more, compared to their medium and high performing counterparts. The results clearly show that students do have preference for specific elements in the holistic blend. The holistic blend allows room to meet the needs of diverse students with different learning preferences and it allows students to engage with the auditing subject matter in a way that meets their preferences, whilst developing additional skills. Therefore a holistic blended learning model appears to be an acceptable way of teaching auditing, even in large class settings.

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LIST OF ABBREVIATIONS USED IN THIS STUDY

AAA	American Accounting Association
ACL	Audit Command Language
AECC	Accounting Education Change Commission
AICPA	American Institute of Certified Public Accountants
AIS	Accounting Information Systems
APA	Auditing Profession Act No 26 of 2005
Bb	Blackboard Learn
CAATTs	Computer-assisted Audit Tools and Techniques
CAL	Computer-assisted learning
CAs	Chartered Accountants
CLASSE	Classroom Survey of Student Engagement
CPA	Certified Public Accountant
DoI	Diffusion of Innovation theory (Roger's)
GPA	Grade point average
HEIs	Higher Education Institutions
IAESB	International Accounting Education Standards Board
IASB	International Accounting Standards Board
ICAEW	Institute of Chartered Accountants in England and Whales
ICT	Information and Communication Technology
IES	International education standard
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standard
IRBA	Independent Regulatory Board for Auditors
ISA	International Standard on Auditing
IT	Information Technology
KMO	Kaiser-Meyer-Olkin
LMS	Learning management system
MOOCs	Massive Open Online Courses
NSSE	National Survey of Student Engagement
OECD	Organisation for Economic Co-operation Development
OER	Open Educational Resources

PAAA	Public Accountants and Auditors Act
PAAB	Public Accountants' and Auditors' Board
PIOB	Public Interest Oversight Board
RAs	Registered Auditors
SAICA	South African Institute of Chartered Accountants
SDL	Self-directed learners
TAM	Technology acceptance model
UK	United Kingdom
UP	University of Pretoria
USA	United States of America
VLE	Virtual learning environments

GLOSSARY OF TERMS

In this study, the listed terms have the following meaning:

Affective/affect	The "emotionally relevant characteristics of the individual that influence how she/he will respond to any situation" (Gardner & MacIntyre, 1993:1). It relates to the emotions and feelings of the individual and for this study it is how the individual felt about/experienced the online simulation and the level of enjoyment in the experience.
Auditing	The process of obtaining audit evidence to support the conclusion reached by the auditor on the financial statements. The conclusion is expressed as an opinion by the auditor and provides reasonable assurance as to whether the financial statements are prepared, in all material respects, in accordance with the applicable financial reporting framework (IFAC, 2017b).
Blended learning	Blended learning is a combination of face-to-face and online activities in a planned, pedagogically valuable manner, where multiple delivery media are applied to complement each other and support meaningful learning. It is a combined definition based on meaning provided by Picciano and Dziuban (2007) and Singh (2003).

Class/lecture	Scheduled contact session, which is usually led by the lecturer.
Ease of use	The ease of use is defined as “the degree to which a person believes that using [information and communication technology (ICT)] will be free of effort” and relates directly to the level of perceived user-friendliness of the new technology tool (Sun, Tsai, Finger, Chen & Yeh, 2008; Venkatesh & Bala, 2008:275). In this study an online simulation should have a logical layout, be easy to navigate, and video and audio should be of high quality.
Entry level accountant	The professional that has completed the academic and practical experience requirements in order to register as a Chartered Accountant.
Entry level graduate	The professional that has only completed the academic requirements and still has to complete the practical experience section of the training in order to register as a Chartered Accountant.
Flipped classroom	Switching of typical class and homework activities, where active learning activities are incorporated in the class and the theoretical discussion is moved outside the class to a video that should be viewed prior to the class (Bergmann & Sams, 2012).
Information and communication technology (ICT)	Technology tools and resources that individuals use to communicate, and to create, manipulate, disseminate, store and manage information.
Learning	Learning is “a process that leads to change, which occurs as a result of experience and increases the potential for improved and future learning” as defined by Ambrose, Bridges, DiPietro, Lovett and Norman (2010:3).
Lecturer	The knowledgeable person presenting the lectures. In this context lecturer could also include the academic trainee.
Module	A university course that contributes credits towards a degree.

Non-technical/ pervasive skills (professional skills)	"The professional qualities and skills that all Chartered Accountants (CAs) are expected to bring to all tasks - the "how" of a CA's work. The competency framework identifies pervasive qualities in three categories: ethical behaviour and professionalism, personal attributes and professional skills" (SAICA, 2016a:24). (Refer to Annexure A for detail list).
Online simulation (AuditSIM)	Web based simulation accessed via Blackboard Learning (university learning management system (LMS) in use) and the cooperative online tool (wiki) within the LMS where students perform activities.
Student engagement	Student engagement focuses on the internalised process of the individual; it is "the time, energy and resources students devote to activities designed to enhance learning at university" as defined by Krause (2005:3).
Tutorials	A smaller group setting where students focus on a specific topic or question and the discussion is facilitated by the tutor (academic trainee in this study), in order to clarify understanding.
Usefulness	Usefulness in terms of technology tools are the "degrees of work improvement after adoption of a system", thus the tool is perceived as useful when the user believes it will enhance his/her job performance (Sun *et al.*, 2008:1188). In this study usefulness relates to the perceived contribution that the online simulation has to enhance learning and encourage engagement with the auditing subject matter.

1 INTRODUCTION

1.1 Orientation

“Education is for everyone, but the way we deliver education - and the way students receive it - is not the same for everyone” (Sams & Bergmann, 2013:20).

The expectation exists that education, and especially higher education, should adapt to the changing world as quickly as business does, and that higher education should deliver graduates that are work ready and have a well-developed skill set upon graduation (Geisinger, 2016). This is indeed a high expectation, with many challenges, because on a macro level, students are less prepared for higher education, there is a higher demand for access to higher education and insufficient resources are made available to higher education (Daniel, 2015; Spector, 2014). On a more micro level, a multitude of factors can influence the occurrence of learning or the enhancement of student engagement. These factors include intrinsic factors relating to the student, such as the student’s learning style, the approach to learning, the cognitive ability and the motivation. Extrinsic factors include the learning environment, the lecturer, the modes of teaching and the student’s personal environment (Spector, 2014). Adding technology to the mix complicates the environment even further. For auditing as a discipline, this challenge is intensified by the fact that students need to move quickly from the lower levels of Bloom’s revised taxonomy of learning in the cognitive domain to the higher order levels, since complex and abstract concepts have to be mastered and understood in order to be able to apply them in any given scenario (Buckless, Krawczyk & Showalter, 2014; Chaffey, Van Peursem & Low, 2011; Kolb, 2014; Krathwohl, 2002).

Educators have to consider all of the abovementioned factors when creating a learning environment that needs to be conducive to an individual student’s preference to optimise development. Introducing technology into education has allowed educators more flexibility in the modes of teaching, as it supports a more student-centered approach where students are allowed to progress at their own pace. Educators have

the choice to follow either a full face-to-face, a fully online, or a hybrid between these two options, consisting of online *and* face-to-face learning, often referred to as blended or hybrid learning (Bates, 2016b). Determining the ideal combination of face-to-face and online learning remains a challenge, as the choices available are plentiful and each discipline's characteristics add its own dimensions to the choices.

Blended learning is becoming more common practice, where online learning components have been introduced in education offerings in various disciplines (Bliuc, Goodyear & Ellis, 2007; Garrison & Kanuka, 2004). The choice of blending delivery modes can range from a limited blend, where the online component consists of an independent repository of notes and handouts, to a fully integrated blend, where the transitions between face-to-face and online components are more seamless (Alammary, Sheard & Carbone, 2014). An outflow of blended learning is that more opportunity is created in the contact sessions to incorporate more active learning, often by way of experiential learning. The teaching of auditing, a discipline often perceived as very technical and theoretical, while requiring practical application from students, is a challenge. One way to ensure that students can experience the relevance of auditing is to bring the theory and practice together in a logical and understandable manner, and this has been the objective of auditing educators for many years (Buckless *et al.*, 2014; Dombrowski, Smith & Wood, 2013; Okike, 1999; Siegel, Omer & Agrawal, 1997). Some educators incorporated more experiential learning in the curriculum, which has led to some success in achieving this objective and the most common tool selected by auditing educators are simulations (Brown & Lint, 1982; Davis, 1997; Dennis, 2003; Gelinas Jr, Levy & Thibodeau, 2001; Okike, 1999; Siegel *et al.*, 1997).

Against this backdrop, this study firstly focuses on the blended learning model implemented in an auditing module. It investigates how students perceived different elements incorporated in a holistic blended learning model, and how this contributed to their learning and engagement with the subject matter. The study secondly focuses on students with different performance levels and investigates how the perceived contribution differs between these students. Thirdly, the study focuses on one of the elements of the holistic blended learning model, the online simulation, which encouraged experiential learning and developed information and communication technology (ICT) skills. This study aims to determine whether this simulation was

perceived by students to be useful, easy to use and if it influenced their affect (emotional characteristics) of learning, as engagement in learning is often affected by the emotional well-being of the student (Kahu, 2013).

This chapter introduces the study. Firstly, it presents a preliminary literature review on learning, student engagement, active learning and blended learning, as well as the impact of ICT on learning. The discussion then turns to skills required by entry level Chartered Accountants (CAs) and challenges experienced in accounting education. When reference is made to accounting education in this study and in the literature, it refers to the training of professional accountants in general and not only to the specific subject of accounting. Auditing is regarded as a sub-discipline included in the accounting education programmes and should be considered in this context in this study. The preliminary literature review is followed by the problem statement, the purpose of the study, the research questions and the context of the study. The chapter continues with the research design and method, the significance of the study and the demarcations and limitations of the study, before concluding with a brief explanation of the division of the chapters in this study.

1.2 Preliminary literature review

The review of the literature in this study is presented in the following two chapters (Chapters 2 and 3), while a preliminary overview follows to introduce this study. The first topics relate to the general education perspective presented in Chapter 2, namely learning, student engagement, active learning and blended learning and each of the blended learning elements incorporated in this study.

Learning

Learning as a construct is multifaceted and scholars struggle to address all the dimensions in a single definition. A definition of learning is offered by Driscoll (2000:1) as “a persisting change in performance or performance potential that results from

experience and interaction with the world." From the definition, learning is directly linked to experience and four learning theories describing how learning occurs have emerged in the literature through the years.

The first learning theory is behaviourism, which claims that changes in behaviour result in learning and the learning process is guided by a reward and punishment system to achieve the required behaviour (Ertmer & Newby, 1993). The limitation of the theory is that the process of gaining knowledge is ignored (Ertmer & Newby, 1993). With the second theory, cognitivism, the cognitive process of thinking and problem-solving is examined, with the realisation that learning occurs within the individual (Driscoll, 2000; Ertmer & Newby, 1993; McLeod, 2003). Cognitivist theory describes the process in the brain associated with remembering and learning, and compares the brain to a computer (Alessi & Trollip, 2001). The third learning theory adds to the previous one that an individual already has some prior knowledge and that new knowledge is constructed by the individual by interpreting the new information and adding it to the existing knowledge to create his/her own interpretation and construction of reality (Marton, Hounsell & Entwistle, 1997). This theory is commonly referred to as constructivism and is often the preferred theory for scholars studying online learning (Ally, 2008; Anderson, 2008). Connectivism is the fourth and latest emergent theory. Connectivism claims that, with the dawn of technology and connectivity, the learners connect and participate in an online learning community and they learn from others' experiences and knowledge, therefore they do not have to experience it all themselves (Siemens, 2005). According to connectivism, learning is no longer a linear process, but more of a network or mindmap process (Duke, Harper & Johnston, 2013; Goldie, 2016; Siemens, 2005).

In the above theories it becomes clear that the student is not a passive recipient of knowledge, but participates in the learning process, which requires active engagement.

Student engagement

Learning is influenced by the student's experience, and also by the level of student engagement. Student engagement is a multifaceted construct which scholars view from different perspectives (Kahu, 2013). Krause (2005:3) defines student engagement with a focus on the internalised process of the individuals as "the time, energy and resources students devote to activities designed to enhance learning". Student engagement can be viewed either from an institutional perspective and measured by way of the National Survey of Student Engagement (NSSE), or on individual level that focuses either on the behavioural, cognitive, affective or academic engagement (Appleton, Christenson, Kim & Reschly, 2006; Reschly & Christenson, 2012). Measurement of the level of engagement is challenging as various pedagogies to engage students can be applied, using various instruments (Barkley, 2010; Fredricks, McColskey, Meli, Mordica, Montrosse & Mooney, 2011; Smith, Sheppard, Johnson & Johnson, 2005). One pedagogy applied by educators to increase engagement is active learning, and more specifically experiential learning, which is encapsulated in active learning.

Active learning and experiential learning

Experience is one of the components in the definition of learning and refers to students being actively involved in the process to learn (Boud, Cohen & Walker, 1993; Gentry, 1990). The only way to increase students' participation is by moving away from a teacher-centered approach, to a student-centered approach, where students are co-creators of understanding instead of mere recipients, and they take more responsibility for their own learning (Machemer & Crawford, 2007; Prince, 2004; Yoder & Hochevar, 2005). Active learning is a blanket term which includes different activities that encourage students to become participants and not only observers. It could be implemented either in a face-to-face or online environment and the most common active learning methods include experiential learning, problem-based learning and cooperative learning activities (Prince, 2004; Yoder & Hochevar, 2005).

Experiential learning provides students with a real life situation where they can apply their theoretical knowledge. Kolb's experiential learning model explains the systematic progression for learning on two continuums that occur (Kolb, 2014). On the perception continuum, learning moves between feeling and thinking, while the processing continuum alternates between watching and doing (Kolb, 2014).

More experiential learning is incorporated in a flipped classroom approach, because it encourages more active learning during the lecture, since the theoretical discussion is moved outside the lecture through a preparation video (Bergmann & Sams, 2012). This approach requires students to prepare for the lectures and through problem-based learning or cooperative learning, deeper discussion during lecture times is accomplished (Albanese & Mitchell, 1993; Ambrose *et al.*, 2010; Gilboy, Heinerichs & Pazzaglia, 2015).

Problem-based learning differs from the case study method in that an ill-defined problem is stated at the beginning of the lecture and the discussion on the topic revolves around solving the problem, where with the case study method, the topic is first discussed and the case study presented afterwards, in order to explain the concepts more practically (Barrows & Tamblyn, 1980; Hmelo-Silver, 2004). The premise of problem-based learning is that students identify their own knowledge deficiencies and apply self-directed learning to obtain the required knowledge to solve the problem (Hmelo-Silver, 2004).

Cooperative learning allows students to interact with each other during the learning experience and learn with each other (Panitz, 1999). The skill of being able to work in a group with others is an employability requirement which accounting students should be exposed to, and universities are under more pressure to incorporate it into the curriculum (Boud, Cohen & Sampson, 2014; Swanson, Gross & Kramer, 1998). In order to incorporate more active learning, educators are implementing more blended learning approaches such as a flipped classroom mentioned above.

Blended learning

Blended or hybrid learning uses a combination of face-to-face and online learning activities (Garrison & Kanuka, 2004), but can also contain a blend of media, instructional modes, learning theories or learning environments (Oliver & Trigwell, 2005). The complexity of blended learning emerges with the countless possibilities of blends in designs and can range from a low-impact blend with an add-on approach, to a high impact blend which has a harmonious balance between face-to-face and online instruction (Alammary *et al.*, 2014; Garrison & Kanuka, 2004). Blending allows for variation in the learning environment, it meets the current generations' preference for more visual media and fosters greater student engagement (Cheng & Chau, 2016; Picciano, 2009).

Students perceive blended learning positively, as it allows for more flexibility, but it can also result in a negative experience where students are more familiar with traditional instruction methods, they frown upon a reduction in face-to-face interaction at a residential university, or might lack the necessary technology skills to embrace this way of learning (Ashton & Elliott, 2007; Diaz & Brown, 2010; Korr, Derwin, Greene & Sokoloff, 2012; Owston & York, 2018; Poon, 2012). Differences between high and low performing student groups were identified in literature, where high achieving students experienced blended learning more positively compared to their lower achieving counterparts (Madriz & Nocente, 2016; Owston, York & Murtha, 2013; Zhou & Chua, 2016). Tamim, Bernard, Borokhovski, Abrami and Schmid (2011) however maintain that students perform better when technology is included in the teaching process and therefore the impact that technology has on teaching and learning should be considered. Low achieving students prefer more face-to-face contact and have an increased risk of being unsuccessful when studying online (Sanford, 2017).

Impact of technology on education

Universities are under pressure from stakeholders to increase accessibility to higher education, which in turn places strain on the available university resources (Bates, 2016b). To alleviate cost pressure, universities are implementing more technology into teaching (Fu, 2013; Lowyck, 2014). This does not come without challenges such as to provide high or equal quality instruction and to link the theoretical benefits of technology with practice (Picciano, 2009; Spector, 2014).

Technology has gradually been incorporated into education since the 1950s, evolving from a behaviourist usage of basic practice and repeat questions, to current fully integrated learning with the choice of synchronous and asynchronous learning between educators, peers and tutors (Lowyck, 2014). Through technology learning has become more flexible and sociable with communities of learning established in the online environment (Lowyck, 2014).

Current students (those born after 1995) are accustomed to technology, since they grew up with technology and they are able to manoeuvre around various social platforms, but they may not possess adequate digital or oral communication skills, which are a required 21st century workplace skill (Bates, 2016b; Prensky, 2001; Wagner, 2014). Not only should students be able to communicate effectively, but they should be good information managers, because due to connectivity, information has become more accessible and students should know where to find information and apply or manipulate it in a given situation (Bates, 2016b; Dziuban, Moskal & Hartman, 2005; Rismark, Solvberg, Stromme & Hokstad, 2007).

Even if the current student cohort is more technology savvy, not all of them have the same level of ICT and internet skills (Hargittai, 2010; McCourt Larres, Ballantine & Whittington, 2003; Siddiqui, Khan & Akhtar, 2008; Stoner, 2009; Van Deursen & Van Diepen, 2013). This is mainly attributable to a digital divide, which is defined by Van Dijk and Hacker (2003) as the gap between the so-called information-haves and the

information-have-nots. Originally the gap existed based on access to a computer, but it has expanded to include access to the internet and differences in the ICT and internet skills levels which could be linked to socio-economic and geographical factors (Hargittai, 2010; Van Deursen & Van Dijk, 2010; Van Deursen & Van Dijk, 2014). Current passive transmission modes of teaching applied by institutions do not develop the necessary communication and ICT skills, and a more flexible learning environment is needed to allow students to become more self-directed learners (SDL), who are able to manage their own learning (Brand-Gruwel, Kester, Kicken & Kirschner, 2014). The inadequacy of effective communication and ICT skills is a specific criticism against accounting and particularly auditing students, which is addressed in the next section and Chapter 3 (Barac, 2009; Kavanagh & Drennan, 2008; Van Romburgh & Van der Merwe, 2015).

The blended learning model applied in this study attempts to develop students' communication and ICT skills, and the elements implemented in this model include a flipped classroom (consisting of videos, lectures and tutorials), an online simulation, and peer-mentoring and peer feedback. The literature supporting these elements is briefly discussed next.

Flipped classroom

A flipped classroom entails the pre-recording of theoretical information and making these videos available to students as preparation for the lecture (Bergmann & Sams, 2012). This increases the opportunity during the lecture to incorporate more active learning opportunities, which could deepen students' learning approach (Bishop & Verleger, 2013; Kellogg, 2009; Little, 2015). The benefits of the flipped classroom are that the lower levels of Bloom's revised taxonomy (remember and understand) are placed in the hands of the students, the lecture can then consist of more time on the middle (apply and analyse) and upper (evaluate and create) levels, and more time is allocated to discussion and problem-solving (Bishop & Verleger, 2013; Kellogg, 2009; Krathwohl, 2002; Little, 2015; Sams & Bergmann, 2013). In addition, students have

the opportunity to revisit the videos and they can skip directly to information they need to re-examine (Goodwin & Miller, 2013).

Tutorials differ from lectures in that the students are divided into smaller groups, or even one-to-one tutoring, and a prearranged topic is discussed in a more informal setting (Frey & Reigeluth, 1986; Sweeney, O'donoghue & Whitehead, 2004). Tutorials can be included in the definition of a flipped classroom, because during a tutorial students have the opportunity to practice with the benefit of the guidance of the tutor, and apply the concepts in relation to their learning (Sweeney *et al.*, 2004). Students are more willing to ask questions and experience a tutorial to be more beneficial to their learning (Frey & Reigeluth, 1986). However, when tutorials are compulsory, the experience is less positive compared to a voluntary tutorial and students tend to prefer face-to-face tutorials to online tutorials (Hartman, 1990; Zhou & Chua, 2016). With the flipped classroom, the lecture and tutorial become more student-centered, because the lecturer is no longer only transmitting information that students should passively absorb, but students become more active participants and co-creators of their own knowledge (Bates, 2016b; Stanley & Porter, 2002), consistent with a constructivist pedagogy (Bishop & Verleger, 2013).

Simulations

Simulations are alternative teaching tools utilised by educators to link the theory to practice by creating a simulated reality (Beckem & Watkins, 2012; Bradley, 2006). This method of experiential learning places students in a simulated workplace situation where theoretical understanding could be applied (Kindley, 2002). A simulation allows a deeper approach to learning and encourages critical thinking while providing students with a visual presentation of a scenario (Beckem & Watkins, 2012; Clarke, 2009). It offers variation and can vary in length; it can either address only one topic or be implemented on a continuous basis; or it can be paper based or online which allows for different mediums such as video and audio (Siddiqui *et al.*, 2008; Silvia, 2012; Wynder, 2004). With a simulation, all students have the opportunity to experiment in a safe environment and to learn how their choices could influence the scenario

outcomes, while providing them with feedback on their decisions (Kindley, 2002). Online simulations, as a teaching tool, also meet the current generations' technology expectations (Justice & Ritzhaupt, 2015). However, students will only adopt a new technology tool, if they perceive the tool as useful for the intended purpose and easy to use, which focuses on navigation, audio and graphical quality and presentation of information (Venkatesh & Bala, 2008). The affective (emotional characteristics) aspects of the experience should also be considered, as learning achievement is influenced by emotions. Positive emotions can enhance, while negative emotions can hinder learning (Lin, Wu & Hsueh, 2014).

Peer-mentoring and peer feedback

Feedback is a crucial part of the learning process, but due to onerous educator workloads, individual feedback is often limited to a grade (Boud *et al.*, 2014; Hattie & Timperley, 2007; Topping, 1996). Peer feedback is an alternative that can address the problem of individual feedback, where students become more involved in the learning process by giving constructive feedback to peers, without the pressure of grading the quality of work (Liu & Carless, 2006). This allows for more formative assessment and also encourages the social element of learning (Gielen, Peeters, Dochy, Onghena & Struyven, 2010; Nicol & Macfarlane-Dick, 2006; Strijbos & Sluijsmans, 2010).

Peer-mentoring has a junior-senior relationship (Boud *et al.*, 2014). Depending on the purpose of the mentoring relationship, it can either be spontaneous or planned mentoring, formal or informal and a long-term or short-lived mentoring relationship (Chao, Walz & Gardner, 1992; Luna & Cullen, 1995). The benefits of peer-mentoring are often mutual for both parties, since the senior student develops listening, time management and oral expression skills, while the junior student obtains insights into the prior experience of the senior student (Jackling & McDowall, 2008).

Accounting and auditing education

Chapter 3 focuses specifically on accounting and auditing education and the challenges faced by educators in meeting the skills demand of practice. The discussion begins by setting out the regulations that govern the knowledge and skills requirements in the accounting profession. It then outlines the challenges faced in accounting education, explains how audit education differs from accounting education and finally presents a detailed presentation of how auditing educators have incorporated experiential learning into a blended environment.

Regulations for skills and knowledge of entry level accountants

The International Federation of Accountants (IFAC) is the global accounting organisation dedicated to serve the public interest by strengthening the accounting profession and supporting the development of strong international economies (IFAC, 2017c). This is achieved by developing international standards and promoting the adoption and implementation of the standards by its member bodies. The International Accounting Education Standards Board (IAESB), a body of the IFAC, sets standards on education requirements for entry level accountants (those professionals that completed the academic and practical experience requirements to register as a Chartered Accountant), as well as continued professional education (IFAC, 2017e). In line with the focus of this study, three of the eight International Education Standards (IES) (IFAC, 2017a), (IES 1, IES 2 and IES 3) fall within the ambit of the study, because they set out the professional and technical skills required for entry level graduates.

Based on the professional and technical skills included in IES 1, IES 2 and IES 3, the South African Institute of Chartered Accountants (SAICA) issued its first competency framework in 2008, which was subsequently updated in 2014 (SAICA, 2016a). The competency framework sets out the technical knowledge required, as well as the professional skills, referred to as pervasive skills, which entry level accountants should have mastered upon entering the profession. Included in the professional skills are

effective communication, team management skills and understanding the role of technology in the business, as well as working effectively with technology (SAICA, 2016a). It is expected that universities which offer education to prospective accountants should implement the development of not only technical skills, but also the pervasive skills (SAICA, 2016a).

Challenges in accounting education

All professions should adapt to changes in the cultural attitudes, economic conditions and technological innovations of a society, in order to remain relevant (Bedford, Bartholomew, Bowsher, Brown, Davidson, Horngren, Knortz, Piser, Shenkir, Simmons, Summers & Wheeler, 1986). The accounting profession is no different and calls for reform in accounting education, to meet the expectations of practice, have been ongoing since mid-1980 (Bedford *et al.*, 1986). This debate is not equally well documented in all countries, since the United States of America (USA) and Australia are the only countries who documented the developments in detail. However, this discussion and the challenges faced in accounting education are not limited to only these countries, but are experienced globally (O'Connell, Carnegie, Carter, de Lange, Hancock, Helliar & Watty, 2015).

Based on the literature, it appears as though most of the concerns raised about accounting education are universal. These include the need to move away from rote memorisation and technical knowledge in order to equip students with skills required by practice (Kullberg, Gladstone, Scanlon, Cook, Groves, Horner, O'Malley & Kangas, 1989), with emphasis on technology (Bedford *et al.*, 1986) and the need to raise students' ethical awareness (Kullberg *et al.*, 1989). Further concerns expressed include matters such as low levels of government funding, high student staff ratios, aging of accounting academics and weak research performance of accounting educators (Mathews, Brown & Jackson, 1990; O'Connell *et al.*, 2015). Calls have been made for innovative teaching practices (O'Connell *et al.*, 2015) and high quality of teaching should be rewarded (Pathways Commission, 2012). Scholars who investigated the knowledge and skills of entry level accountants determined that South

Africa's challenges correspond with those in the rest of the world (Barac, 2009; Botha, 2001; Fouché, 2013).

Auditing education

Accounting education concerns are also relevant to audit education, as auditing is regarded as a sub-discipline of accounting (Johnson, Baird, Caster, Dilla, Earley & Louwers, 2003). In order to be able to express an appropriate opinion on the fairness of financial statements, the auditor should apply professional judgement and should have sound technical knowledge of accounting, taxation and financial management principles (Buckless *et al.*, 2014; Knechel, 2000). Professional judgement occurs when the auditor applies relevant training, knowledge and experience, in order to make an informed decision on a course of action (IFAC, 2017a). Thus the auditor's competence is represented by training, knowledge and skills, and the level of competence depends on the auditor's ability to integrate multidisciplinary knowledge (Theron, 1999). Therefore auditing is not limited to theoretical technical knowledge, but the integration of other disciplinary knowledge and the appropriate application thereof. Undergraduate students of residential universities have limited exposure to business and they do not see the link of knowledge to practice, resulting in a memorisation approach to studying auditing (Chamberlain, 1935; Theron, 1999).

The latter makes auditing a difficult subject to teach, because as a concept-based discipline, a principle-based approach should be followed and not a rote memorisation approach, which students frequently follow due to a lack of understanding (Frakes, 1987). In an attempt to increase students' engagement with the subject matter, auditing educators have adapted their teaching strategies to incorporate more experiential learning and technology into the classroom (Dahawy & Kamel, 2006; Libby, 1995; Lillie & Wygal, 2011). Introducing experiential learning has the added benefit of also developing the non-technical skills required by the profession, such as team work, problem-solving skills and improved communication skills (Bromley & Harrast, 2011; Chaffey *et al.*, 2011; Crawford, Helliar & Monk, 2016).

Prior results of experiential learning interventions in auditing specifically

Auditing lecturers have implemented various experiential learning interventions in the past. These activities range from co-teaching, games, role-plays, apprenticeships, field trips and simulations (Buckless *et al.*, 2014; Davies, 2000; Dellaportas & Hassall, 2013; Dennis, 2003; Dombrowski *et al.*, 2013; Gelinas Jr *et al.*, 2001). From these interventions, simulations appear to be the preferred choice to provide students with a more practical experience that links the theory and practice (Felix, May, Niles & Thorson, 1985; Gelinas Jr *et al.*, 2001; Okike, 1999).

1.3 Statement of the problem

Teaching auditing at university level is a challenge, because students require a good understanding of business operations without having been exposed to or experiencing a real business environment (Buckless *et al.*, 2014). Due to this gap between theoretical knowledge and an understanding of how it is implemented in practice, students perceive auditing as a very theoretical subject (Frakes, 1987). This causes students to follow a superficial approach to studying the subject matter, increasing the chasm between theory and practice even more.

Adding to the pressure, accounting education (of which auditing is a sub-discipline) is criticised for not effectively preparing students for the workplace, as graduates do not possess the requisite skills (O'Connell *et al.*, 2015). Entry level accountants should not only possess technical subject knowledge, but also professional skills such as effective communication, cooperative and information technology skills.

Auditing lecturers at university understand this conundrum and have incorporated various experiential learning approaches into the curriculum in an attempt to bridge the gap between theory and practice, and to develop professional skills in the process. These experiential learning approaches are often implemented in a blended learning environment where face-to-face and online learning are combined to create a more flexible learning environment. The existing literature reports a fragmented approach

where lectures introduce one or perhaps two experiential learning interventions and these are mainly reported in a small class environment (Dombrowski *et al.*, 2013; Sanchez, Agoglia & Brown, 2012; Tonge & Willett, 2012). The most common experiential learning activity implemented by auditing lecturers is a simulation (Felix *et al.*, 1985; Okike, 1999; Ragothaman, 1996; Siegel *et al.*, 1997; Silva, Trigo & Varajão, 2012).

No evidence could be found of an investigation on the impact of a holistic blended learning approach, in a large class setup, based on the students' perception of learning and engagement. Furthermore, studies on how students perceive the usefulness, ease of use and the affect of an auditing simulation are absent from the literature. This study aims to expand on the body of knowledge reporting on how students perceived a holistic blended learning model consisting of different elements: flipped classroom, an online simulation and cooperative learning initiatives. The holistic blended learning model was in use in a third year auditing module at the university where the study was performed, with a high number (651) of students. By presenting a holistic perspective on blended learning in a large class environment, this study addresses the abovementioned gap in the literature.

1.4 Purpose of the study

The purpose of the study is to investigate how the students enrolled for the auditing module during 2016, perceived the different elements of the current holistic blended learning model in the auditing module to contribute to their learning and engagement with the subject matter.

Within this purpose, the study also investigates how the perceived contribution differs between students at different performance levels. In addition, for one of the blended learning elements (the online simulation), the study determines students' perception about the usefulness, ease of use and the influence on their affect for learning.

1.5 Research questions

In order to achieve the purpose of investigating how the students perceived the different elements of the holistic blended learning model in the auditing module to contribute to their learning and engagement with the subject matter, how this perception of contribution differs between students at different performance levels and how the students perceived the usefulness, ease of use and the influence on their affect for learning, the following research questions need to be addressed:

1. How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to:
   1.1. their learning of the audit subject matter; and
   1.2. their engagement with the audit subject matter through different activities?

2. How do the above perceptions differ for students with different academic performance levels in relation to:
   2.1. their learning of the audit subject matter; and
   2.2. their engagement with the audit subject matter through different activities?

3. How do students with different academic performance levels perceive the online simulation in relation to:
   3.1. the usefulness thereof;
   3.2. the ease of its use, and
   3.3. The influence on their affect for learning?

1.6 Context of study, research design and method

1.6.1 Context of study

The university where the study was performed is a residential campus with scheduled weekly contact sessions between students and lecturers. The university actively encourages ICT implementation into teaching and learning (UP, 2017b). Blackboard Learn (Bb) is the learning management system (LMS) used and students have access to computer facilities in the library and designated computer laboratories for students. Students are subjected to ICT training during their first year of undergraduate study and continuous support is available by way of a helpdesk.

Students that have enrolled for the B Com Financial Sciences degree have to register from their second year of undergraduate study for the four main core modules, which are auditing, accounting, taxation and financial management. From second year, all core modules are year modules (28 weeks).

Auditing is presented from the second year of study. The curriculum, which meets the criteria of the SAICA competency framework, is divided into two years of undergraduate study and one year of postgraduate study. In the second year module, students are introduced to the ethical and regulatory environment of the auditor and the business cycles of a company, where the focus is on sound internal controls. The third year module addresses the entire audit process and explains the theoretical concepts and the context of how these concepts are applied in practice. In the postgraduate module, more integrated application of the audit process is addressed, together with more focus on more complex business activities and how the auditor should audit these activities.

The third year module has the most students between the three auditing modules, with an average of between 600 to 650 students per year. Students' ages in the third year range between 21 to 23 years of age, with the majority being females. The student

cohort is culturally diverse, with approximately a third English first language speakers, a third Afrikaans first language speakers and a third indigenous African languages speakers. Students have the choice to attend lectures presented in either Afrikaans or English.

In 2015, a blended learning approach was introduced. It was further developed in 2016 to a more holistic blend with a more coherent integration of the different elements. The elements implemented in the blended learning model in the audit module were a flipped classroom (videos, lectures and tutorials), an online simulation and finally peer-mentoring and peer feedback.

For the flipped classroom, theoretical videos explaining the basic concepts were recorded and made available on Bb. Students had to watch the videos as preparation for the lecture. During the lecture the information in the video was placed in context and elaborated upon if necessary, whilst also adding more active learning activities during the session.

The tutorials required students to prepare case study questions at home and then bring the attempted solution to the tutorial for discussion. For tutorials, students were divided into six smaller groups and the focus of the discussion was on how students could improve the quality of their work by demonstrating appropriate examination techniques.

The simulation provided students with an opportunity to practice auditing concepts with a real audit client (auditee). Students had to access client information through Bb and perform specific tasks in an audit team in a wiki throughout the year.

For the peer feedback, students had to complete a case study question and then exchange their attempted solution with another group member (the same groups used in the simulation were used for the peer feedback). The group member then had to review the attempted solution and provide comments with regard to examination

technique displayed and presentation. After completion, students had to complete an online logbook reflecting on the experience. With the peer-mentoring, students in their third year of undergraduate study had to mentor a second year student by sharing experiences and giving advice. A minimum of 14 hours had to be spent with the mentee and again students had to record their engagement by completing an online logbook.

1.6.2 Research design and method

In order to achieve the purpose the study to investigate how students perceived the different elements of the holistic blended learning model in the auditing module, so as to contribute to their learning and engagement with the subject matter, a quantitative research approach was followed. This study is descriptive in nature and provides "quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population" (Creswell, 2009:145). Even though numeric values are obtained from students' perceptions, the constructs measured do not lend themselves to accurate measurement, which is not in line with a pure positivist approach. Self-reported perceptions of students were evaluated to determine tendencies towards certain elements in the blended learning model, which relates to a constructivist view that differences in reality could exist between cultures or groups (Denscombe, 2010). This study thus combines characteristics of both a positivist and a constructivist approach.

The population for this study was the third year students that had enrolled for the auditing module at the University of Pretoria in 2016. A custom-developed survey instrument was used, as a suitable instrument to address the research questions of the study could not be identified. The survey was administered online, using *Qualtrics* toward the end of the 2016 academic year. The data was subsequently prepared for statistical analysis and analysed using the *Statistical Package for Social Sciences* (SPSS).

1.7 Significance of the study

This study adds to the auditing education body of knowledge, because it presents an investigation as to how students, in a large class, perceived the elements of a holistic blended learning model to contribute to their learning and engagement of the audit subject matter. Available studies on blended learning consist mainly of comparative studies that compare traditional learning with blended learning. These studies generally focus on a single blended learning intervention and most of the studies are also conducted in small class setting situations (Dellaportas & Hassall, 2013; Dombrowski *et al.*, 2013; Massey, Poli & Proctor, 2002; Tonge & Willett, 2012). The significance of this study lies in the holistic approach (different elements of a blended learning model are considered) and that the study was performed in a large class setting.

Different stakeholders that can benefit from the study, with the possible benefits are explained below. These role-players are: educators, university management, students, professional bodies and practitioners.

Educators

This information provides educators with a wider perspective of the students' perception of blended learning in general, as well as insight on how different elements (flipped classroom, online simulation and peer-mentoring and peer feedback) in a holistic blended learning model are perceived. It could be used to design an effective blend, which will impact on lecturers' pedagogies in future.

Educators could also benefit from insights on how different blended learning elements are perceived by students at different academic performance levels. Educators' pedagogies to support lower performing or at risk students could be influenced by this information.

The findings of the study on the online simulation (usefulness, ease of use and affect) could be used by educators in the design, development and implementation of a simulation to meet the purpose of the simulation as well as the technology expectations of the students.

Even though other educators might not implement all the elements included in this study's blended learning model in the same way, the overview of all the elements will provide them with an understanding of the benefits and challenges for the different elements to improve teaching practices overall.

University management

Improved insight into the students' perception of blended learning and their experience may inform policy making in future.

Students

The findings of this study can improve students' awareness on blended learning and enable them to compare their own perceptions and experiences with that of their peers.

Professional bodies

Taking cognisance of the findings can inform the accreditation criteria for auditing modules, knowing that it is possible to bring theory and practice together.

Practitioners

Practitioners can obtain an awareness of blended learning and the efforts made to develop the required skills. Insight is also obtained as to how theory and practice is linked through the interventions implemented.

1.8 Demarcations and limitations of the study

Demarcations

The focus of the study is the holistic blended learning model and therefore it was demarcated as follows:

- the study was performed in the audit discipline with specific challenges such as linking theory to practice;
- it was performed at a residential university with face-to-face contact sessions and not only online interaction;
- the residential university is situated in a South African context, where the auditing module is a core module within a SAICA accredited degree and professional training is provided, and
- for this study, only the third year students enrolled for the auditing module at the university where the study was performed in 2016 were selected. These students were selected as the population, because they were subjected to the holistic blended learning model implemented in the auditing module.

Limitations

As with all studies, this study has limitations:

- this study only focused on one group of third year students enrolled for the auditing module in a specific year;

- the other undergraduate and postgraduate auditing modules were not considered;
- the other disciplines in the specialised accounting degree programmes were not considered;
- only the pedagogies of the elements implemented in the study's blended learning model were considered and not all possible teaching methods and environments;
- the findings are based on perceptions which include a degree of subjectivity;
- only the perceptions of the students were considered and not those of the lecturers or graduates, and
- learning and student engagement are multifaceted constructs and not all facets of these constructs could be investigated in this study.

1.9 Chapter division of dissertation

The study has been introduced in this chapter. The preliminary literature review highlighted learning and student engagement, as well as the current discussion on blended learning and the challenges faced in accounting and auditing education. The statement of the problem, purpose of the study and research questions was presented to set the scene for the study. A brief explanation of the context of the study, and discussion of the research design and method were included, before concluding with the significance, demarcations and limitations of the study.

Chapter 2 is the first literature review chapter. It presents the literature on learning, student engagement, active learning and blended learning. The impact that technology has had on teaching and learning is discussed, and the dialogue on each of the blended learning elements implemented in this study is further elaborated upon.

Chapter 3 is the second chapter which reviews the literature, and the focus is directed from teaching and learning in general to accounting and auditing education and the

challenges faced by the educators to prepare students for the demanding world of work as an accountant. The debate as to the skills which entry level accountants should possess is highlighted as part of a broader discussion on accounting education. Then the focus turns to auditing education specifically. The challenges of teaching auditing are considered and the chapter concludes with examples of some of the different pedagogies that auditing educators have implemented to overcome these challenges.

Chapter 4 lays out the context of the study and how the different blended learning elements were implemented in the auditing module. Thereafter the research design, which sets out the paradigm, the research instrument, the population and the ethical considerations, as well as the method applied in this study are discussed. The method includes the questionnaire design, pilot study, data collection and analysis and concludes with descriptive statistics on the demographical data.

Chapter 5 presents the findings of the study. It distinguishes between the descriptive statistics, the factor analysis and the analysis of variance for learning and student engagement, as well as the online simulation.

The discussion of the findings is included in Chapter 6, where the research questions and sub questions are addressed, recommendations are made and future research opportunities are identified. Chapter 6 also presents the overall conclusion of the study.

1.10 Chapter summary

This chapter introduced the study. It started with a general orientation. This was followed by a preliminary literature review on the education constructs and learning theories and blended learning in particular was considered. Thereafter the specific challenges faced in accounting and auditing education were elaborated upon with emphasis on the need for students to develop skills for the workplace. The problem

statement followed the literature review, and the argument was made that educators are experiencing challenges to teach auditing as a discipline, because there is a gap between theoretical knowledge and how it is implemented in practice. Educators also have to address criticism about students' skills development and how to overcome these matters, and auditing educators have to implement more active learning into the curriculum. These activities are often implemented in a fragmented manner and prior studies were mainly conducted in small class settings. This study aims to fill the aforementioned gap. This discussion led to the purpose statement of this study and the formulation of the three research questions, with sub-questions.

The context in which the study was conducted was presented, as well as the research design and method followed in this study. The significance of the study was explained and demarcations and limitations were presented. The final section in the chapter outlines the chapters for the remainder of the study. The next chapter is the first part of the study's literature review and presents literature on learning, student engagement and blended learning.

2 LEARNING, STUDENT ENGAGEMENT AND BLENDED LEARNING

2.1 Introduction

The paradox which challenges educators is that “we want all our students to learn the same thing, yet we want each to make it their own” (Laurillard, 2002:2). The process of learning is different for every student and lecturers should provide different opportunities for students to learn, by adjusting the learning environment and the pedagogies applied.

Learning is influenced by the environment (Bransford, Brown & Cockering, 2000), circumstances (Ashton & Elliott, 2007) and the individual’s preferences as to how information is presented (Ambrose *et al.*, 2010; Entwistle, McCune, Walker, Sternberg & Zhang, 2001; Spector, 2014). In recent years the learning environment has expanded beyond physical borders with the proliferation of new technologies introduced to education (Bates, 2016b; Spector, 2014). Educators have realised that no new technology can automatically benefit education, so the important consideration remains what is done with the technology to promote student learning (Spector, 2014). This requires combining face-to-face and online learning in such a way that learning is enhanced, thereby providing a conducive learning environment (Herrington, Reeves & Oliver, 2010).

This study reports on ICT tools introduced in an auditing module at a South African university, resulting in a blended learning mode. The blended learning model applied in the auditing module is investigated to determine whether students perceive the different elements incorporated in the blend to contribute to their learning and engagement. This chapter contextualises the study in the literature. It explains what is meant by learning and student engagement. It places blended learning in the context of learning and particularly active learning, as many activities incorporated in a blended learning environment require active participation by the students (Holley &

Dobson, 2008). The concepts of active and blended learning are explained and are followed by a brief overview of the impact that technology has had on teaching and learning. In the final part of the chapter, three specific elements of blended learning, namely the flipped classroom, simulations and lastly peer feedback and mentoring, are discussed. These are elements of the blended learning model applied for the auditing module, which forms the focus of this study. This chapter provides a background for the purpose of this study, as to how students perceived these elements incorporated in the holistic blended learning model in an auditing module, in order to contribute to their learning and engagement.

2.2 Learning

2.2.1 Definition

Over the years, numerous definitions for learning have emerged. They could be traced back to the 1828 Webster's Dictionary defining learning as "(g)aining knowledge by instruction or reading, by study, by experience or observation; acquiring skill by practice" (Webster, 1828:no pagination). Years later Crow and Crow (1963:1) stated that "[l]earning involves change. It is concerned with the acquisition of habits, knowledge, and attitudes. It enables the individual to make both personal and social adjustments. Since the concept of change is inherent in the concept of learning, any change in behaviour implies that learning is taking place or has taken place". Minsky (1987:329), in understanding the difficulty of defining this construct, asserted that learning is "[a]n omnibus word for all the processes that lead to long term changes in our minds." Driscoll (2000:1), more recently, regards learning as "a persisting change in performance or performance potential that results from experience and interaction with the world". A decade later Ambrose *et al.* (2010:3) define learning as "a process that leads to change, which occurs as a result of experience and increases the potential for improved and future learning". In a more opposing view that learning from others' experiences is also possible, Siemens (2005:7) believes that "[l]earning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual. Learning (defined as actionable knowledge)

can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing".

The three elements that are common in these definitions, directly or by implication, are process (series of actions), change and experience. Learning could thus be regarded as a process where the individual has to be involved in or engaged with the material, and through such experience, the change in the individual occurs. Scholars have theorised on how learning occurs for many years and the developments in these discussions are expounded upon in the next section.

2.2.2 Learning theories

As the study of learning is embedded in various disciplines, it has been viewed by scholars from various perspectives, and is continuously investigated to develop a conceptual framework or theory (Driscoll, 2000). A learning theory therefore "comprise(s) a set of constructs linking observed changes in performance with what is thought to bring about those changes" (Driscoll, 2000:11). Three main learning theories have been identified in the literature and a fourth theory is emerging with the dawn of technology in learning. The established theories are behaviourism, cognitivism and constructivism (Cooper, 1993; Ertmer & Newby, 1993), while the emerging theory is connectivism (Siemens, 2005). As online learning is but a sub-category of learning, the same learning theories underpin this environment (Anderson, 2008).

Behaviourism, in line with earlier thinkers, regarded the individual as an empty vessel or a blank slate into which knowledge could be poured and the individual would absorb this knowledge (Lee, 2007). It focuses on the change in the observable behaviour of the individual and ignores the process of gaining the knowledge (Schunk, 2012). It assumes that with the appropriate stimulus, the required response could be obtained, such as learning a new skill (Ertmer & Newby, 1993). Behaviourism is governed by the

rewarding and punishing consequences that follow any given action or stimulus (Bandura, 1971). The key players involved in the development of the behaviourist theory, according to McLeod (2003) and Bates (2016a) were Pavlov, Skinner, Thorndike, Tolman, Gagne and Watson. Behaviourism is still popular in exact sciences, and underpins outcomes-based education, where learning is measured in observable artefacts (Alessi & Trollip, 2001). Early computer learning systems were designed on a behaviourist approach to learning and focused on teaching the facts (Ally, 2008).

In the late 1950s learning theories shifted away from the behaviourist theory to the cognitivist sciences, which lead to the emergence of *cognitivism* (Bates, 2016b; Ertmer & Newby, 1993). Cognitivism focuses more on the complex cognitive processes such as thinking, problem-solving and information processing. The process of how knowledge is acquired and how the information is received, organised, stored and retrieved by the mind became more important with recognition that learning occurs within the learner (Driscoll, 2000; Ertmer & Newby, 1993; McLeod, 2003) and that the amount of learning depends on the processing capacity of the learner (Ally, 2008). It was also the first recognition that the learner should have existing knowledge in order to compare and process new information (McLeod, 2003). The forerunners on cognitivism, according to Schunk (2012) and Bates (2016a), were Bruner, Dewey, Vygotsky, Bandura, Ausubel and Piaget. While behaviourism views the real world as something outside the learner, breaking down tasks into small parts and supporting the belief that all learners will gain the same knowledge in a learning environment (Duke *et al.*, 2013), cognitivism begins to recognise that knowledge gaining is an internal process and for learning to occur, some worldview about the topic is required (Ertmer & Newby, 1993). Cognitive science underpins the design of learning with ICT, taking into account how the brain processes information and how information should be presented for maximum effect (Ally, 2008; Alessi & Trollip, 2001). Cognitive strategies teach the principles and processes of how something is done (Ally, 2008).

The third learning theory is *constructivism* which claims that an individual already has a worldview, and that all new knowledge is sifted through prior experiences before being added and incorporated into existing knowledge (Marton *et al.*, 1997). The individual constructs his/her own interpretation of reality based on the information that is in some sense unique to that individual (Ally, 2008; Marton *et al.*, 1997). Knowledge gained by individuals will differ even when they are in the same learning environment and will be based on what the individual already knows (Ertmer & Newby, 1993; Kanuka & Anderson, 1998; Marton *et al.*, 1997). Thus in a constructivist view, meaning is created as opposed to being acquired and the learner has to be an active participant in the learning (Anderson, 2008; Ertmer & Newby, 1993; Kanuka & Anderson, 1998). The learner is in the centre of the learning, while the instructor is more of a facilitator, allowing for student-centered teaching (Ally, 2008). In an online environment the learner experiences the information first-hand, and not filtered through the instructors' interpretations, allowing the learner to contextualise the information him/herself (Ally, 2008). Active learning is underpinned in constructivism (Kanuka & Anderson, 1998), where meaningful activities to encourage active participation by way of experiential learning, problem-based learning and cooperative learning are implemented in the instruction (refer to Section 2.4.2 for a detailed discussion). Constructivist strategies allow for real-life applications and contextualisation of the learning, which is often the preferred objective for instructors, especially in online learning (Ally, 2008; Anderson, 2008). Two constructivist learning theories are accepted, being critical constructivism and social constructivism. Critical constructivism assumes that knowledge is constructed by integration of internal "contradictions" due to our interactions with the environment (Kanuka & Anderson, 1998:para 9). Social constructivism is "currently the most accepted epistemological position associated with online learning" and recognises the social element of learning in that learning requires communication between peers, teachers and others (Bates, 2016b; Driscoll, 2000; Kanuka & Anderson, 1998:para 10).

The emerging paradigm, *connectivism* was developed by Siemens and Downes (Siemens, 2005) and claims to be denouncing the boundaries of behaviourism, cognitivism and constructivism (Duke *et al.*, 2013). With the rapid developments in information technology and the vast increase in available information and knowledge,

chaos is now a reality for knowledge seekers (Siemens, 2005). In contrast with constructivism, where the learner constructs understanding by experiencing meaning-making tasks, connectivism and chaos state that “the meaning exists – the learner’s challenge is to recognize the patterns which appear to be hidden” (Siemens, 2005:7). Simply stated, connectivism is social learning in a networked environment, where learners connect and participate in a learning community to communicate with others with similar interests (Duke *et al.*, 2013; Goldie, 2016). Siemens (2005) further contends that the rapid development of knowledge and information and the complexification in a more global and more connected society, require non-linear models of learning. Individuals now have the option of accessing a multitude of links on a website that relates to a specific area resulting in different viewpoints to be obtained within milliseconds (Duke *et al.*, 2013). It is no longer a question of knowing information, but knowing *where* to find the information (Siemens, 2005). Own experience is also no longer a prerequisite for learning, since experiences of others can now also lead to learning (Downes, 2005; Siemens, 2005). Therefore, gaining or creating knowledge is more like a mind map or network and no longer in a linear and sequential manner (Downes, 2005; Siemens, 2005). Connectivism is suitable for certain subject domains, particularly ICT-related subjects, but is not universally applicable.

These four learning theories form the foundation from which scholars study learning as a construct. The learning environment created for students will be based on one of these learning theories, depending on the lecturer’s view. It is also possible that more than one of these theories could be included in a single lecture and is largely dependent on the learning outcomes of the lecture. Learning cannot only be viewed from a theoretical perspective, but can also be viewed from different dimensions.

2.2.3 Dimensions of learning

In addition to the abovementioned learning theories, learning, a well-researched construct, has been studied from different dimensions. Some scholars focus on the individuals and their intrinsic motivation for learning (Marton *et al.*, 1997), while others

study their engagement in the learning (Barkley, 2010), their approach to learning being a deep, surface or strategic approach (Marton *et al.*, 1997) or their preferred learning styles such as the four quadrants of the whole-brain learning model (Herrmann, 1996). Researchers view learning from different perspectives, such as that of the student (Ferreira & Santoso, 2008), the teacher, the lecturer (Laurillard, 2002) or the future employer (Barac, 2009). Knowles (1973) proposes that adults learn differently compared to children.

A stream of research focuses on the level of learning or knowledge gained by, for example, using Bloom's revised taxonomy of learning in the cognitive domain (Bloom & Anderson, 2014; Krathwohl, 2002). In this taxonomy Benjamin Bloom attempts to describe meaningful learning, as opposed to rote learning (Bloom & Anderson, 2014). The latter learning is described as knowledge acquisition through knowledge retention, while meaningful learning is knowledge construction focusing on knowledge transfer (Bloom & Anderson, 2014; Mayer, 2002). Meaningful learning usually occurs when students can solve problems that are at the higher levels of Bloom's revised taxonomy, for example executing, differentiating or critiquing (Mayer, 2002). However, before these higher levels can be achieved, there are a number of learning phases that one has to go through as you move from novice to expert in the construction of knowledge (Shuell, 1990).

The environment in which learning occurs also contributes to meaningful learning. Tasks that require active engagement and constructive articulation, which are intentional, authentic and cooperative, will usually lead to meaningful learning (Howland, Jonassen & Marra, 2013; Karppinen, 2005). Even though the environment influences learning, meaningful learning could still occur where tasks are effectively transferred to online learning (Howland *et al.*, 2013).

By changing the focus from the learning of the individual to the modes of instruction or the environment in which learning occurs, various other research areas are identified, such as distance learning (Garrison & Cleveland-Innes, 2005; Picciano, Dziuban & Graham, 2013; Sadler & Erasmus, 2005) and residential learning (Merisotis

& Phipps, 1999), which could include either online and face-to-face learning (Bates, 2016b; Cercone, 2008; Picciano & Dziuban, 2007). More recent studies consider a combination between online and face-to-face learning and the effect thereof on the students and their learning (Arbaugh, Godfrey, Johnson, Pollack, Niendorf & Wresch, 2009; Garrison & Kanuka, 2004; Osguthorpe & Graham, 2003; Picciano & Dziuban, 2007). This method of instruction is commonly referred to as a hybrid or blended learning model (Arbaugh *et al.*, 2009; Bliuc, Ellis, Goodyear & Piggott, 2010) and is discussed in more detail in Section 2.5.

The effects of different pedagogies (methods and practices of teaching) applied both in the classroom, as well as outside it, have also been investigated, for example simulations or case studies (Beckem & Watkins, 2012). These pedagogies and tools are discussed in more detail in the latter part of this chapter (refer to Section 2.7). The influence that technology has on teaching and learning is a consideration that has received a lot of attention (Bates, 2016b; Garrison, Anderson & Archer, 2010) and is discussed in more detail in Section 2.6.

2.2.4 Summary

From the above it is clear that learning, as a construct, remains an area capturing scholars' interest, covering a wide range of topics from theories (behaviourism, cognitivism, constructivism and connectivism), to perspectives and modes of learning. Dimensions of learning portrayed in the literature depend on the perspective from which learning is considered, i.e. the learner, his/her level of learning attained, his/her learning environment and the modes of instruction used to facilitate the learning. It is unlikely that learning as a construct will ever be fully understood and with the various technological developments, learning dimensions are changing even faster.

For this study, the definition by Ambrose *et al.* (2010:3) that learning is "a process that leads to change, which occurs as a result of experience and increases the potential for improved and future learning" encapsulates the core elements of learning; namely

process, change and experience. In this study these are applied as a benchmark for learning in the auditing discipline. Auditing is regarded as being very abstract, because a vast amount of theoretical knowledge should be acquired, before any synthesis of understanding can be achieved (Buckless *et al.*, 2014). In auditing, students should move quickly from the lower to the higher levels of cognition in terms of Bloom's revised taxonomy and therefore learning for this study is viewed from the higher levels of Bloom's revised taxonomy. Constructivism, and specifically social constructivism, underpins this study, because even though different elements (online tools and activities) of a blended learning model are introduced in the auditing module to provide multiple experiences, students still have to construct their own meaning in order to be able to apply their understanding. The different modes of teaching implemented in the blended learning model in the module will be the focus of this study, to determine which mode students perceive to contribute more to their learning. With the movement to online learning and connectivism, it remains difficult in a residential university environment to create a full online learning community where the traditional practice has been face-to-face contact sessions, a context which is applicable to the current study.

This study investigated learning at a residential university where a holistic blended learning model was introduced. As learning can be viewed from different perspectives, this study focuses on learning from the student's point of view, and how the students perceived the different elements of the holistic blended learning model to contribute to their learning and engagement with the subject matter.

Constructivist learning presupposes that the student engages with the subject matter, peer students and knowledgeable others for feedback. Therefore student engagement is explored and discussed next.

2.3 Student engagement

2.3.1 Definition

As the construction of learning is complex and cannot be viewed in isolation, student engagement strongly influences learning (Kahu, 2013). Scholars agree that student engagement is a multi-dimensional construct, which has been subjected to investigation for decades (Christenson, Reschly & Wylie, 2012; Kuh, 2009). The seminal work by Pace (1982), who links the quality of student effort to achievement, laid the foundation for investigating student engagement as a measure for *inter alia* academic success. Astin (1984:518) uses the term "student involvement" and includes both physical and psychological effort by the student to demonstrate engagement.

One way of viewing student engagement is to be straightforward in defining it as "the extent to which [students] take part in educationally effective practices" (Kuh, Kinzie, Buckley, Bridges & Hayek, 2011:43). A more complex view regards student engagement from either a behavioural perspective, which focuses on institutional level and teaching practices, or a psychological perspective, which focuses on the internalised processes of the individual (Kahu, 2013). Another perspective on student engagement is a socio-cultural perspective, which considers the effect of socio-cultural differences on engagement (Holley & Dobson, 2008; Kahu, 2013), while a holistic perspective tries to bring all the different perspectives into harmony (Kahu, 2013). The definition for student engagement is thus dependent on the specific perspective from which the construct is viewed, and even within a particular perspective, there are differences amongst scholars (Holley & Dobson, 2008; Kahu, 2013; Kuh *et al.*, 2011).

Krause's (2005:3) definition of student engagement focuses on the internalised process of the individual, "the time, energy and resources students devote to activities designed to enhance learning at university." In their literature review on student engagement as school level, Fredricks, Blumenfeld and Paris (2004) identified the multifaceted nature of engagement and suggested that individual engagement should

be defined in one of three ways, behavioural, emotional (affective) or cognitive. Behavioural engagement relates to participation and involvement of the individual in academic activities. It includes aspects such as positive conduct, following rules, involvement in academic tasks such as asking questions, participating in discussions and also participation in extracurricular activities (Fredricks *et al.*, 2004). Emotional or affective engagement includes the positive and negative reactions to the activities and environment, such as boredom, happiness or anxiety, and the feeling of belonging and being valued enhances the level of engagement (Fredricks *et al.*, 2004). Cognitive engagement is the level of investment and commitment necessary to master complex knowledge and skills where the learner is strategic or self-regulating (Fredricks *et al.*, 2004). Cognitive engagement infers a deep learning approach where greater mental effort is exerted and greater understanding is achieved (Fredricks *et al.*, 2004).

Kahu (2013) does not view these three concepts as separate definitions for engagement, but rather interwoven dimensions of student engagement. She adds a fourth dimension to student engagement, namely connation, which is the will to succeed (Kahu, 2013). Appleton *et al.* (2006) and Reschly and Christenson (2012) suggest that student engagement includes four subtypes, by adding academic engagement to behavioural, cognitive and affective engagement, and they regard student engagement as the glue that links important contexts (for example home, school, peers and community) to the student and eventually to outcomes. These subtypes mirror the dimensions explained by Kahu (2013) and Fredricks *et al.* (2004). Scholars, however, agree that the emotional and behavioural engagement of a student cannot be detached from the academic and cognitive engagement, and from a teaching point of view, most of the activities and interventions implemented are usually focused on enhancing the academic and cognitive engagement (Appleton *et al.*, 2006; Barkley, 2010; Reschly & Christenson, 2012; Trowler, 2010).

2.3.2 Measurement of engagement

Due to the multifaceted dimensions of student engagement, different methods for determining and measuring student engagement are reported in the literature, complicating comparison between the results of these studies (Fredricks & McColskey, 2012). Fredricks *et al.* (2011) reviewed available student engagement measuring instruments at secondary level and identified 21 different instruments, many of which were also utilised at tertiary level. Methods applied in measurement include student self-report questionnaires, teacher reports, interviews and observations (Fredricks & McColskey, 2012). A commonly applied method of measurement is the Student Engagement Instrument, a self-report measure, developed by Appleton *et al.* (2006) which focuses on cognitive and affective engagement. Another example is the Student Engagement Survey developed by Ahlfeldt, Mehta and Sellnow (2005), focusing on classroom activities, which is based on questions included on the National Survey of Student Engagement (NSSE) (an institutional student engagement instrument). Subsequent to the student engagement survey studies, the Classroom Survey of Student Engagement (CLASSE), also based on the NSSE, was developed, in order to measure whether the lecturer and the students perceived the same activities as either important or less important in the classroom and whether there are any disparities between the lecturer and students' views (NSSE, 2017).

Student engagement measurement at an institutional level was first considered by Chickering and Gamson in their publication *The Seven Principles for Good Practice in Undergraduate Education* (Chickering & Gamson, 1999). When incorporating the seven principles of good practice the lecturer should encourage (1) student-lecturer contact, (2) cooperation amongst students, (3) active learning, (4) give prompt feedback, (5) emphasise time of task, (6) communicate expectations and (7) demonstrate respect for diverse talents and ways of learning by the students (Chickering & Gamson, 1987). Peter Ewell and a team of associates expanded these principles and developed the NSSE (Kuh, 2009). The NSSE considers the campus environment and the utilisation of resources by defining student engagement as the educational "activities and conditions likely to generate high-quality learning" (Radloff & Coates, 2010:3). The NSSE aims to measure engagement data across institutions

reliably, as it provides high-quality data on the undergraduate's experience. This enables institutions to identify measures to improve performance and effectively apply resources (Kuh, 2009).

2.3.3 Pedagogies of engagement

Teaching activities implemented in the classroom to encourage engagement are referred to as pedagogies of engagement (Smith *et al.*, 2005) and could include cooperative learning through discussions and problem-based learning. In her evaluation of classroom-based student engagement techniques, Barkley (2010) concludes that engagement depends on active learning and that this construct cannot be considered without also linking it to motivation. The latter is the inner drive that a person feels that makes him/her want to do something (Christenson *et al.*, 2012). From a learning perspective, motivation depends on the individual's cumulative experience with learning situations (Barkley, 2010). Active learning (further elaborated upon in Section 2.4) is an umbrella term that includes several instructional approaches such as experiential learning, cooperative learning and discovery learning (Smith *et al.*, 2005). The purpose of active learning is that students make information their own by being more involved in their learning and connecting new knowledge to existing knowledge by way of experience (Barkley, 2010). If lecturers could get students involved in the learning in the classroom, they could create a small community of learning within the greater scheme of things (Tinto, 1993). This community of learning and feeling of belonging will lead to greater involvement outside the classroom, which will enhance the university experience for the student, leading to increased satisfaction and reducing the possibility of dropout (Tinto, 1993). Should the lecturer succeed in setting up engaging activities beyond the classroom, the expansion of the community of learning is even greater. Engaging students academically and cognitively beyond the classroom could be achieved by introducing online content in the curriculum and creating a blended learning environment, where the online elements are not only extensions or repetitions of the classroom activities, but contribute to the overall learning experience (Garrison & Kanuka, 2004).

2.3.4 Summary

This section discussed student engagement as it influences students' learning. The construct could be viewed from various perspectives and its meaning is a function of the chosen perspective. Due to its multifaceted nature, engagement has various dimensions (behavioural, cognitive and affective engagement, as well as connation and academic engagement). One of the research questions in this study is how do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to their engagement with the subject? The study therefore views student engagement from the affective perspective of the internalised processes of the individual (Kahu, 2013). In addition, the cognitive dimension of student engagement is investigated, as the different elements of the blended learning model in the auditing module require different levels of investment and commitment necessary from the student, in order to master the expected knowledge and skills.

From the literature, it is clear that although various attempts were made to measure the level of engagement, it remains a subjective assessment. The reliable measurement of student engagement remains a contentious issue amongst scholars and since different elements of the blended learning module are compared in this study, a previously developed instrument could not be found to fit the scope of the study. This lead to a purposefully constructed questionnaire (refer to Section 4.7.1).

Teaching activities implemented in the classroom which encourage engagement are viewed as pedagogies of engagement. They include active learning, which involves students in their learning. The pedagogies of engagement applied in this study are the different elements of the blended learning model, which is discussed in more detail in the remainder of this chapter.

Before moving to blended learning as a suitable mode to deliver active learning, the concept of active learning is first addressed.

2.4 Active learning

2.4.1 Definition

Proponents of active learning claim that it enhances both the learning and engagement of the individual, it is a student-centered approach and it follows instructional methods which actively engage students in the learning process (Prince, 2004). There has been a call in education to move away from the teacher-centered approach (also referred to as a content-centered approach), where the lecturer is seen as the only source of knowledge who shares that knowledge with passive students who listen and take notes. The call is to move towards a more student-centered approach (also referred to as a learner-centered approach) (Bligh, 1998; Yoder & Hochevar, 2005). In a student-centered approach, students are more actively involved in the learning process, because they influence the content, materials and the pace of learning (Machemer & Crawford, 2007; Michael, 2006). These students take more responsibility for their own learning, which in turn leads to increased engagement (Machemer & Crawford, 2007; Michael, 2006). With a student-centered approach, the student is at the centre of the learning process and the lecturer is responsible for guidance and facilitation in this process. This is done by involving students in meaningful learning activities and encouraging them to think about what they are doing (Michael, 2006; Prince, 2004).

2.4.2 Active learning methods

Past research has shown that active learning is beneficial in improving memory, understanding and performance (Cherney, 2008; Freeman, Eddy, McDonough, Smith, Okoroafor, Jordt & Wenderoth, 2014; Huxham, 2005; Michael, 2006; Yoder & Hochevar, 2005). Students might, however, not perceive active learning positively (Huxham, 2005; Smith & Cardaciotto, 2011), as it often forces them to lose their anonymity (Machemer & Crawford, 2007). Active learning methods could be implemented equally well in face-to-face and online learning settings (Yoder &

Hochevar, 2005). The most common active learning methods implemented by lecturers are *experiential learning, problem-based learning* and *cooperative or collaborative learning* (Prince, 2004) and these are further elaborated upon in the following sections.

2.4.2.1 Experiential learning

The premise is that learning cannot be detached from experience, because it will not be possible to learn something without some sort of experience involved. However for learning to occur, active cognitive engagement (Boud *et al.*, 1993; Gentry, 1990) and social interaction are required (Bandura, 1971). Experiential learning theory developed by David Kolb is well established and is based on the theoretical groundwork by Dewey in his 1938 work: *Experience and Education,* Lewin's research on group dynamics and Piaget's theory of cognitive development (Kolb, 2014).

Kolb's experiential learning model is based on two continuums, the perception continuum (feeling vs thinking) and the processing continuum (watching vs doing) (Kolb, 2014). The learning cycle starts with the first point on the continuum, concrete experience (feeling), which is followed by reflective observation (watching), then abstract conceptualisation (thinking) and finally active experimentation (doing) where the new knowledge is applied to new situations (Kolb, 2014). The characteristic of experiential learning is that the learning is conceived as a continuous process and not only in terms of outcomes, and it is grounded in experience. The learning process requires that the conflict between dialectically opposed modes of experiencing (feeling vs thinking and watching vs doing) be resolved (Kolb, 1984). This process allows the learner to become a participant, instead of a spectator in learning (Beaudin & Quick, 1995; Gentry, 1990; Kolb, 1984).

Moon (2004) supports this continuous process, but considers the process difficult to explain in a linear manner, because numerous events influence and modify each other simultaneously. She also distinguishes between internal and external experience, a

concept first introduced in 1997 by Marton and Booth (Marton *et al.*, 1997; Moon, 2004). Internal experience "is the experience that the learner brings to the learning situation from her current cognitive structure", whereas external experience occurs when the learners are learning about "something outside of themselves" (Moon, 2004:23). The level of engagement with the external experience will be influenced by the learner's level of understanding of the nature of the knowledge and the emotional influence of how the learning task is perceived (i.e. rote memorisation of facts or deeper understanding) (Moon, 2004).

Kolb (1984) regarded experiential learning in the broad context of learning, while some studies attempted to define experiential learning specifically in the teaching context. Wurdinger and Carlson (2009) presented active learning, problem-based learning, project-based learning and service learning as examples of experiential learning in their postgraduate module. Hamer (2000) introduced semi-structured classroom activities (for example group discussions) and found a positive relationship between the students' experience and an increase in their grades. Bergmann and Sams (2012) also encouraged more active participation in the classroom, with their flipped classroom approach where the homework component is brought into the classroom and the theoretical explanation is moved outside the classroom. Another example of introducing experiential learning to the teaching environment is simulations, where students experience the workplace in a safe environment (Silvia, 2012) (refer to Section 2.7.2 for a detailed discussion on simulations).

2.4.2.2 Problem-based learning

Problem-based learning originated in medical education on the premise that medical students should acquire usable knowledge that they can apply in any practical situation, because once qualified, physicians are regarded for their problem-solving skills and not for their memory skills (Barrows & Tamblyn, 1980). This instruction method is not limited to medical education, but was also implemented in business education (Stinson & Milter, 1996) and engineering education (Mills & Treagust, 2003).

Problem-based learning is an instructional method where ill-defined, real-life problems are used as context to learn problem-solving skills and acquire the required knowledge (Albanese & Mitchell, 1993). Problem-based learning differs from the case-study method, in that with problem-based learning, the problem is first presented, students then have to identify the problem, determine what knowledge is required to solve the problem and then go and acquire that knowledge from different sources (Barrows & Tamblyn, 1980; Hmelo-Silver, 2004). Therefore, students need to construct their own knowledge and understanding and the lecturer acts as facilitator, where with the case-study method, the underlying theoretical understanding is first explained by the lecturer and a real life case study is subsequently used to illustrate the application of the knowledge (Albanese & Mitchell, 1993).

The process followed in problem-based learning instruction is very specific. First the problem scenario is presented, the students identify the facts and generate hypotheses and finally identify any knowledge deficiencies (Hmelo-Silver, 2004). Students then apply self-directed learning to obtain the required knowledge to address the deficiencies, they then come together again to collaborate and share their new knowledge, re-evaluate the problem and reflect on the process to determine how the process could have been improved (Hmelo-Silver, 2004). This process will allow for the objectives of problem-based learning to be achieved.

The five goals or objectives of problem-based learning are: to (1) “construct an extensive and flexible knowledge base; (2) develop effective problem-solving skills; (3) develop self-directed or lifelong learning skills; (4) become effective collaborators; and (5) become intrinsically motivated to learn” (Hmelo-Silver, 2004:240). These goals also encapsulate the benefits of problem-based learning and students as well as educators agree that the instruction method seems to work (Albanese & Mitchell, 1993; Dochy, Segers, Van den Bossche & Gijbels, 2003; Dolmans, Grave, Wolfhagen & Vleuten, 2005). Scholars who investigated the achievement of these goals, by focusing on skills development and knowledge acquisition, found that skills development usually resulted in a positive effect size, but that knowledge acquisition resulted in a negative effect size (Dochy *et al.*, 2003). Research also found that while

students engaging in problem-based learning gained slightly less knowledge, they remembered more of the acquired knowledge, compared to more conventional modes of teaching (Dochy *et al.*, 2003; Kirschner, Sweller & Clark, 2006).

2.4.2.3 Collaborative and cooperative learning

The third common method of active learning is cooperative and collaborative learning and there are as many definitions as scholars who view such learning differently (Ravenscroft, Buckless & Hassall, 1999). When the terms “collaborative” and “cooperative” are used interchangeably, it results in confusion. Ravenscroft *et al.* (1999:163) explain the use of the different terms, by stating that:

> cooperative learning characterizes those learning approaches in which peer interaction plays a significant role, but where content and construction of knowledge are still primarily determined and driven by the faculty member. By contrast, when students are asked to view knowledge as created in the classroom learning community, and to rely on one another and the faculty member in defining the curriculum, then we will use the term ‘collaborative learning’.

Panitz (1999:5) defines cooperative learning as “a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific. It is more directive than a collaborative system of governance and closely controlled by the teacher.” Collaborative learning, on the other hand, is in “all situations where people come together in groups, it suggests a way of dealing with people which respects and highlights individual group members' abilities and contributions. There is a sharing of authority and acceptance of responsibility amongst group members for the group’s actions” (Panitz, 1999:3). Even in these definitions is it difficult to distinguish clearly between the terms, but the main difference remains that in cooperative learning students work together to meet the goal set by the lecturer, while collaborative learning requires students to work together and take responsibility for each other’s learning. As the group activities employed in the blended learning model in this study are mainly driven by the lecturer, cooperative learning will be discussed in more detail.

Cooperative learning is based on the interdependence theory and more specifically the social interdependence perspective, as students should be able to work together and learn from each other (Boud *et al.*, 2014). The skill of being able to work in a group and contribute effectively is an employability requirement that accounting students should be exposed to and that universities have been under pressure to incorporate into the curriculum (Boud *et al.*, 2014; Swanson *et al.*, 1998).

Cooperation can either be formal or informal, with informal cooperation being a once off class activity in a group and formal cooperation taking the form of working together on an extended assignment (Smith *et al.*, 2005). When formal cooperation is required, the lecturer should consider the group formation and the dynamics surrounding this formation and can either allow students to form their own group, or the lecturer could use some method to divide students into groups (Swanson *et al.*, 1998). Swanson *et al.* (1998) found that students performed better when they were in self-selected groups, compared to lecturer assigned groups, which was confirmed by Van der Laan Smith and Spindle (2007).

Different activities can be included in cooperative learning such as summarising reading assignments, reviewing homework, generating discussion questions or answering test questions (Ravenscroft *et al.*, 1999). Various benefits resulting from cooperative learning have been documented in the literature (Johnson, Johnson & Smith, 2014; Ravenscroft *et al.*, 1999; Slavin, 1980). Such benefits include the development of interpersonal skills (for example learning from others and learning to work with others), learning to articulate thoughts and understanding, and also allowing for self and peer assessment (Boud *et al.*, 2014; Van der Laan Smith & Spindle, 2007). Increased understanding of content knowledge and academic performance are cognitive benefits of cooperative learning (Swanson *et al.*, 1998; Tinto, 2004; Van der Laan Smith & Spindle, 2007; Zhao & Kuh, 2004). By creating a community of learning, which does not necessarily include group work, a feeling of belonging in a group is achieved, which has been found to increase successful completion of a task (Tinto, 2004). A community of learning is created between students who take two or more modules together, who see each other frequently in an academic environment and

from whom lecturers require information from one course to be transferred and applied in other modules (Zhao & Kuh, 2004).

2.4.3 Summary

From the literature, it is clear that there is a shift from passive lectures towards a more active learning environment where students are challenged to participate in the lecture with different activities. Experiential learning where students are placed in a scenario that imitates reality gives the students a sense of realism. Problem-based learning presents an ill-defined problem to students and they have to identify deficiencies in their knowledge to address the problem. Cooperative and collaborative learning requires students to work together in a group to meet a set objective. These three applications are the most common active learning methods reported in the literature.

As per the definition of active learning, namely that students should be actively involved in the learning process and that a more student-centered approach should be followed, different elements of a blended learning model in the auditing module are explored in this study. These elements make provision for both experiential learning and cooperative learning opportunities. To introduce experiential learning into the module, an online simulation was introduced (refer to Section 2.7.2 for detailed discussion) and for cooperative learning, students had to work in an audit team in the simulation to complete tasks and were also exposed to peer-mentoring and peer feedback (refer to Section 2.7.3 for detailed discussion). The concept of blended learning and the specific elements included in this study are discussed in the next section.

2.5 Blended learning

2.5.1 Definition

Blended learning goes by different names, such as “hybrid learning, mixed-mode or flexible learning” (Picciano & Dziuban, 2007:7). The concept of blended learning is simple and the general accepted definition is “the thoughtful integration of classroom face-to-face learning experiences with online learning experiences” (Garrison & Kanuka, 2004:96). Picciano and Dziuban (2007:9) extended the abovementioned definition of blended learning as follows:

> Courses that integrate online with traditional face-to-face class activities in a planned, pedagogically valuable manner; and [w]here a portion (institutionally defined) of face-to-face time is replaced by online activity.

Oliver and Trigwell (2005) have a wider interpretation. They argue that blended learning can mean a blend between face-to-face and online instruction, or a blend of different media, or a blend in the context in which learning takes place, or a blend in theories of learning or learning objectives. They suggest that blended learning should rather be linked to the variation theory, because learning will only occur when the learner experiences variation and that the blend is not in the learning, but in the instructional modes (Oliver & Trigwell, 2005). Singh (2003) also supports the notion that blended learning is a combination of multiple delivery media intended to complement each other and support meaningful learning. The level of blending instructional modes can differ in intensity from low to high.

2.5.2 Modes of blended learning

Regardless of how blended learning is defined, the potential of combining online with face-to-face instruction is obvious, because it allows for the masterful integration of the strengths of synchronous learning (face-to-face) and asynchronous (online) learning activities (Garrison & Kanuka, 2004). The complexity of blended learning emerges in the countless design possibilities available and the effect of these different designs on the learning of students (Garrison & Kanuka, 2004). Educators have the

choice of moving from one side of the continuum of a low-impact blend, where there is limited online interaction and it is more of an add-on than a blended approach (Alammary *et al.*, 2014), to a medium-impact blend, where more careful consideration is necessary in deciding what should be presented in either mode. A medium-impact blend can gradually be improved to a high-impact blend or the module could be designed that way from the beginning, where a harmonious balance between face-to-face and online instruction is achieved and the lines between these modes are blurred (Alammary *et al.*, 2014; Picciano & Dziuban, 2007).

Blends can also be considered based on the scope, purpose and nature of the blend, to be either a transforming blend, an enhancing blend or an enabling blend (Bonk & Graham, 2012; Graham & Robison, 2007). These three types also distinguish between high, medium and low blends, where an enabling blend (medium blend) focuses primarily on access and convenience, thus providing the same learning opportunities through different modalities, for example recording a full lecture and making it available online, where students have the choice as to where they would like to access the information (Bonk & Graham, 2012). An enhancing blend (low blend) allows for additions, but does not radically change the way teaching and learning occurs, thus the blend is basically just an add-on to the current teaching and increases the productivity of either the lecturer or the student (Bonk & Graham, 2012; Graham & Robison, 2007). A transforming blend (high blend) allows for a full transformation where students construct knowledge through dynamic interactions and the move is towards active learning (Bonk & Graham, 2012; Graham & Robison, 2007). Twigg (2003) not only identified three types of blends, but extended it to five. These types are: a supplemental blend (the same as an enhancing blend), a replacement blend (the same as an enabling blend, where face-to-face lecture time is replaced with online activities), an emporium blend (providing a learning resource centre and on-demand personalised assistance), a fully online blend and lastly a buffet blend (the same as a transforming blend) (Twigg, 2003). With the options in blended learning, the lecturer is in the position to adjust the learning environment to meet the outcomes and needs of the students and is no longer only confined to the typical lecture (Shea, 2007).

Adjusting the learning environment to one of the types of blends should not be done randomly; the lecturer should first consider the impact of the blend on the learning environment and aim to align the learning process across the blended contexts to achieve the desired outcomes (Ginns & Ellis, 2007). Bransford *et al.* (2000) suggest that in general, a good learning environment is learner-centered, knowledge-centered, assessment-centered and community-centered. Anderson (2008) relayed these principles to an online environment. A learner-centered environment focuses on the knowledge, skills, attitudes and beliefs that the student brings to the setting. These attributes should be sufficient to enable a student to cope with online, as well as face-to-face presentation of information (Bransford *et al.*, 2000). Knowledge-centeredness requires the lecturer to realise that a student does not have a generic set of "thinking skills" and that problem-solving skills do not come naturally, but that the student "requires well-organized bodies of knowledge that support planning and strategic thinking" (Bransford *et al.*, 2000:136). Information presented either online or face-to-face should support and enhance understanding, rather than only focus on memorisation (Shea, 2007). By being assessment-centered, opportunities for feedback and revision should exist and these should be aligned to the instruction (Bransford *et al.*, 2000). The assessment can be either online, or face-to-face, but the instructor should ensure that it meets the outcomes of the module (Bransford *et al.*, 2000). Blended learning should also be community-centered, and should develop a sense of connectedness, collaboration and a sense of safety, both in the face-to-face setting, as well as online (Bransford *et al.*, 2000). This social aspect of learning links back to Bandura's social learning theory, which posits that people learn from each other (Bandura, 1971).

Blended learning allows for variation in the learning environment and meets the different generations' preferences, as well as different personality types or learning styles (Cheng & Chau, 2016; Picciano, 2009). It fosters greater engagement and allows students to experience learning in ways with which they are comfortable, but also challenges them to learn in new ways or to adjust their learning to their circumstances (Aspden & Helm, 2004; Picciano, 2009). Determining the ideal combination for the blend was initially elusive and was usually an intuitive endeavour (Kerres & De Witt, 2003). Students are also becoming more accustomed to online

learning and less biased towards the video instruction method (Dziuban & Moskal, 2011; Kelly, Ponton & Rovai, 2007), but Wentworth and Middleton (2014) caution that high frequency use of technology can negatively influence students' academic performance.

Lecturers and students experience blended learning as positive with higher levels of learner satisfaction reported and higher preference for blended learning compared to purely face-to-face or online learning (Castle & McGuire, 2010; López-Pérez, Pérez-López & Rodríguez-Ariza, 2011; McDowall & Jackling, 2006; Wu, Tennyson & Hsia, 2010). Studies on blended learning examined student perceptions and performance by comparing blended learning with fully online or traditional instruction (Bliuc *et al.*, 2010; Bower, Dalgarno, Kennedy, Lee & Kenney, 2015; Broadbent, 2017; Means, Toyama, Murphy & Baki, 2013).

Prior research has shown that senior undergraduate students perceive blended learning more favourably compared to first year students and based on performance levels, higher achieving students were more positive towards blended learning than lower achieving students (Madriz & Nocente, 2016; Owston *et al.*, 2013; Zhou & Chua, 2016). Sanford (2017), focusing on students who learn better online, confirmed that higher achieving online (distance education) students learned as well as face-to-face students (residential education), but lower achieving online students have a learning risk when studying online, because they require more support and encouragement. Student performance considerations are discussed in more detail in Section 4.7.1.1.1.

Even with the obvious benefits of blended learning, not all students might embrace the combination between online and face-to-face components. Previous research has identified reasons, which include: residential university students who are in close proximity to the campus and do not need online activities; familiarity with traditional instruction methods; lack of technology skills; a reduction in face-to-face interaction, and a feeling of information overload with an increased workload (Ashton & Elliott, 2007; Diaz & Brown, 2010; Korr *et al.*, 2012; Owston & York, 2018; Poon, 2012).

2.5.3 Module design considerations

Careful consideration should be given to the integration of the elements to achieve a seamless transition between online and face-to-face activities and the consideration should be pedagogically driven (Bliuc *et al.*, 2007; Boyle, 2005). Ausburn (2004), focusing specifically on module design elements valued by adult learners, determined that the basic principles of the andragogy theory by Knowles (1984) is also applicable to blended learning environments. These principles are explained by Merriam (2001:5), who states that an adult learner:

> (1) has an independent self-concept and can direct his or her own learning, (2) has accumulated a reservoir of life experiences that is a rich resource for learning, (3) has learning needs closely related to changing social roles, (4) is problem-centered and interested in immediate application of knowledge, and (5) is motivated to learn by internal rather than external factors.

Jelfs, Nathan and Barrett (2004), studying online course design, determined that online support should include multiple media and opportunities to allow students to function fully independently, and a choice of resources should be available. They suggested a "drip feed" of delivery to avoid overloading students, by releasing material at certain key moments and that online elements should complement rather than totally replace traditional forms of delivery (Jelfs *et al.*, 2004:88). In a comprehensive review of best practices for blended learning modules, McGee and Reis (2012) provide recommendations on the entire process of redesigning modules for blended learning. They recommend that in the design process, the focus should be on what the lecturer and student do and not only on the delivery mode. Lecturers should carefully consider the student workload, to avoid the "course-and-a-half phenomenon", where activities are being added without reducing any other components (McGee & Reis, 2012:11). Kerres and De Witt (2003) suggest a 3C-model, namely content, communication and constructive. Content is deciding how the learning material will be made available to students, communication is how interaction between lecturer, students, peers and tutors will be facilitated and the constructive component is how individual and cooperative learning will be guided (Kerres & De Witt, 2003).

The pedagogical strategies chosen should be carefully considered and aligned with the outcomes and the assessment, the latter often being the most challenging section of the redesign process (McGee & Reis, 2012). Deciding on the classroom and online technology, the utilisation should be aligned to the instructional strategies and should relate to the learning outcomes (McGee & Reis, 2012). The choice of technology should consider student mobility, access and the ease of use and should allow for choice where possible (McGee & Reis, 2012).

There are mixed opinions on the necessity of a tool such as a LMS, which makes provision for communication with students, discussions, assignments and short assessments, and acts as a depository for lecture notes (Meyer, 2014). The literature does not promote a specific tool, but reports that wikis and discussions are often used, since these activities require active engagement and have a direct impact on learning outcomes (Kember, McNaught, Chong, Lam & Cheng, 2010; McGee & Reis, 2012). Should the LMS be used solely as an information depository, it has little effect on learning outcomes (Kember *et al.*, 2010; Lee, Lim & Kim, 2017). The last consideration of best practices suggested by McGee and Reis (2012) is module implementation and student readiness for the move to blended learning. Bonk and Graham (2012) found that students should be allowed the opportunity to adjust to the blended learning environment, potential computer and internet problems need to be addressed and students' computer self-efficacy and possible computer anxiety should be considered, if blended learning is new to them.

2.5.4 Summary

A combined definition from Picciano and Dziuban (2007) and Singh (2003) forms the basis of blended learning in this study, in that blended learning is a combination of face-to-face and online activities in a planned, pedagogically valuable manner, where multiple delivery media are applied to complement each other and support meaningful learning. The result of the blend should improve student engagement and the quality of learning and should not lead to student overload.

The university where the study was conducted encourages the development of students' computer skills from their first year. This provides students with an opportunity to adjust to online learning and sufficient support by the university is provided to students. This is to ensure that students possess the necessary skills, as most of the undergraduate modules presented in the faculty have started implementing blended learning.

From the above it is apparent that the design elements and combination of delivery modes that can be incorporated into the blended learning environment vary and are largely influenced by the objective of the blended learning approach and the environment in which the learning takes place.

By categorising the blend in this study, it is deemed a transformative blend. The elements of the blended learning model used in the auditing module all promote active learning, moving towards a student-centered approach where the students should take responsibility for their learning.

The literature reveals various matters that should be considered to achieve a seamless transition between online and face-to-face activities. These include pedagogical considerations, resource constraints and focusing on lecturer and student needs. For online media physical features, the content and embedded assessments are considerations discussed in this study. Even though the design and implementation process followed in the blend did not explicitly consider all the best practices for blended learning, many aspects of good practice were incorporated in a pragmatic way. For example, student workload considerations as well as deliberate decisions on the content, communication of material and the involvement of tutors, were taken. Short high quality videos which only address one topic at a time were used. This study intends to go beyond the basic comparison of blended versus traditional learning and compares the elements within a blend to determine perceptions of students with different academic performance levels.

Before discussing the individual elements incorporated into the blend for this study, the use of technology in teaching and learning is first addressed, in order to understand how the online components of the blend were affected. Thereafter the individual elements in this study's blend are discussed. These elements are the flipped classroom (which includes online videos, formal lectures and online or face-to-face tutorials), an online simulation with a wiki that incorporates cooperative learning and then finally peer feedback and peer-mentoring, by way of reviewing questions and mentoring a junior student.

2.6 Impact of technology (ICT) on teaching and learning

2.6.1 Changing environment

A second-order meta-analysis performed by Tamim *et al.* (2011) concluded that students perform better when ICT is included in the teaching process. There have been vast developments in ICT use in education over the past four decades, and the way that lecturers look at and use information and technology has changed dramatically (Bates, 2016b). It is not the intention of this study to comprehensively elaborate upon the extent and impact that ICT has and continues to have on educators and students, but to provide an overview of the change to contextualise this study.

2.6.1.1 Changes to teaching due to ICT

More pressure from governments, parents and students is placed on universities to increase the accessibility to higher education (Bates, 2016b; Picciano & Dziuban, 2007). However with increased accessibility comes an increase in the number of students that in turn places huge pressure on universities' resources. Class sizes have increased drastically and for lecturers to cope with the increase in numbers, some often revert back to more traditional transmission of knowledge with little or less interaction, less questioning and less construction of knowledge (Bates, 2016b; Moodley, 2015). However, utilising ICT effectively can alleviate some of these

pressures, but still allow for interactive meaningful learning when some of the learning is moved to an online environment (Picciano & Dziuban, 2007). The challenge with this transition is that the quality of the instruction should be equal to or even improved by the use of technology (Picciano & Dziuban, 2007). Another challenge faced when introducing ICT, is linking practice with the theoretical benefits of ICT, because what might work well in teaching natural sciences, might not work in the social sciences and testing of new ICTs is often done in the "real and somewhat uncontrolled and chaotic circumstances in which every day learning and instruction occurs" (Spector, 2014:viii).

The relationship between learning theory and ICT, sometimes referred to as a "marriage", is complex with much distortion (Lowyck, 2014:4; Salomon & Ben-Zvi, 2006). Although there has been a gradual adoption of ICT into education, initially ICT was applied in a behaviourist way in education that provides for a basic understanding and little flexibility (Lowyck, 2014; Van Merriënboer & De Bruin, 2014). In the 1950s, the audio visual movement saw film, radio and television brought into the classroom and by the 1970s, more personal computers were available and the argument to incorporate computer skills into the curriculum emerged (Kozma, 2003). During the 1980s the cognitive orientation in education became stronger, and more emphasis was placed on deep learning and problem-solving, but at that stage educational technology systems were not widely adopted, mainly due to increasing costs of commercial products (Boyd, 1988; Lowyck, 2014). Recent changes in electronic networking and social media allow for more flexibility in learning, as well as socio-constructivism, and as a result technology-supported communities of learning were established in education (Lowyck, 2014). The relationship between education and ICT therefore appears to be interdependent, where each draws inspiration from the other, rather than education dictating the ICT or *vice versa* (Lowyck, 2014).

Implementing ICT into teaching can occur in two ways. The first obvious option when ICT is implemented into teaching is full online learning, more commonly referred to as distance education, where all teaching and learning occurs online (Beldarrain, 2006). A recent adaptation to distance learning is the open education initiative, with its purpose of making education more accessible to all members of society (Yuan &

Powell, 2013). The difference between an open education initiative and distance learning is that access to electronic resources, for example textbooks, is made available free of charge in the open learning space. This has developed into open educational resources (OER) where different digital educational materials can be downloaded free of charge (Bates, 2016b; Brown & Adler, 2008). Massive Open Online Courses (MOOCs) are examples of OER, where anyone can register for a free module, gain access to all the resources, complete the assessments and receive recognition for completion (Bates, 2016b; Freeman & Hancock, 2013). Distance education teaching is a specialised form, with its own challenges and opportunities (Bower & Hardy, 2004) and falls outside the scope of this study. The topic is therefore not further elaborated upon.

The second option to implement ICT into teaching is by blending online and face-to-face learning environments. Within a blended learning environment, various technology-based learning elements are implemented together with face-to-face learning that allows for a more flexible learning environment. Blended learning has been discussed in detail in the previous section (refer to Section 2.5). One element which is receiving much attention is the flipped classroom (Bergmann & Sams, 2013; Bishop & Verleger, 2013; Gilboy *et al.*, 2015; King, 1993; Sams & Bergmann, 2013; Strayer, 2007; Tucker, 2012). With the flipped classroom, typical activities that would be addressed in a classroom are moved online and the active learning or homework component is moved into the classroom. This concept is considered in more detail in Section 2.7.1.

2.6.1.2 Changes in students' approach to learning due to ICT

Students live in a technologically driven environment that coincides with the universal expectations that students have to possess adequate digital and elaborate communication skills to be able to communicate in the digital domain (Bates, 2016b). This expectation influences teaching and learning, as students have to become managers of knowledge, in order to deal with rapidly changing information that is more readily available (Bates, 2016b). Students need to know where to find information, and

need to be able to analyse and apply such information without knowing everything off by heart (Bates, 2016b; Dziuban *et al.*, 2005). Access and connectivity have become easier, leading to content that can be viewed from various devices such as a computer, a tablet or a smartphone (Rismark *et al.*, 2007), making it easier to incorporate ICT into the learning environment.

Since most students currently in higher education at residential universities were born after the technology boom, they grew up with ICT and are commonly referred to as digital natives (Prensky, 2001). These students think differently and do differently, as information is no longer processed linearly and systematically, but in a more parallel way (Prensky, 2005). Social media has also been part of their existence and for them interconnectedness is the *status quo* (Dorsey, 2016). This generation is commonly referred to as the iGeneration or Generation Z and is characterised as being self-aware, self-reliant, innovative and goal-orientated (Dorsey, 2016). Since they are accustomed to social media, they tend to spend a lot of time online and on their smartphones and prefer texting above email or phone calls (Dorsey, 2016; Hope, 2016; Rosen, Carrier & Cheever, 2010). They are more global, social, visual and technological than any other generation before them (Dorsey, 2016; Rosen *et al.*, 2010).

The approach to learning followed by the iGeneration is different from previous generations, as they value more practical and facilitated learning activities (Dorsey, 2016; Hope, 2016). They also prefer individual work and do not appreciate an information overload (Hope, 2016). Even though this generation has grown up with ICT, the assumption cannot be made that all iGeneration students have the required computer application skills at higher education entry level (Hargittai, 2010; McCourt Larres *et al.*, 2003; Siddiqui *et al.*, 2008; Stoner, 2009; Van Deursen & Van Diepen, 2013). They have not had equal exposure to ICT, due to differences in social, cultural or economic status, giving rise to a possible digital divide (Van Deursen & Van Dijk, 2014). The digital divide is commonly referred to as the gap between the so-called information-haves and the information-have-nots (Van Dijk & Hacker, 2003). Initially the digital divide referred to the gap in access to a computer, but recently the gap has

expanded to also include access to the internet and the difference in ICT and internet skills levels (Hargittai, 2010; Van Deursen & Van Dijk, 2010; Van Deursen & Van Dijk, 2014). The gap is largely attributed to differences in socio-economic and geographical status based on income, education levels and residence within groups, as well as cultural, racial and gender differences (Billon, Marco & Lera-Lopez, 2009; Hargittai, 2010; Van Deursen & Van Dijk, 2014). Despite the possibility of a digital divide, students will only use and adopt ICT tools if they perceive them as useful and beneficial to their learning or perceive them as necessary for their work setting later (Edmunds, Thorpe & Conole, 2012; Kirkwood & Price, 2005).

2.6.1.3 Changes in skills and future employer expectations due to ICT

The skills set required for students entering the workforce has changed to a large extent; students can no longer expect to conduct manual labour or use routine skills, as many of these activities have been replaced by machines (Binkley, Erstad, Herman, Raizen, Ripley, Miller-Ricci & Rumble, 2012). We now live in a global and connected world, where everything is interconnected and a student entering the world of work should be able to communicate, share and manipulate information in order to solve complex problems (Binkley *et al.*, 2012; Paine, 2014; Saavedra & Opfer, 2012). They should be able to adapt quickly and be innovative in response to new demands and challenging circumstances. In addition, they should be able to organise or create new knowledge using ICTs (Binkley *et al.*, 2012). In short, these students are required to possess 21st century skills. The seven 21st century skills or survival skills as referred to by Wagner (2014) include critical thinking and problem-solving skills; collaboration and leadership skills; agility and adaptability skills; initiative and entrepreneurial skills; effective oral and written communication skills; accessing and analysing information skills and finally curiosity and imagination (Saavedra & Opfer, 2012; Wagner, 2014). These are not new skills, but the way in which they are used is different and this shift in required skills is mainly brought about by the technological revolution (OECD, 2013). Well-developed ICT skills have become a necessity for students entering the workplace (Ferriter & Garry, 2010).

Secondary education is not preparing students adequately for the challenges they will face in the changing world and the required adjustment in pedagogy is slow in some countries (Saavedra & Opfer, 2012). Even if current students are accustomed to ICT and can cope in the continuously changing world, many of them do not possess the necessary technical ICT skills to meet the demands of the workplace (Ferriter & Garry, 2010). This is because the increase in exposure to and use of ICT do not automatically increase their ability to use work related ICT (Christensen & Knezek, 2014). The development of ICT skills is not only a function of exposure and use, as it is influenced by various factors, for example the existence of a digital divide, possible computer anxiety and exposure to different learning environments where ICT was applied (Van Deursen & Van Dijk, 2014) and these factors impact the way in which ICT is used in blended learning.

The normal modes of teaching applied at many institutions will not necessarily enhance the development of students' 21st century skills and a more flexible learning environment is required to develop ICT skills (Brand-Gruwel *et al.*, 2014). In a more flexible learning environment students can become self-directed learners (SDL), with the ability to formulate their own learning needs, determine their own learning goals and select the learning resources necessary to meet those goals (Brand-Gruwel *et al.*, 2014). The lecturer should actively guide this process of becoming a SDL, as students often do not have the capabilities of making sustained, appropriate and effective choices in their learning (Brand-Gruwel *et al.*, 2014).

Studies have shown an increase in the level of development of ICT skills. De Wit, Heerwegh and Verhoeven (2012) for example compared the ICT skills of first year students in 2009 with those of 2005. The 2009 first year students possessed better ICT skills in most of the items tested, compared to their counterparts in 2005 (De Wit *et al.*, 2012). A report on adult skills by the Organisation for Economic Co-operation Development (OECD) also confirmed this tendency, showing that younger people achieve a higher score on literacy, numeracy and problem-solving skills (OECD, 2013). Current students also tend to learn new skills more quickly and several studies have found that student familiarity and comfort level with using ICT increased over the

duration of a module, if used continuously throughout (Allan, 2007; Dineen, 2005; Eveleth & Baker-Eveleth, 2003; Silbergh & Lennon, 2006; Yoo, Kanawattanachai & Citurs, 2016).

Scholars have raised concerns about the deficiency identified in the required ICT skills level for accounting and specifically auditing graduates (Barac, 2009; Kavanagh & Drennan, 2008; Van Romburgh & Van der Merwe, 2015). Graduates at entry level do not possess the basic ICT skills required by the workplace. The debate on skills requirements for auditing students is addressed in Section 3.3.2.

2.6.1.4 Changes in South Africa's higher education due to ICT

There has been a gradual development of integration and usage of ICT in higher education in South Africa. In a review by Ng'ambi, Brown, Bozalek, Gachago and Wood (2016), the technological enhancement of teaching and learning over the last two decades can be distinguished into four time periods. In the first period, from 1996 – 2000, ICT was mainly used to improve productivity and to lay down basic understanding, for example doing searches in libraries and some drill exercises. The South African digital divide at that point in time was mainly due to limited access to ICT between groupings of students (Ng'ambi *et al.*, 2016). During the second period, from 2001 – 2005, the focus was on improving infrastructure and building policy (Ng'ambi *et al.*, 2016). Research in this period focused on comparisons between teaching with or without ICT. In the third period, ranging from 2006 – 2010, ICT become part of institutional strategy with improved access for students (Ng'ambi *et al.*, 2016). The difference in the take up of ICT shifted from ICT access to differences in skills level and proficiency, which is in line with the current digital divide based on skills (Van Deursen & Van Dijk, 2014). Research during this time focused on the pedagogical agenda of ICT usage and influence on teaching and learning (Mostert & Quinn, 2009; Ng'ambi *et al.*, 2016; Pratt, 2007). The fourth period, from 2011 – 2016, is distinguished by vast development in smartphones and the explosion of social media (Ng'ambi *et al.*, 2016). Although South Africa has become part of the 'mobile miracle' where smartphones with internet access are more readily available, this has not realised the

expected increase of ICT usage in education (Bornman, 2016:276). One reason for this is that many individuals own old and second-hand mobile handsets with limited internet access (Bornman, 2016).

Developments of integration and usage of ICT in higher education in South Africa are in line with global developments, but at a much slower pace (Ng'ambi *et al.*, 2016) and assessing the level of ICT skills in South Africa is difficult, as skills categories are ill-defined and reliable data is hard to come by (Lotriet, Matthee & Alexander, 2011).

2.6.2 Specific ICT design considerations

Technologies to create and share online videos have become more readily available and easy to use (Smith & McDonald, 2013). When online videos are considered, three specific design criteria should be addressed. Firstly, the physical features such as length, speed and auditory quality (Goodwin & Miller, 2013; Hattie, 2009; Mason, Shuman & Cook, 2013; Smith & McDonald, 2013). Online videos should be less than 20 minutes in length and if the instructor's face is not visible or it is a static screencast, the video should be shorter than ten minutes in length (Mason *et al.*, 2013; Smith & McDonald, 2013). Students prefer a narrated PowerPoint presentation, compared to audio only or video of the instructor's face only (Owston, Lupshenyuk & Wideman, 2011). Audio quality should be good, distractions should be eliminated and the speed of the online video should be controllable (Hattie, 2009; Mason *et al.*, 2013). Online videos should only address one topic, making it easier to reorganise the sequence of topics later (Smith & McDonald, 2013). The second criterion relates to the content of online videos. They should have an overview, a summary highlighting the main points and some interactivity such as stop-think-answer activities (Goodwin & Miller, 2013; Smith & McDonald, 2013). The third criterion to address in designing online videos relates to its understandability. Some sort of formative assessment is needed to demonstrate the understanding of the content in the video, such as short question and answer sections (Lee *et al.*, 2017).

As with online videos, all online tools and content should implement sound instructional design criteria, as any new tool or content is directly or indirectly evaluated for its usefulness and ease of use by the user. These terminologies, “usefulness” and “ease of use” are concepts which describe user considerations when determining whether a new technology tool will be adopted, and are included in the technology adoption model (TAM) questionnaire developed by Venkatesh and Bala (2008) and applied by Suwardy *et al.* (2013). Usefulness of an ICT tool is the “degrees of work improvement after adoption of a system”, thus the tool will be perceived useful, when the user believes that it will enhance work performance or contribute to meeting a specific objective (Sun *et al.*, 2008:1188). Ease of use is defined as “the degree to which a person believes that using [ICT] will be free of effort” and relates directly to the perceived user-friendliness of the new ICT tool (Venkatesh & Bala, 2008). The physical features of online content relating to quality will influence the ease of use, such as a good interface design that navigates easily between pages or the organisation and layout of the display that creates a coherence between media (Bates, 2016b; Shneiderman & Plaisant, 2005). The affective (emotional characteristics such as enjoyment, boredom or frustration) aspects of the experience with the online content should also be considered, as learning achievement is influenced by emotions. Positive emotions can enhance, while negative emotions will hinder learning (Lin *et al.*, 2014; Shute, D'Mello, Baker, Cho, Bosch, Ocumpaugh, Ventura & Almeda, 2015).

2.6.3 Summary

The education environment has changed dramatically due to the influence of technology. Blended learning has become the norm in addition to online learning in distance education. Many of today’s students are from the iGeneration and grew up with technology, but this does not guarantee that all students have the required computer application skills when they enter university. The latter is dependent on socio-economic and geographic status, education levels as well as cultural, racial and gender differences. The challenge facing universities is that higher demands are made by employers for graduates to display higher levels of ICT skills.

By incorporating online technologies into teaching and learning, three purposes are served. Firstly, it provides access to a larger number of students that would otherwise not have access to higher education. Secondly, it enhances the quality and outcomes of the teaching and thirdly, it prepares graduates by developing necessary ICT skills required in future employment and gaining the necessary 21st century skills (Herrington *et al.*, 2010). Implementing a blended learning approach allows for a seamless transition between face-to-face and online implementation and encourages students to become more self-directed learners.

In South Africa there has been a steady growth in the use of technology in education, however students' development of skills has progressed at a much slower rate, due to the digital divide mostly attributable to limited access to computers, and thus slow development of internet skills.

The elements of the blended learning model used in the auditing module for the purpose of this study are discussed in detail in the remainder of the chapter.

2.7 Elements of the blended learning approach in this study

Blended learning is the combination of face-to-face and online learning. As explained in Section 2.5, the combination of possible blends are endless and dependant on the context and outcomes of the module. This discussion is limited to the holistic blended learning elements that form part of this study. The individual elements incorporated into the blended learning model in the auditing module considered in this study are not unique (Bergmann & Sams, 2013; Long, Logan & Waugh, 2016; Shellman & Turan, 2006; Topping, 1996), but the way in which these elements were blended to meet the specific outcomes of the module and how the elements are perceived by the students are a new contribution. These elements are (1) the flipped classroom, which comprises pre-class preparation videos, the formal contact sessions and tutorials, (2) an online simulation and (3) peer feedback and peer-mentoring. Each of these elements is discussed in the final section of this chapter.

2.7.1 The Flipped classroom/ Flipped learning

2.7.1.1 Origin, definition and purpose

Flipped classroom originally developed from the suggestions by King (1993:30) that teachers should move from being “[t]he sage on the stage to the guide on the side” as well as Eric Mazur’s (1997) peer instruction model that encouraged preparation by pre-reading for the lecture. Mazur (1997) then used multiple choice questions as the discussion tool to engage all students in the lecture. Later this phenomenon was referred to as an inverted classroom (Lage, Platt & Treglia, 2000), but it was in 2010 that the term “flipped classroom” was introduced and since then it has become established (Sams & Bergmann, 2013). Jonathan Bergmann and Aaron Sams, two high school teachers from Colorado, started to record their classes for learners that missed class in 2007 (Bergmann & Sams, 2012). They soon realised that students were not only watching the videos to catch up on missed classes, but were also re-watching them, even if they were in the class. Bergmann and Sams (2012) then started to record all their classes and required learners to watch the video before the class. They shared their videos publicly online and soon learners and teachers from other schools were thanking them for the videos (Bergmann & Sams, 2012). This led to the establishment of online teacher forums, where Bergmann and Sams shared their experience. Later an online community of educators called the Flipped Learning Network was created (Bergmann & Sams, 2014).

The definition of Bishop and Verleger (2013) of flipped classroom focuses on two distinct parts. Firstly, there should be interactive group learning activities in the classroom and secondly, there should be computer-based individual instruction outside the classroom. According to these authors, the latter part of a flipped classroom must be video content for preparation and not be some pre-reading which had been the norm for many years (Bishop & Verleger, 2013). The purpose of a flipped classroom or flipped learning is not just to reshuffle the content by moving the lecture outside the classroom and the homework inside the classroom. It is to consider

carefully the elements that can be automated and those that cannot, and then to use contact sessions (group space) for more student-centered activities that cannot be automated (Bishop & Verleger, 2013; Goodwin & Miller, 2013). Sams and Bergmann (2013:17) believe that flipped classroom teaching remains true to the theory of teaching and that “the technology component has gotten a lot of buzz, [but] the pedagogy underlying flipped learning is nothing new.” Lecturers have always expected students to come to the contact sessions prepared and flipped learning has only added new technology and more visual learning to that expectation (Bishop & Verleger, 2013).

The flipped classroom approach has forced lecturers to think carefully about the activities implemented in the contact session, while focusing more on student engagement and creating meaningful learning environments (Flipped Learning Network, 2014). The flipped classroom approach allows for more active learning activities being incorporated in the contact sessions, even in large class settings, and it also holds the possibility of utilising university facilities more efficiently, because students do not have to be physically on campus as in a traditional lecture setting (Baepler, Walker & Driessen, 2014).

2.7.1.2 Flipped learning

The term flipped learning was recently defined, in order to distinguish it from flipped classroom. A classroom may be flipped, but that does not necessarily lead to flipped learning (Flipped Learning Network, 2014). For flipped learning the following four pillars (based on the acronym FLIP) should be present in the pedagogy (1) a flexible environment, (2) a learning culture, (3) intentional content and (4) a professional educator (Flipped Learning Network, 2014).

2.7.1.3 Learning through flipped classroom

Most of the available literature on flipped classroom is instructional in nature, explaining how the flip was implemented for specific modules and elaborating on lessons learned and benefits experienced during the process (Butt, 2014; Fulton, 2012; Long *et al.*, 2016; Roach, 2014; Roehl, Reddy & Shannon, 2013; Tucker, 2012). Past research has shown that students receive the flipped model well, but their preference lies with the classroom activities and the interactive aspects of the class (Butt, 2014; Gilboy *et al.*, 2015; Roach, 2014). Research available on flipped classroom however remains limited and the effect thereof on the learning has not been fully investigated or reported (Bishop & Verleger, 2013; Little, 2015).

Benefits of the flipped classroom relate to the intentional moving of basic theoretical lectures outside the classroom (into the individual space). The activity of understanding the factual and conceptual knowledge on the lower levels of Bloom's revised taxonomy is placed in the hands of the learner, giving them more autonomy (Sams & Bergmann, 2013), and it permits students to skip information they already understand and focus on unfamiliar information (Goodwin & Miller, 2013). Lecturers can spend more time to focus on the middle to upper levels of Bloom's revised taxonomy (application, analysis and synthesis) (Sams & Bergmann, 2013) during the contact sessions. This creates more time for discussions and problem solving activities, thus resulting in more active learning and better engagement by students which results in better outcomes and performance (Bishop & Verleger, 2013; Kellogg, 2009; Little, 2015; Sams & Bergmann, 2013). Students spend more time on preparatory work and are more involved in discussions (Thai, De Wever & Valcke, 2017), leading to improved and more one-on-one feedback as the lecturer circulates through the class, talking with students, instead of standing in front lecturing at students (Goodwin & Miller, 2013). Also, as instructional videos are added over time, lecturers end up with a library of videos, which allows for students to learn at their own pace (Sams & Bergmann, 2013). This approach of learning at one's own pace, based on Benjamin Bloom's mastery learning theory (Bloom & Anderson, 2014), requires of students to master a level before being allowed to move on to the next level and is known as "flipped-mastery learning" (Sams & Bergmann, 2013:20).

The flipped classroom and flipped learning approach is still a new phenomenon in education, but the benefits are obvious and with time, the literature is expected to support this understanding. Flipped classroom allows for the development of ICT skills and also meets the expectation of the iGeneration of having information available when needed. Thai *et al.* (2017) compared blended learning, traditional learning, eLearning and flipped classroom and concluded that students' performance and self-efficacy improved more with flipped classroom, compared to the other modes. Flipped classroom is one of the elements of the blended learning model in the auditing module investigated in this study. As described in Section 3.4, auditing is a practical subject to be taught in a theoretical environment. The flipped classroom approach makes it possible to move theoretical content outside the classroom, thus paving the way for lecturers to share practical examples and case studies and hold discussions on the practice during lecture times. The components of the flipped classroom approach in this study are theory videos, the formal contact session and the tutorial. These are discussed in more detail in the next section.

2.7.1.4 Theory videos (Pre-lecture preparation videos)

The use of lecture videos and podcasts has increased significantly in the last decade with the advancement in technology devices and connectivity (Copley, 2007). These tools are incorporated in three ways. Firstly as a safety net, when face-to-face lectures are recorded and made available online afterwards (Gorissen, van Bruggen & Jochems, 2012). Secondly, these tools form part of the lecture when videos are used during the face-to-face session (Berk, 2009) and thirdly, when the video or podcast is used as preparation before the face-to-face session (Long *et al.*, 2016; Rismark *et al.*, 2007). Pre-lecture preparation videos are well-suited for a residential campus situation, since students can utilise the tools at their own pace (Beldarrain, 2006). When the videos are used as preparation for the face-to-face session, a flipped classroom environment is created (Bergmann & Sams, 2013) as explained in the previous section.

While research has indicated that students prefer modules with accompanying online content (Gorissen *et al.*, 2012), there is limited research on the impact of the flipped approach on the learning of the students (Bishop & Verleger, 2013; Little, 2015). Scholars have however, evaluated the ways in which students make use of recorded lectures or videos. Karnad (2013) performed a literature review to determine how students were using recorded videos, when they were using it and what the effect was on performance, as well as on attendance of the contact sessions. He concluded, based on other studies, that recorded lectures were *mainly* used for revision before assessments and to stay up to date when a lecture was missed. Thai *et al.* (2017) added the benefit of reviewing difficult concepts. Students *usually* access the video lectures when the topic is first addressed and later in preparation for the assessment, but then selective viewing takes place to reinforce understanding of certain sections (Karnad, 2013). Similar results are reported by Copley (2007), Johnston, Massa and Burne (2013) and Gorissen *et al.* (2012). Lower academic performing students also tend to access the recordings more frequently, even though it was found that the recorded lectures have little to no effect on their results (DiRienzo & Lilly, 2014; Karnad, 2013). Surprisingly, research shows that recorded lectures had little effect on the attendance of the live lecture (Copley, 2007; Karnad, 2013), which could be ascribed to the social element of learning (Ertmer & Newby, 1993).

Bassili (2008) concluded that students attended lectures when the content of the lectures was expected to be difficult, while for less difficult topics students watched the videos. Students experienced less anxiety when they knew they had the opportunity to make comprehensive notes on video lectures later in their own time (Harpp, Fenster, Schwarcz, Zorychta, Goodyer, Hsiao & Parente, 2004) and the lecture quality never seemed to influence the use of the recorded lectures (Gorissen *et al.*, 2012). Students, however, expressed clear preferences on the videos: they prefer shorter and more engaging videos (maximum 20 minutes), instructor-developed as opposed to alternative source videos on YouTube, while guest speaker's lectures were identified as the least favourite type of video (Long *et al.*, 2016; Thai *et al.*, 2017).

Looking at usage of lecture captures between high and low performing students, high achieving students viewed the videos less often, they also did not watch the entire video, but skipped to certain sections and only viewed it once. Low achieving students watched the entire video, often more than once (Owston *et al.*, 2011).

Short instructional videos explaining basic theoretical knowledge, which is part of the flipped classroom, is the first element of the blended learning model in the auditing module reported on in this study. Videos were presented by the lecturers and professionally recorded and these were usually kept short, by splitting longer videos into two parts. The videos were mostly used as preparation for the contact session, but in exceptional instances (due to student unrest at the time of the study (News, 2016)), some contact sessions did not take place. In these instances the entire lecture was recorded, which was much longer than usual. Students then also did not have the benefit of attending a contact session and had to rely solely on the online lecture.

2.7.1.5 Formal contact sessions

The format of a lecture, where students sit passively and listen to the instructor's monologue dates back to the ancient Roman and Greek era. In ancient times, books were not readily available and the instructor would stand in front and literally read the textbook to the students who would make meticulous notes. Hence the word lecture is derived from Latin, meaning "a reading" (Bates, 2016b:72). Even though lecturing is still the preferred teaching method (Lammers & Murphy, 2002; Sweeney *et al.*, 2004), students are not learning optimally when they are passive participants (Huxham, 2005). The volume of content that needs to be covered makes it impossible to spend a long period on a single topic and therefore topics are not dealt with in sufficient detail to ensure deep learning when the traditional way of lecturing is applied (Huxham, 2005; Machemer & Crawford, 2007). Students then find it difficult to keep up with the pace of the lecture and they do not always fully understand the topic under discussion. Time constraints force the lecturer to move quickly and insufficient time is available during lectures for students to pause and reflect on their understanding or

make detailed notes. The use of videos could alleviate some of these challenges (Schreiber, Fukuta & Gordon, 2010).

With the increased demand for higher education, class sizes are also getting larger (Leufer, 2007; Moodley, 2015). Large (between 60-149) and very large (over 150) classes add additional challenges to lecturers, as the student-lecturer ratio makes it difficult to incorporate a student-centered approach and lecturers often revert back to traditional content transferring lecturing (Mateo & Fernandez, 1996; Moodley, 2015; Van Ameron, 2005). As a result, participation and student engagement are negatively affected in large classes (Blatchford, Bassett & Brown, 2011; Leufer, 2007). An inverse relationship between class size and student performance was found, where the performance of large classes was weaker than smaller classes (Blatchford *et al.*, 2011; Sapelli & Illanes, 2016).

The flipped classroom approach provides an acceptable alternative by making lectures more student-centered and focusing more on student engagement than in a traditional lecture (Bates, 2016b; Stanley & Porter, 2002). During formal contact sessions students are no longer only subjected to numerous PowerPoint slides being displayed and explained without any variation in method. In a more traditional method, students are treated on the assumption that they have nothing to offer and only gain knowledge from the knowledgeable professor's teaching (Bligh, 1998). With the introduction of blended learning and the flipped classroom, contact sessions are becoming more student-centered, and social engagement increases due to interactive and cooperative activities (Bishop & Verleger, 2013). More effort is made to improve student engagement during contact sessions, by continuously shifting activities to keep students' attention (Barkley, 2010; Wilson & Korn, 2007). The shifting of activities during the lecture is referred to as pedagogies of engagement (Bishop & Verleger, 2013; Smith *et al.*, 2005). Activities, which could form part of pedagogies of engagement, include "interactive windows" where students are required to perform a task during the lecture (Huxham, 2005), using the "pause method" which includes periodic pauses requiring oral and written communication from students (Braun & Simpson, 2004), playing a game, role-play or poster sessions (Barkley, 2010).

The purpose of the pedagogies of engagement (also discussed in Section 2.3.3) is to keep students engaged during the lecture, where the teacher becomes more of the facilitator of learning and focuses less on the impartation of knowledge (Machemer & Crawford, 2007; Smith *et al.*, 2005). To paraphrase the aforementioned, the teacher's aim should not be to *cover* the material for the students, but to *uncover* the material *with* the student. Having students more engaged also reduces the effect of vigilance decrement, when attention seems to diminish (Wilson & Korn, 2007; Young, Robinson & Alberts, 2009).

It is not to say that traditional lectures are redundant, as in certain cases these remain the best method to share information. Lectures that transmit information are not very effective to promote thought, change students' attitude, or to teach behavioural skills (Bligh, 1998). It is unlikely that this form of instruction will be replaced in the near future, thus the best use of the contact session to improve understanding of students should be carefully considered. Students prefer a face-to-face lecture as it provides a higher level of informational richness, more structured learning and allows for more social interaction (Owston *et al.*, 2011). Lectures may not be the best educational method, but they are still the most preferred method that many students are comfortable with and accustomed to (O'Neill & Sai, 2014). Taking into consideration the ease with which a lecture can be digitalised, ensures the sustainability of this method of instruction in future (Crook & Schofield, 2017).

2.7.1.6 Tutorials

Definition and purpose

Tutorials have been part of education for many years. Nearly five decades ago Bausell, Moody and Walzl (1972) asserted that tutorials, as an effective group instruction method, are one of the oldest variations applied in educational theory (Bausell *et al.*, 1972; Hartman, 1990; Topping, 1996). Tutorials can be defined as a small group

setting where students and the tutor can exchange views on a prearranged topic in a more informal setting and the instruction is either one-on-one or one-to-few (Frey & Reigeluth, 1986; Sweeney *et al.*, 2004). Bloom (1984) in his 2-sigma problem observation determined that students subjected to one-on-one or one-to-two tutoring, with continuous formative assessment, performed on average two standard deviations better than those subject to conventional instruction, whilst those subjected to mastery learning increased their performance with one standard deviation. The problem is that one-on-one tutoring is resource intensive and not financially viable therefore alternative approaches to instruction in order to replicate the results of mastery learning or intensive tutoring should be the objective (Bloom, 1984). The difference between conventional and mastery learning in Bloom's context, is with mastery learning, students have more formative assessment opportunities to determine their level of mastery of the subject matter.

Tutorials can either be in the form of a drop-in or scheduled tutorial, or as an individual, group or peer tutorial setting which usually follows on as a complement to the initial instruction (Frey & Reigeluth, 1986; Hartman, 1990; Topping, 1996). The difference between a lecture and a tutorial is that in a tutorial, students have the opportunity to practice with the benefit of the guidance of the tutor, and apply the concepts in relation to their learning (Sweeney *et al.*, 2004). In addition, regular and specific response, criticism and feedback are provided as the setting is usually less formal (Frey & Reigeluth, 1986; Sweeney *et al.*, 2004). Interaction between students as well as the tutor forms a vital part of the tutorial and students tend to ask many more questions during a tutorial, compared to questions asked in the classroom setting (Graesser & Person, 1994). Against this background, tutorials are a more effective method of instruction where student engagement is concerned (Frey & Reigeluth, 1986).

Learning through tutorials

Research shows that tutorials improve student performance, increase retention and reduce student dropout (Cohen, Kulik & Kulik, 1982; Gordon, 2009; Topping, 1996). During tutorials students can correct errors and validate their understanding, which

can improve their self-esteem and confidence levels (Sweeney *et al.*, 2004; Topping, 1996). Wilkinson (2015) suggests that group tutorials allow for the introduction of more autonomous learning.

Regardless of the tutor's training and education level, tutorials are regarded as a more effective practice due to the personal attention given to students and the closer relationship formed. This relationship places the tutor in the position to diagnose problems quicker (Gordon, 2009). It is not only students that benefit from tutoring, because the tutor also gains a better understanding of and develops a more positive attitude towards the subject matter, while teaching others (Cohen *et al.*, 1982).

To improve student performance, consideration should be given to whether the tutorial is a substitute, instead of a supplement to conventional instruction, whether the tutors are trained and whether cross-age rather than same-age tutors are used (Cohen *et al.*, 1982). Research has found cross-age tutors to be more effective than same-age tutors (Cohen *et al.*, 1982). Another influential consideration for tutorials is whether the tutorial is on a voluntary or mandatory basis. When it is voluntary, intrinsic motivation will result in improved performance due to encouragement and assistance, whereas for mandatory tutorials, the motivation is more extrinsic and students might resent the assistance, which could hinder the process and limit engagement (Hartman, 1990). Researchers agree that tutorials should not be the only mode of teaching and work best when combined with the instructional lecture (Sweeney *et al.*, 2004). When carefully considering the definition of the flipped classroom, the tutorial is combined with the instructional lecture, as it extends the face-to-face session with students. During the tutorial, seen as an extension of the flipped classroom’s group space, students practice and apply the theoretical knowledge and thereby enhance their learning.

Tutorials are a common alternative applied in many institutions, but literature on student perceptions of the tutorial is scarce (Sweeney *et al.*, 2004). Recent advancements by way of e-tutorials allow for more flexible tutorials, since these can either be asynchronous, where the student can refer to the material or discussion in

their own time, or synchronous where all students log in and attend the tutorial simultaneously (Hartman, 1990; Jones, Dean & Hui-Chan, 2010). In a comparative study by Sweeney *et al.* (2004), students explained that in face-to-face tutorials, the discussion is mainly driven by the tutor and participation is limited to a few students, but in a bulletin board tutorial where students had to post comments, students could learn from their peers as the model answer was not readily available from the tutor. Participation from more students was achieved and students could refer back to the information afterwards, however the lack of direct feedback on a model answer on the bulletin board was raised as a criticism (Sweeney *et al.*, 2004). Van der Meij and Van der Meij (2014) performed a comparison between paper-based and video tutorial (which they referred to as recorded demonstrations) as well as a combination between the two modes. They determined that participants in the combined modes and video tutorials outperformed the paper based participants (Van der Meij & Van der Meij, 2014). In a blended learning environment incorporating tutorials, students preferred the face-to-face tutoring above the online interventions (Zhou & Chua, 2016). The literature on e-tutoring is still limited, but from a literature review by Copaci and Rusu (2015) it is clear that studies mostly adopted a blended approach between face-to-face and e-tutoring. A wide array of technology such as simulations, Google docs, e-mail, audio-video plugins (example Skype) and texting or chatting, were applied (Copaci & Rusu, 2015). Springer Sargent, Borthick and Lederberg (2011) introduced short three minute tutorial videos where difficult concepts were explained in more detail and concluded that this intervention improved performance and reduced drop-out.

2.7.1.7 Summary

Pre-lecture videos form an integral part of a flipped classroom. The literature shows that students prefer courses with accompanying online content. Past research confirms that students mainly use pre-lecture videos for revision before assessment and to review difficult concepts. Lower academic performing students have been identified as more frequent users than their better performing counterparts.

Even though flipped learning, where every student progresses at their own pace, does not necessarily coincide with a flipped classroom; students have the opportunity to watch, or re-watch the videos in preparation for assessments, thus allowing for independent learning.

With a flipped classroom, a reduction of face-to-face lecture time is often suggested. But in the accounting and specifically the auditing discipline as the focus of the study, the volume of content to be addressed in the module has become unmanageable in the available contact time (SAICA, 2016b). Class sizes are also large (more than 130 per class), adding to the challenge for meaningful interactive activities in the class. The flipped classroom in this study was introduced to lighten the burden of information overload in the contact session, by moving the theoretical discussion of concepts online and allowing for the implementation of more interactive activities in the class. The pre-lecture theory videos in this study were professionally prepared in collaboration with the lecturers involved in the module, but some topics were also presented by the academic trainees (accounting trainees appointed as junior lecturers who opted to complete some of their professional training in academia). These trainees have completed their academic programme for prospective CA(SA) in the previous year and therefore the age gap between them and the students is small, resulting in them being found very approachable by students.

Even though traditional lectures are still reported in the literature as the preferred method of instruction, the lecturers involved in the auditing module in this study utilised the time to implement active learning activities and focused on understanding and application instead of pure knowledge transmission. As explained in Section 4.4.2, lectures were used to contextualise areas under consideration and to provide additional explanations. Thereafter practical examples of problems were discussed using various methods. The methods applied in the lectures varied during the year, to include lecture lead discussions, peer lead discussions, independent completion before sharing and think-pair-share activities. A limitation during the lectures was that theoretical understanding of the topic was not assessed. In order to address this

limitation the lecturer highlighted the important aspects of the video before continuing with the contextualisation.

The literature shows that for very large classes lecturers often revert back to traditional lecturing, because they may experience difficulties in following a more student-centered approach. In these circumstances, the flipped classroom approach provides an acceptable alternative. A large number of students were registered for the auditing module under review in this study (651 students). With a high student/lecturer ratio, the flipped classroom approach provides opportunities for pedagogies of engagement.

The literature indicates that tutorials improve student performance and engagement. Various factors should be considered when tutorials are introduced. For example whether tutorials substitute or supplement conventional instruction, whether they are voluntary or compulsory, how tutors are trained, and the ages of the tutor or whether technology forms part of tutorials. Tutorials are part of the flipped classroom in the blended learning model implemented in the auditing module which is the object of this study. Tutorials were compulsory and supplemented teaching in the auditing module. Due to the size of the class, students were divided into six smaller tutorial groups, ranging from between 60 and 100 students in a group. This resulted in larger tutorial groups compared to the norm in literature of one-to-one or one-to-few students. Even though students did not experience the same guidance of a tutor as in a small tutorial setting, the decrease in size from the large classes nevertheless encouraged more student participation. Four tutors, who were also the academic trainees, were trained and rotated between the groups to allow students to experience different teaching approaches. For the weekly tutorials students had to prepare a question relating to the topic addressed in the preceding week of formal lectures. In some instances, weekly tutorials were online videos where the tutor explained how a question should be approached, but these were the exception rather than the norm. The discussion of the blended learning model continues with the second element, simulation, in the next section.

2.7.2 Simulation

2.7.2.1 Definition and purpose

Simulations are often used as alternative teaching tools in order to provide variety to the learning experience and to address some challenges, such as bringing the theory and practice together (Beckem & Watkins, 2012; Bradley, 2006). Sauvé, Renaud, Kaufman and Marquis (2007:253) define a simulation as "a simplified, dynamic and precise representation of reality defined as a system". Alessi and Trollip (2001:213) use the definition of a simulation as "a *model* of some phenomenon or activity that users learn about through interaction with the simulation", for instance a flight simulator used for pilot training. Jones (1998:329) mentions the technology element in the definition by referring to an "artificial environment" where participants sit inside the case study. A simulation therefore appears to be a facsimile of reality as a model or system, in order to meet specific objectives and the participants should be able to "actually perform a job and experience the results [of the objectives] just as if [they] were really there" (Kindley, 2002:2).

This facsimile of reality is also the main distinguishing factor between an educational game and a simulation, even though these terms are sometimes used interchangeably, due to some games playing out in very realistic settings. In an attempt to standardise the terminology Sauvé *et al.* (2007) highlighted the differences between a game and a simulation. In a game there is a player that is either in conflict or in cooperation with other players, and based on the game rules, the achievement of a predetermined goal signals the end of the game. A simulation requires a dynamic and simplified model of reality which should be perceived as true, valid and precise by the user and the purpose is to improve the understanding of the reality by the user (Kindley, 2002; Maier & Größler, 2000; Milrad, 2002; Sauvé *et al.*, 2007). Being able to provide participants with the experience of how the theoretical knowledge plays out in real life bridges the gap that educators have struggled with for decades, especially in the auditing discipline (Anderson & Lawton, 2009; Carmichael & Willingham, 1969; Siegel *et al.*, 1997; Silvia, 2012).

2.7.2.2 Learning through simulations

Simulations as a method of experiential learning have proved to be a successful alternative for teaching about real life situations that would otherwise not be possible (Beckem & Watkins, 2012; Bradley, 2006; Hays & Singer, 2012; Henry & Crawford, 1998; Kastantin & Novicevic, 2008; Kindley, 2002; Levant, Coulmont & Sandu, 2016; Shellman & Turan, 2006; Silvia, 2012; Suwardy, Pan & Seow, 2013). The advantages of simulations have been well documented and include bridging the gap between theory learned and the practical application thereof (Bradley, 2006; Weller, 2004), allowing for critical thinking and a deeper learning approach by students (Beckem & Watkins, 2012; Clarke, 2009), and to allow students to visualise the practical scenario (Clarke, 2009). Simulations can vary in length and in form and can either be fully computerised and continuous, or a once off exercise during a lecture (Silvia, 2012). Computer based simulations have become more popular in the last few years and include activities such as online videos, student manuals and case studies, all of which are developed from real-life experiences (Siddiqui *et al.*, 2008; Wynder, 2004). The benefits of a computerised simulation are that it is not limited to time and space and it allows for instant feedback on decisions (Siddiqui *et al.*, 2008; Wynder, 2004). It offers the same hands-on experience to all students, thus making it possible to accommodate large classes (Buckless *et al.*, 2014), it allows for asynchronous learning and students are allowed to "fail fast, fail often, but fail safely" (Kindley, 2002:1). In addition, a computerised simulation allows participants to visualise (Clarke, 2009) and obtain a holistic understanding, because information is not compartmentalized by chapters or lectures (Anderson & Lawton, 2009). A computerised simulation also allows for the creation of a new learning culture that better corresponds with students' current technological habits and interest and thus meets them in their familiar surroundings (Justice & Ritzhaupt, 2015; Rosen *et al.*, 2010).

It is evident that computerised simulations hold many benefits, but there are also numerous challenges or barriers that will inhibit implementing simulations into curricula. Significant perceived barriers for the development and implementation of a simulation are time consumption and resource requirements (Justice & Ritzhaupt, 2015). These are the main barriers, but Lean, Moizer, Towler and Abbey (2006) found that overcoming these largely depend on the individual lecturer's motivation to implement the simulation, and that resource limitation is not the ultimate determining factor.

There has been a gradual shift in focus in the studies on the benefits and challenges of a simulation over the last three decades from "what is learned?" in the 1970s, to "what type of learning occurs?" in later years, and since the 1990s the question "how does learning occur?" has informed studies (Faria, 2001:104). Attempts have been made to prove that cognitive and behavioural learning occurs through the use of simulations (Faria, 2001), but the main criticism of research performed on simulations remains that the benefits and the perceived learning that occurs are measured by way of participants' perceptions and that it lacks scientific rigor (Anderson & Lawton, 2009). The criticism on simulations are justified to an extent, as scholars to date have been largely unsuccessful in their attempts to measure the learning attributed to the incorporation of a simulation due to the many variables that could influence the results (Anderson & Lawton, 2009). This criticism is not limited to simulations, but relates to learning in general. Those that succeeded in measuring benefits of a simulation were only able to do it for the three lower levels of Bloom's revised taxonomy, namely remember, understand and apply (Krathwohl, 2002) and not for the higher order thinking levels (Siegel *et al.*, 1997).

Effective online design considerations (as discussed in Section 2.5.3) should again be adhered to and the technology tool should be perceived as useful and easy to use to be effective.

2.7.2.3 Summary

Simulations add numerous benefits to the learning experience of the student, but the ability to provide real-life examples and experience and linking the theoretical knowledge to the practical, makes simulations attractive to all lecturers and especially for teaching auditing. Time and resource constraints are barriers that will inhibit implementing simulations. Although research on simulations has gained momentum in the past years, studies are mainly focused on student' perceptions.

The manner in which simulations were incorporated into the auditing curriculum specifically is discussed in detail in Chapter 4 (Section 4.4.4). The simulation incorporated as the second element of the blended learning model in the auditing module in this study is called the AuditSIM and it allows for a comprehensive overview of the entire audit process from planning to completion of the audit. The main objective of the AuditSIM is to provide the students with a first-hand experience of how a typical audit is executed and to understand that information is not always neatly packaged as it is done in an assessment.

This was a new technology introduced to the students, as they had to navigate the webpages of the simulation in order to obtain the relevant information and they had to complete the specific tasks in groups in a wiki. The discussion now moves to peer feedback and peer-mentoring, which is the final element in the holistic blended learning model used in this study.

2.7.3 Peer feedback and mentoring

2.7.3.1 Definition and purpose

An essential part of the learning process is providing feedback to students (Hattie & Timperley, 2007; Topping, 1996). Due to the onerous workload that individual feedback places on the lecturer, limited feedback is usually provided to students, by way of a

grade. Peer feedback is a good alternative to address the problem of individual feedback (Boud *et al*., 2014). With peer feedback and also peer-mentoring, students are involved in the learning process and learn from each other (Biggs, 2003; Mulder, Baik, Naylor & Pearce, 2014). Liu and Carless (2006:280) distinguish between peer feedback and peer assessment, whereas peer feedback is "a communication process through which learners enter into dialogues related to performance and standards" that does not necessarily require a grade. Peer assessment is defined as peers grading the work or performance of their peers using relevant criteria, but could also include feedback (Falchikov, 2001). By introducing peer feedback or peer assessment, the lecturer allows for more formative assessment to be included, that not only focuses on the cognitive aspects of learning, but also on the social affective and meta-cognitive (thinking about thinking) aspects of learning (Gielen *et al.*, 2010; Nicol & Macfarlane-Dick, 2006; Strijbos & Sluijsmans, 2010).

Peer-mentoring differs from cooperative learning in that peer-mentoring usually has a junior-senior relationship, where students are not the same age and the more junior student (either first or second year) is mentored by the more senior student (third year) (Boud *et al*., 2014). Scholars recognize that there is no consistent definition of mentoring and that definitions offered are often broad (Crisp & Cruz, 2009). An example of this is the definition by Topping (1996:322) who defines peer-mentoring as "people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by teaching." Common elements in the definition are that mentoring is a process, requires a relationship, the objective is personal growth and there is usually a difference in expertise between the parties (Crisp & Cruz, 2009; Jacobi, 1991). Mentoring relationships could either be formal or informal, planned or spontaneous and either long-term or short-lived, depending on the circumstances (Chao *et al.*, 1992; Luna & Cullen, 1995).

2.7.3.2 Learning through peer feedback

Various benefits have been ascribed to peer feedback. In the peer feedback process, students benefit, because they first have to engage with the assessment criteria before

reviewing the work of others, which leads to a deeper understanding of the work (Brindley & Scoffield, 1998; Hounsell, McCune, Hounsell & Litjens, 2008; Mulder *et al.*, 2014). Also when allowing students to review the work of others, it exposes them to alternative perspectives and approaches to the work and also acts as a benchmark for their own work (Brindley & Scoffield, 1998; Dochy, Segers & Sluijsmans, 1999). Through this process, students develop skills to form judgements as to what constitutes high-quality work and is an intermediate check on performance, explaining strengths and weaknesses, thus allowing for corrective action before the summative assessment (Gielen *et al.*, 2010; Van Zundert, Sluijsmans & van Merriënboer, 2010). The affective influence of peer feedback cannot be ignored, students often perceive lecturers as “nit pickers” and feedback from peers, who are perceived as a “socially appropriate audience” is more positively regarded (Clifford, 1981:50; Zhang, 1995). The quality and quantity of feedback received in the peer review process is also greater than that from the lecturer (Taylor, Ryan & Pearce, 2015).

Concerns of peer feedback from the student’s perspective relate to issues of validity, reliability, bias and fairness (Taylor *et al.*, 2015). Students could also resent being required to perform the duties of the lecturer, therefore the need for development of student expertise should be emphasised and sufficient training should be provided (Taylor *et al.*, 2015; Van Zundert *et al.*, 2010).

From the literature, students in general perceive peer feedback and peer assessment positively, but there were also studies which resulted in a mixed or negative affect on peer assessment (Brindley & Scoffield, 1998; Levine, Kelly, Karakoc & Haidet, 2007; Van Zundert *et al.*, 2010). Peer feedback can be implemented in a blended leaning approach and ICT provides alternative opportunities to do so, but students should feel that the reward outweighs the effort for peer feedback (Ertmer, Richardson, Lehman, Newby, Cheng, Mong & Sadaf, 2010). Students do not understand the underlying benefit of peer feedback and would only exert effort when they feel that the rewards meet the effort (Ertmer *et al.*, 2010). Also, when given the choice, students still prefer lecturer feedback above peer feedback (Zhang, 1995).

2.7.3.3 Learning through peer-mentoring

The benefit of mentoring is that third year students have already progressed academically and can share their experience with the more junior members (Boud *et al*., 2014). Mentoring allows for students from diverse cultural and educational backgrounds to adjust to university or a new discipline, where the mentors act as role models and are less intimidating than a lecturer (Taylor *et al*., 2015). Fox, Stevenson, Connelly, Duff and Dunlop (2010) found that through peer-mentoring first year students continued with a deep and strategic approach to learning and did not experience the decline that students not exposed to the mentoring had; consequently fewer dropout cases were reported. However, the benefits experienced in the peer-mentoring relationship are not always mutual, as the senior students did not experience any difference in their learning approach (Fox *et al.*, 2010). On the other hand, Jackling and McDowall (2008) determined that the senior students did develop generic skills such as listening skills, time management and oral expression skills, but that the development of these skills is influenced by the quality of the peer-mentoring. Unfortunately the quality of the peer-mentoring is negatively affected when the mentoring is compulsory (Jackling & McDowall, 2008; Saunders, 1992) or when students are assigned a mentee by the lecturer and are not free to select their own mentee (Van der Laan Smith & Spindle, 2007). Irrespective of the possible negative influences, the benefits derived from the social relationship of working together and assisting other students make this instructional strategy a worthwhile consideration for lecturers (Crisp & Cruz, 2009).

2.7.3.4 Summary

Feedback forms an integral part of learning, and peer feedback provides a worthwhile alternative to incorporate in instructional strategies for large classes. Peer feedback allows students to learn from their peers, increases the number of formative assessments and adds a social affective aspect to learning. In addition, students develop judgement skills and are exposed to alternative perspectives and approaches to present understanding.

Peer feedback is an element of the blended learning module under consideration in this study, because students were required to assess attempted solutions of others. Students were required to exchange their attempted solutions to a specific question with a fellow student. Then they had to review the fellow student's solution and assess it as the lecturer would have done. Students were also requested to provide both positive and negative feedback on the question. Once completed, students had to reflect on the experience and record their experience in an electronic logbook, giving details as to what they had learned. By assessing the solution, the numerous benefits of peer feedback mentioned could be realised; namely (1) that students have to obtain a deep understanding of the work and related question; (2) they are exposed to other approaches and perspectives in answering the question and (3) they obtain an awareness to differentiate in the quality of the work. This resulted in a formative assessment opportunity for students to determine their progress, well before the summative assessment. The grading of the fellow student's solution by the student was not the objective of the exercise and these grades were not considered for summative assessment. Benefits of learning through mentoring abound in the literature. These include changes in learning approaches that may reduce dropout rates and enhance development of communication and interpersonal skills.

Peer-mentoring as part of the element of the blended learning model in the auditing module under discussion required the third year students to identify second year students as their mentees. The students then had to have regular meetings with their mentees and offer support by way of motivation and facilitation. This exercise allowed them to develop the mentoring skills, similar to those that would be required of them in practice when they have to mentor more junior staff members on the audit. Students also had to complete an online logbook, in which they recorded engagement hours as well as the topics discussed with and lessons learned from their mentees.

2.8 Chapter summary

The first part of the literature review of the study was presented in this chapter. It contextualised learning, student engagement, active learning and blended learning in order to sketch the background for the study. The study aims to investigate how students perceived different blended learning elements of a holistic blended learning model included in the auditing module, in order to contribute to their learning and engagement with the subject matter. The chapter commenced with a discussion on learning as a multi-dimensional construct which captures scholars' interest and covers a wide range of topics from theories, perspectives and modes of learning.

The definition by Ambrose *et al*. (2010:3) that learning is "a process that leads to change, which occurs as a result of experience and increases the potential for improved and future learning" encapsulates all three core elements of learning and is applied as a benchmark for learning in this study. Auditing is seen as an abstract discipline and students have to construct their own meaning, thus the constructivist learning theory underpins the teaching approach of this module. Learning is viewed from the student's perspective, in how the different learning environments contributed to the learning process of the individual.

Learning is intimately linked to student engagement and specifically academic and cognitive engagement. Student engagement is again a multi-dimensional construct and the measurement thereof remains subjective. This study focuses on differences in the level of engagement between the blended learning activities and is only viewed from the affective perspective of the internalised processes of the individual (Kahu, 2013), with the focus specifically on the cognitive dimension of student engagement.

Blended learning activities are encapsulated in the different components of active leaning, namely experiential learning, problem-based learning and cooperative learning. Active learning is possible when lecturers shift from passive lectures and challenge students to participate in the lecture with activities that have a more student-

centered approach. The design elements that can be incorporated into a blended learning model vary and are largely influenced by the objective of the blended learning approach and the environment in which the learning takes place.

Both experiential learning and cooperative learning were included in the blended learning model in the auditing module considered in this study. The blend implemented in this study is a transformative blend, and is defined as: a combination of face-to-face and online activities in a planned, pedagogically valuable manner, where multiple delivery modes are applied to complement each other and support meaningful learning (Picciano & Dziuban, 2007; Singh, 2003). The literature reveals various matters that should be considered to achieve seamless transition between online and face-to-face activities. Certain of these matters were considered in the auditing module in this study, namely content, students' workload, communication, and the usage of tutors.

Before the individual elements incorporated in the blend for this study were discussed, the use of ICT in teaching and learning was considered. Due to the changes in the current generation's technology use, lecturers have more choice in which ICTs could be used for teaching and learning, and this has dramatically changed the education environment. By incorporating online technologies into teaching and learning, three purposes are served, (1) it provides access to a larger number of students (2) it enhances the quality and outcomes of learning and (3) it prepares graduates for the workplace. Implementing a blended learning approach allows for a seamless transition between face-to-face and ICT implementation and encourages students to become more self-directed learners.

All the elements incorporated into the blended learning model of the auditing module under consideration in this study were discussed. The first element, the flipped classroom, allowed for an expansion of the classroom with pre-lecture preparation videos used by students to prepare the theoretical aspects of the topic for a formal lecture and to decrease the effect of information overload during the lectures. As supported by the literature, the flipped classroom approach decreases information overload during contact sessions, promotes independent learning and introduces

student-centeredness in a large class setting, as was the case of the auditing module. Tutorials, as part of the flipped classroom element, were introduced and literature supports the notion that it improves student learning and engagement. In the auditing module under consideration in this study, tutorials supplemented teaching.

Simulations, as the second blended learning element, add numerous benefits to the learning experience of the student, such as providing real-life examples and experience and linking the theoretical knowledge to the practical, which makes simulations attractive to all lecturers and especially auditing lecturers. It makes this method of experiential learning a successful alternative for teaching. AuditSIM was introduced in the auditing module considered in this study. It aimed to provide students with a first-hand experience of how an audit is executed.

The last two blended learning elements discussed were peer feedback and peer-mentoring. Peer feedback allows an alternative manner of formative assessment that is less threatening than summative assessment. In the auditing module considered in this study students benefitted from peer feedback, because they were provided the opportunity to view the work of fellow students from the lecturer's perspective and obtained insight on different perspectives and approaches of work. Peer-mentoring allows the students to provide guidance and support to more junior students and to share their own experiences. It also allows students to reflect on their own experience.

The next chapter continues with the second part of the literature review and focuses on accounting and auditing education. It describes how some of these blended learning elements were incorporated in the accounting and auditing education.

3 DEVELOPMENT IN ACCOUNTING AND AUDITING EDUCATION AND IMPLEMENTATION OF BLENDED LEARNING ELEMENTS IN ACCOUNTING AND AUDITING

3.1 Introduction

How do you fit square pegged learners into a round workplace? This is the challenge that educators grapple with and for which they are criticised in various ways in accounting education. Over the past decades, the call for changes in accounting students' skills to meet the demand of the workplace has continuously been on the agenda (O'Connell *et al.*, 2015). Educators, trying to adapt to meet the demand, have implemented different pedagogies (including blended learning), but change in education is not progressive enough to keep up with change in the workplace (Black, 2011). This is clearly evident for technological developments where the schism is just increasing.

The previous chapter provided the background and theoretical underpinning of the blended learning elements incorporated into this study. This chapter moves the focus to accounting education and the auditing discipline, by firstly giving a brief overview of the regulations applicable to the knowledge and skills requirements for the auditing module under consideration in this study. Thereafter the historical development of accounting education, of which auditing is a sub-discipline, is discussed. This is done to illustrate the shift towards developing students' pervasive skills. The debate on the responsibility for skills development is then discussed, because the pressure for change and increased development of specific skills has been ongoing for a number of years and the auditing module considered in this study introduced blended learning elements that promote the development of pervasive skills.

Thereafter the chapter focuses on auditing education as a sub-discipline of accounting education and the specific skills required for auditors. The discussion then continues with the challenges experienced by auditing lecturers, as they have to teach an application based subject in a university environment. Some modes of teaching used by lecturers to teach auditing are then explained. The chapter concludes with a brief summary, which introduces Chapter 4, giving the context, research design and method of the study.

3.2 Regulations for knowledge and skills requirements

With globalisation and increased international trade by organisations, the International Federation of Accountants (IFAC) was formed in 1977 (IFAC, 2017c). IFAC is a global organisation dedicated to serving the public interest by strengthening the accounting profession and supporting the development of strong international economies (IFAC, 2017c). This is done by developing international standards and promoting the adoption and implementation of these standards by its member bodies (IFAC, 2017c). Currently IFAC has 175 member bodies and associates in 130 countries worldwide that implement international standards (IFAC, 2017c). Both the South African professional bodies, SAICA and the Independent Regulatory Board for Auditors (IRBA) are members of IFAC and have adopted the international standards (SAICA, 2013).

To assist IFAC in the development of the international standards, four international standard-setting boards, under the guidance of both IFAC and the Public Interest Oversight Board (PIOB) are responsible to develop the international standards (IFAC, 2017c). The International Auditing and Assurance Standards Board (IAASB) sets the standards for auditing, assurance and other related areas. The International Accounting Education Standards Board (IAESB) sets standards on education. The International Ethics Standards Board for Accountants (IESBA) is responsible for ethics standards compiled in the Code of Ethics for Professional Accountants, while the International Public Sector Accounting Standards Board (IPSASB) sets accrual-based accounting standards for governments and public sector entities (IFAC, 2017d; IFAC, 2017e; IFAC, 2017f; IFAC, 2017g). International Financial Reporting Standards (IFRS) are developed by the International Accounting Standards Board (IASB) (IFRS, 2017).

As this study focuses on education, the work of the IAESB is of importance. Currently there are eight International Education Standards (IES) issued by the IAESB (IAESB, 2017). These standards address both initial professional development required for entrance to the profession and continued professional development subsequent to entrance. IES 1 sets out the entry requirements for professional accounting programmes, IES 2 the initial technical competence, IES 3 the professional skills, IES 4 the professional values, ethics and attitudes, IES 5 the practical experience and IES 6 the assessment of the professional competence at entry level (IFAC, 2017a). Much emphasis is placed on initial professional skills which are dealt with in all the education standards, except IES 7 (continued professional education) and IES 8 (specific competence for transnational audits).

For this study IES 1 to IES 3 are important, as the professional and technical skills required for entry level graduates are presented. IES 2 sets out the technical competence requirements, whilst defining technical competence as “the ability to apply professional knowledge to perform a role to a defined standard” (IFAC, 2017a:33). Eleven specific technical competence areas are referred to in the standard: (1) financial accounting and reporting, (2) management accounting, (3) finance and financial management, (4) taxation, (5) audit and assurance, (6) governance, risk management and internal control, (7) business laws and regulations, (8) information technology, (9) business and organisational environment, (10) economics and (11) business strategy. These areas have different required levels of proficiency, being either foundational or intermediate, and specific learning outcomes are stipulated to describe how the competency is to be achieved (IFAC, 2017a). In IES 3, four competency areas relating to professional skills are addressed, which are intellectual, interpersonal and communication, personal and organisational skills (IFAC, 2017a). Within these competency areas specific competencies are set out, for example, professional accountants should be able to communicate clearly and effectively, cooperate and work in teams and apply appropriate tools and technology to increase efficiency and effectiveness (IFAC, 2017a).

In South Africa, SAICA issued its first competency framework in 2008 and updated it in 2014 (SAICA, 2016a). The competency framework was introduced to move away from a knowledge-based syllabus with outcomes and core experience, to a more consistent competency-based approach with the necessary skills, knowledge and attributes that an entry level accountant should possess (SAICA, 2016a). The competency framework addresses seven competency areas, the first of which is pervasive qualities and skills that include ethics and professionalism, personal attributes and professional skills) refer to appendix A for a detail list) (SAICA, 2016a). The other competency areas are the specific technical competencies, which are strategy, risk management and governance, auditing and assurance, management decision making and control, accounting and external reporting, financial management and taxation. The nature of the technical areas is similar to those listed in IES 2 (IFAC, 2017a). SAICA is a member of IFAC and both the pervasive skills and the technical skills of the SAICA competency framework adhere to the requirements suggested in IES 2 and IES 3 of the IAESB (SAICA, 2016a).

All South African higher education institutions which educate prospective CAs, must be accredited by SAICA (SAICA, 2017). For accreditation, the higher education institution should demonstrate that its programme(s) meet the skills and competence requirements of the SAICA competency framework (Venter & de Villiers, 2013). The university where this study was conducted is accredited with SAICA to educate prospective CAs, and the process of qualifying for a CA(SA) is described in detail in Chapter 4 (Section 4.2).

This study focuses on the elements incorporated in a holistic blended learning model to develop not only the technical skills prescribed by the SAICA competency framework, but also the pervasive skills. Developments in accounting education cast light on how the specific set of skills required for a prospective CA came about. The next section presents an overview on how the debate developed for a change in accounting education to meet the skills demand of practice.

3.3 Accounting education

3.3.1 Development

All professions need to adapt and adjust to changes in cultural attitudes, economic conditions and technological innovations of a society, in order to remain relevant (Bedford *et al.*, 1986). Calls are also made for change in the accounting profession which coincide with demands to change accounting education to keep abreast of the skills needs in business (Albrecht & Sack, 2000; Bedford *et al.*, 1986). Two countries, the USA and Australia, have dominated in the discussion on the development of accounting education and skills, whilst a United Kingdom (UK) perspective is limited. In order to provide context on the global challenges faced in accounting education, challenges that triggered accounting education developments in the USA and Australia are discussed, followed by a UK perspective. This shows that the challenges are not county specific. Thereafter the discussion turns to South Africa's developments. Tension between educators and employers who are responsible for skills development of accountants are incorporated in the discussions, because skills development remains an ongoing concern in the accounting education landscape (Howieson, Hancock, Segal, Kavanagh, Tempone & Kent, 2014).

3.3.1.1 United States of America (USA)

Some of the earliest enquiries into accounting education occurred in the USA and its discussion on the development of accounting is well documented. The main reports setting out the findings on the status of accounting education in the USA are the Bedford Committee Report, the Accounting Education Change Commission (AECC), the Big 8 White Paper, the report by Albrecht and Sack and the Pathway Commission (Black, 2011; O'Connell *et al.*, 2015). These are further elaborated upon below.

Development up to the Bedford Committee Report in 1986

In 1984 the American Accounting Association (AAA) appointed a committee chaired by Norton Bedford to investigate the future structure, scope and content of accounting education. This committee (referred to as the Bedford Committee) concluded that accounting education required major reorganisation to remain relevant, as accounting education did not keep up with the rapidly changing environment that accountants in business are exposed to (Bedford *et al.*, 1986). The main finding from the Bedford Committee is that the profession is expanding into broader and more specialised services provided by members, and accounting education programmes are inadequate in meeting the needs of this expanding profession (Bedford *et al.*, 1986). Various explanations as to why accounting education is finding it difficult to meet the needs were raised, which include: (1) the expansion of services and products that make it difficult to anticipate the skills required for future accountants, (2) increased specialisation, (3) finding a balance between general technical knowledge and specialised technical knowledge, (4) the proliferation of standards (the number of standards issued have substantially increased), (5) increased litigation and legal liability for accountants and (6) widespread computerisation in both practice and at clients (Bedford *et al.*, 1986).

Prior to the Bedford Report, the discussion on accounting education was mainly on establishing the accounting profession. Sterrett (1905) for example maintained that endorsing certification in practice should be subjected to both university education and active experience in accounting and proposed that the accounting profession, in gaining legitimacy of other professions such as law and medicine, should have separate schools of accounting where students could obtain specialised accounting knowledge. Later, with the increase in the expected body of knowledge of graduates, Taylor (1932) suggested a fifth year of education, where the first four years would provide a broad overview of accounting and the fifth year would allow for specialisation. This suggestion was the forerunner for the now 150-hours of university education requirement in the USA (Black, 2011; Taylor, 1932).

The period from 1950 – 1960 saw the AAA's Report of Standards Rating Committee setting out the three areas of focus for professional accounting, namely (1) being educated as a citizen, (2) education in business and education in accounting, which implied adding (3) education in arts and social studies (AAA, 1954). The need for standardisation of education and admission requirements for certified public accountants (CPAs), increased specialisation and education beyond the present four-year programmes, with more specialisation in the final year, was debated by scholars (Bailey, Holm, Moyer & Potter, 1959; Perry, 1955). Heaton, Herbert, Kell, Warner, Zlatkovich and Wyatt (1959) supported the AAA's Report of Standards Rating Committee's recommendation that accounting education should include arts and social studies.

During the period between 1960 and the 1986 Bedford Report, the discussion for change in accounting education continued, with Trueblood (1963) calling for a change in the accounting curriculum by moving away from the textbook and module content approach, which was in line with education patterns followed in the 1930s. He also alluded to technological changes in business information systems and the effect that these would have on accounting education, and suggested that students should rather be trained for lifelong learning, than being trained to become immediately productive and profitable junior accountants (Trueblood, 1963). The *Horizons for a Profession Report* (Roy & MacNeill, 1967) and the *Beamer Committee Report* (AAA, 1972) recommended that accounting education should not focus on memorisation of rules, but rather on conceptual understanding and the reports delineated the common body of knowledge required at entry level for CPAs. The accounting education discussion expanded from how much was being taught to the content of the curricula and how the knowledge was being conveyed (Needles, 2014).

Corporate collapses in the seventies placed accounting education in the spotlight. The 1976 Metcalf Committee focused on the quality of information being reported in financial statements and suggested that more regulatory oversight and increased competition amongst accounting firms was required (Black, 2011). The Cohen Commission examined the auditor's role and responsibilities and recommended standards to evaluate auditor performance (Cohen, Seidler, Holmes, Layton, Norby &

van Benten, 1978). These investigations were the result after the Equity Funding collapse and the Stirling Homes bankruptcy scandals in 1972 and 1973 (Zeff, 2003). By the time of the Cohen Commission, auditing firms were focusing more on providing consultancy services to clients, and standard setting was aimed at benefitting client's positions, instead of achieving transparent disclosures (Zeff, 2003). The Cohen Commission also documented the existence of a schism between academic and professional accountants. The latter could be ascribed to the confidential nature of accounting information, which is not shared between practice and academia (as is the case with law and medicine) and this limits the knowledge development and problem resolutions (Needles, 2014). In 1976 the American Institute of Certified Public Accountants (AICPA) formed a task force (chaired by Wayne Albers) as a follow-up to the 1972 *Beamer Committee Report,* with the purpose of determining whether the curriculum proposals recommended in the Beamer Report continued to be appropriate (Langenderfer, 1987). The Albers Commission recommended that the five year education requirement be changed to the 150 semester hour requirement, which was subsequently adopted by the AICPA (Langenderfer, 1987).

Accounting Education Change Commission and the Big 8 White Paper

The investigation into accounting education and the profession continued. The Bedford Report was followed by the Accounting Education Change Commission (AECC) and the Big 8 White Paper called *Perspectives on education: Capabilities for success in the accounting profession* in 1989 (Kullberg *et al.*, 1989; Sundem & Williams, 1992).

The Big 8 White Paper called for a change in delivery of accounting education and that students should be taught by doing instead of by rote memorisation. Additional skills such as writing and ethical awareness were also highlighted (Kullberg *et al.*, 1989). Accounting educators were then and are still experiencing the pressure to maintain the competence demanded of professionals, while at the same time adapting to the changing needs of the accounting profession (Previts & Merino, 1998), a call which is in line with skills development demands made by the profession (refer to Section 3.3.2).

The AECC was established by the AAA, with support from the big accounting firms, to act as catalyst for improvements in accounting education (Sundem & Williams, 1992). A number of position statements were issued by the AECC and endowments to assist universities in the change process were granted (O'Connell *et al.*, 2015; Sundem & Williams, 1992).

The Albrecht and Sack Report and the Pathways Commission Report

In the late 1990s, the AAA sponsored a research project by Steve Albrecht and Robert Sack, who issued a report called *Accounting education: Charting the course through a perilous future* (Albrecht & Sack, 2000). More recently the Pathways Commission Report (2012) called *Changing a national strategy for the next generation accountants* was issued.

The Albrecht and Sack Report (2000) highlighted the fact that fewer students were enrolling for an accounting major, mainly due to lower salaries offered to them in comparison to graduates with other majors, as firms were more interested in students with e.g. information systems, business administration and taxation majors. Another stated reason for the decline, was that accounting was seen as a less attractive career choice, due to the perception of it being boring. The report also included the changing business environment that accountants are facing, for example technological developments make information preparation and dissemination inexpensive, businesses are becoming more globalised and there is a concentration of power in certain market investors such as mutual and pension funds (Albrecht & Sack, 2000). The report also criticised the structure of accounting education, stating that is was outdated and lacked quick response to the changing business environment.

The objective of the Pathway Commission was to study the future structure of higher accounting education in 2010 (Black, 2011). The Pathway Commission recognised that many of the challenges, impediments and recommendations included in the report were identified in previous reports, however its' emphasis was on the implementation

and ongoing review of these recommendations (Behn, Ezzell, Murphy, Rayburn, Stith & Strawser, 2012). The Pathway Commission made seven recommendations, which include, *inter alia*: greater interaction between teaching, research and practice, allowing alternative entry pathways for doctoral students, improving the recognition of high quality teaching and rewarding for teaching, developing curricular models and resources for easy sharing, attracting high quality entrants to the profession and establishing processes, structures and mechanisms to transform accounting change efforts in a continuous, sustainable process and finally to collect information about current and future markets for accounting professionals (O'Connell *et al.*, 2015; Pathways Commission, 2012). Each of these recommendations included specific objectives for implementation (Behn *et al.*, 2012). The report was also the first to identify barriers that prevented the required reform in accounting education. Some of the barriers were related to the silo effect, where departments view their modules as independent units, as well as to delays in change of pedagogy practices due to lack of experience and knowledge, slow change to curriculum, lack of reward structures for student-centeredness and little drive from deans and heads of departments to incorporate change (Behn *et al.*, 2012; Pathways Commission, 2012).

In the years following the Bedford and AECC reports, May, Windal and Sylvestre (1995) acknowledged that the USA accounting education community did not dispute the fact that change in accounting education was needed, but that there was disagreement over the extent and form of that change amongst lecturers. Change in curriculum and developing students into life-long independent learners, able to solve problems and to think critically, were objectives that lecturers agreed upon, but changing teaching methods and approaches were not fully supported at that time (May *et al.*, 1995). Adding to the strain for change in teaching and learning was the pressure to publish research and especially seasoned faculty members then were more reluctant to incorporate change in teaching (May *et al.*, 1995). Since 1995, there have been various efforts from lecturers to incorporate a more student-centered approach to teaching accounting and addressing some of the skills required by practice (Ainsworth, 2001; Ballantine & McCourt Larres, 2009; Bonk & Smith, 1998; Delaney, Cameron, Bodle & Fletcher, 2013; Fortin & Legault, 2010; Holtzblatt & Tschakert, 2011; Jones & Chen, 2008; Megeid, 2014; Samkin & Francis, 2008), but the debate is still ongoing (refer to Section 3.3.2).

3.3.1.2 Australia

Moving the discussion on accounting education to Australia, the following reports set out the challenges faced in accounting education in Australia. The *Task Force for Accounting Education in Australia (1988)* (O'Connell *et al.*, 2015), *Accounting in Higher Education: Report of the Review of the Accounting Discipline in Higher Education* (Mathews, Brown & Jackson, 1990), *Accounting for the future: more than numbers* (Hancock, Howieson, Kavanagh, Kent, Tempone & Segal, 2009), *Accounting Education at a Crossroad in 2010* (Evans, Burritt & Guthrie, 2010), *Challenges Facing Accounting Education in Australia* (Cappelletto, 2010) and *Shaping the Future of Accounting in Business Education in Australia* (O'Connell *et al*., 2015).

The Task Force Report

The Australian Society of Accountants (now CPA Australia), the Institute of Chartered Accountants in Australia (now Chartered Accountants Australia and New Zealand) and the Accounting Association of Australia and New Zealand (now the Accounting and Finance Association of Australia and New Zealand) joined forces to investigate accounting education in Australia (O'Connell *et al.*, 2015). This resulted in the first documented report entitled the *Task Force for Accounting Education in Australia Report* in 1988 (O'Connell *et al.*, 2015). This report suggested that accounting degrees should be four years and less technically focused, as programmes did not expose students to the broader social and economic context they would encounter in the workplace. The outcome of the report was the identification of a common core body of knowledge and a common body of skills required upon completion of an accounting degree (O'Connell *et al.*, 2015). These skills include *inter alia* communication and interpersonal relations skills and entrepreneurship, as well as technical and professional skills (O'Connell *et al.*, 2015). A workshop approach to a lecture was suggested and it was recommended that the rising student-staff ratios and funding or resourcing should be addressed (O'Connell *et al.*, 2015).

The Mathews Report

The matters highlighted by the Task Force Report were again confirmed by the review led by Russell Mathews who issued a report called: *Accounting in Higher Education: Report of the Review of the Accounting Discipline in Higher Education* in 1990. Six challenges were highlighted, namely (1) the low level of government funding, forcing the sector to accept more international students willing to pay full tuition, large class sizes due to the increase in international students, leading to (2) staff shortages and (3) a high student-staff ratio and an aging academic population, as young scholars are not drawn to the sector, (4) the restricted accounting curriculum for undergraduate studies, (5) weak research performance of accounting educators and (6) encouragement of educators to participate in policy development (Mathews *et al.*, 1990; O'Connell *et al.*, 2015).

The Evans and Cappelletto Reports

Two decades later, in 2010, two reports on accounting education in Australia were issued by the Institute of Chartered Accountants in Australia (ICAA) and the Centre for Accounting, Governance and Sustainability at the University of South Australia, and these were combined to produce *Accounting Education at a Crossroad in 2010* (Evans, Burritt & Guthrie, 2010). Previously mentioned challenges relating to funding constraints, high student-staff ratios and an aging academic population, included in the Mathews Report were regarded as relevant (Evans *et al.*, 2010). De Lange and Watty (2011) criticised the Evans Report for omitting the link between research and improved pedagogy and students' learning outcomes resulting from the research.

The second report issued in 2010, authored by Cappelletto, was titled *Challenges Facing Accounting Education in Australia* (De Lange & Watty, 2011; O'Connell *et al.*, 2015). This report did not investigate the views of a wide range of stakeholders, but provided the university sector's point of view, by including only Heads of Accounting Departments and other academia in the review (De Lange & Watty, 2011; O'Connell

et al., 2015). The Cappelletto Report identified four main themes, (1) the vulnerability of funding models, (2) the incorrect perception that there is a decrease in domestic student numbers and the impact of international student enrolments, (3) unmet demand for accounting graduates and issues relating to poor communication skills, (especially in relation to international students, as many international students are drawn from non-English-speaking backgrounds) and (4) the aging profile of accounting academics (De Lange & Watty, 2011). The similarities of the challenges identified between the two reports, from different perspectives, are noticeable.

The O'Connell Report

The latest report on challenges faced in accounting education in Australia is titled: *Shaping the Future of Accounting in Business Education in Australia* by O'Connell *et al.* (2015). This report includes the views of a wide range of stakeholders, namely professional services firms, other employers of graduates, regulators, professional bodies and accounting academics. Specific consideration is given to the changing professional environment in which accountants find themselves working, and the impact that technology has on the profession and professional services (O'Connell *et al.*, 2015). The four key themes included in the investigation are "[1] professional knowledge and professional skills of accounting graduates, [2] the inculcation of professional values, ethics and attitudes [to] graduates, [3] scholarly research and its role in accounting education, creating knowledge and informing practice and [4] technology and innovation in learning environments" (O'Connell *et al.*, 2015:v). With the focus on skills required for future graduates, the findings indicate that technology will transform the profession and that graduates will require skills to advance into new areas, but still have to retain fundamental core technical knowledge. New graduates will require well developed professional skills and "a solid core of professional values, ethics and attitudes" (O'Connell *et al.*, 2015:v). They will have to create value for organisations by advising, interpreting and communicating financial and non-financial information. As with the Pathway Commission Report (2012) in the USA, the O'Connell *et al.* (2015) Report includes recommendations on how these challenges can be met.

3.3.1.3 United Kingdom (UK)

In contrast to the USA and Australia, the UK has limited detailed reports on the challenges faced in accounting education (O'Connell *et al.*, 2015). A report by Paisey and Paisey (2000), sponsored by the Institute of Chartered Accountants in Scotland, considered the education system at universities as a forerunner to professional education in accounting, architecture, medicine and law. The report criticised the accounting curriculum for being too narrow and suggested that liberal and vocational approaches should be added (Paisey & Paisey, 2000). Teaching methods should not be limited to lectures, seminars, tutorials and textbooks, but should include more innovations such as case-studies, simulations, computer assisted learning and videos. Research should be integrated into the teaching and less emphasis should be placed on technical knowledge (Paisey & Paisey, 2000). After reviewing available literature, Flood (2014) commented that many of the professional bodies in Europe and in the UK were grappling with some of the same challenges as the other countries. A study by Hassall, Joyce, Montaño and Anes (2005) confirmed that management accounting students in the UK lacked vocational skills and entrants did not possess the skills required by employers.

3.3.1.4 South Africa

In South Africa, accounting practices were initially influenced by Dutch and English practices (Verhoef & Van Vuuren, 2012). Gradually the profession developed and required both formal training and practical experience. Originally, formal training at university was not a prerequisite to qualify to write the entrance exam, but applicants did receive recognition for subjects passed and exemption of time for practical training (Verhoef & Van Vuuren, 2012). After the promulgation of the Public Accountants and Auditors Act (PAAA) in 1951 (RSA, 1951), the profession lost its self-regulation status and the Public Accountants and Auditors Board (PAAB) was commissioned with overseeing the educational requirements and qualifying examination (Verhoef & Van Vuuren, 2012). At that time, the General Examining Board, formed by the four provincial accounting societies, administered the examination. The disappointing results of the PAAB qualifying examination in 1957 – 1960 prompted an investigation

into the training and education of the profession (Verhoef & Van Vuuren, 2012). The report, issued in 1962, highlighted four matters, the “entry qualification of graduates, university education, practical training and a uniform qualifying examination” (Verhoef & Van Vuuren, 2012:163). Universities at that stage had autonomy in the structure and content of academic programmes. In 1980 the four provincial societies dissolved when the South African Institute of Chartered Accountants (SAICA) was formed (Verhoef & Van Vuuren, 2012).

A new PAAA was passed in 1991 and the PAAB commissioned research into accounting education. The “Future of Accounting Education in South Africa” project addressed concerns about the two bodies, the PAAB and SAICA, but not much mention was made on the education of accountants (Verhoef & Van Vuuren, 2012:169). In 2005 the Auditing Profession Act was passed and the PAAB was replaced with the IRBA (RSA, 2005). The IRBA was given the statutory responsibility for education and training of registered auditors (Verhoef & Van Vuuren, 2012). Scholars who investigated the knowledge and skills of entry level accountants determined that the challenges faced in accounting education in South Africa correspond with those identified in the rest of the world (Barac, 2009; Botha, 2001; Coetzee & Oberholzer, 2009; Fouché, 2013; Van Romburgh & Van der Merwe, 2015; Wessels, 2005) and that teaching is still mainly technical content driven (Fouché, 2013).

This international debate on changes in accounting education supported the development of the SAICA competency framework, setting out the minimum level of knowledge, skills and attributes for entry level CAs (the competency framework was previously addressed in Section 3.2) (SAICA, 2016b).

3.3.1.5 Summary

From the above it is clear that globally accounting educators are confronted with adapting education to keep abreast of changes in the profession and the environment in which it functions. Various studies have been undertaken, especially in the USA and

Australia, on how this challenge should be met. Similar concerns were raised which culminate in the global need of meeting the employers' expectations for entry level accountants. The narrow perspective of focusing on technical knowledge has been replaced by the expectation for accounting graduates to demonstrate various skills, and teaching methods should be adapted accordingly. The skills demand debate remains relevant, as similar challenges to meet the expectations exist, namely that students lack effective communication skills, the level of critical thinking skills are insufficient and education and training should focus more on pervasive skills and not only on technical knowledge. The following section casts further light on the aforementioned debate.

3.3.2 Debate on responsibility for skills development

Reviewing the reports addressing challenges in accounting education, the involvement and rapport from accounting academics is noticeably absent (Milner & Hill, 2007; St Pierre & Rebele, 2014). The development of non-technical skills has been on the agenda for many years (Kavanagh & Drennan, 2008), and even though various studies concluded that there have been developments in the non-technical skills at tertiary level (Hassall *et al.*, 2005; Helliar, Monk & Stevenson, 2006; Helliar, Monk & Stevenson, 2009; Levant *et al.*, 2016; Montaño, Cardoso & Joyce, 2004; Stainbank, 2005; Stoner, 2009; Watty, 2014; Wessels, 2008), it still appears to be insufficient to meet the demand of practice, as change is not perceived to be progressive enough.

St Pierre and Rebele (2014) raised two contrasting questions as to whether these skills can be taught and whether accounting academia should be the ones teaching these skills. St Pierre and Rebele (2014) used the example of teaching ethics to students to illustrate their point. Considering the amount of literature on corporate fraud and corruption (Button, 2011; Liu, 2016; Nobes & Parker, 2008), not to mention the daily news reports on fraud and corruption, one has to evaluate whether ethics can be taught (St Pierre & Rebele, 2014). Two studies, one in Tunisia and the other in the USA, concluded that even though accounting students were exposed to ethics

training, there was no noticeable difference in how they approach ethical dilemmas, even after the ethics training (Arfaoui, Damak-Ayadi, Ghram & Bouchekoua, 2016; Ponemon, 1993). Student academic misconduct such as cheating and plagiarism is also on the rise (Hard, Conway & Moran, 2006; McCabe, Treviño & Butterfield, 2001), supporting the notion that some skills may not be enhanced by additional formal teaching (St Pierre & Rebele, 2014).

Another criticism levelled against the reports on the development of accounting education is that they do not include practical and executable suggestions as how to address and implement the changes, with the exception of the Pathway Commission (2012) and the O'Connell *et.al.* (2015) Reports which attempted to provide suggestions to address the challenges identified. Little thought is given to the fact that students entering higher education might not possess the necessary foundational exposure to learn these skills and apply them in a professional setting, or the fact that college aged students might not be mature enough to master skills such as critical thinking (Rossides, 1991; St Pierre & Rebele, 2014). Many accounting educators are also not trained teachers and may lack the skills to teach non-technical skills or to incorporate innovative teaching strategies (Bui & Porter, 2010; Watty, 2014). The way in which the development of these professional skills needs to be assessed also remains an area for further research (Kidwell & Lowensohn, 2014).

The requirements from practitioners in the reports (Section 3.3.1) are very generic and vague, for example requiring improved communication skills and critical thinking skills, which raise the question as to whether practitioners really understand what they expect in graduates (St Pierre & Rebele, 2014). Differences amongst practitioners on the skills and levels required from graduates were identified by Howieson *et al.* (2014) and differences in importance of these skills between academics and practitioners were identified by Crawford *et al.* (2016). It is clear that an expectation-gap exists between academics and practitioners on these requirements or skills. This gap is referred to as the accounting education's expectation-performance gap (Bui & Porter, 2010). Academics believe that the primary goal of accounting education is to develop the student's intellectual capabilities, while practice expects less technical knowledge

and more non-technical skills (Bui & Porter, 2010). The fact that terminology used in reporting is not always clearly defined, complicates the understanding, for example critical thinking skills, which is also sometimes referred to as critical analysis (Milner & Hill, 2007). The situation is further complicated by academic pressures such as institutional constraints, inadequate resources, large class sizes and a rewarding system that focuses on research instead of quality teaching (Bui & Porter, 2010).

A recent study by Howieson *et al.* (2014) investigated the perceptions of practitioners, professional bodies, recent graduates and accounting students about the respective roles and responsibilities of universities and employers in Australia. The conclusions reached indicate that there is "a tendency to expect universities to have the major responsibility for the development of graduates of both technical and non-technical knowledge and skills" (Howieson *et al.*, 2014:259). Such perceptions result in an unrealistic expectation of the outcome of university education as much of the responsibility of skills development is placed on universities, but the limited resources and time available is not always considered (Howieson *et al.*, 2014).

3.3.2.1 Adopted changes in pedagogies

Despite the criticism against accounting education, there have been developments in the pedagogy of accounting education and a few examples are listed. Fortin and Legault (2010) reported on a combined teaching approach where they incorporated non-technical skills into their module. Boyce, Williams, Kelly and Yee (2001) incorporated case studies that developed an array of non-technical skills. More experiential learning is also incorporated into accounting education, such as critical reflections (Lucas, 2008), learning portfolios (Samkin & Francis, 2008), cooperative learning (Ballantine & McCourt Larres, 2009; Tonge & Willett, 2012), team work and peer assessment (Delaney *et al.*, 2013) and simulations (Buckless *et al.*, 2014; Wolmarans, 2005). A more blended learning approach of adding digital videos to the classroom was incorporated by Holtzblatt and Tschakert (2011), Dowling, Godfrey and Gyles (2003) and Parkinson, Chew and Miller (2012). López-Pérez *et al.* (2011) used crosswords, matching and fill-in-the-gap exercises together with online activities, in

order to blend a basic accounting module. They also included online cooperative activities with a wiki and online discussion forums to evaluate the results based on non-dropout rate and pass rate achieved. Wai and Seng (2015) evaluated the effectiveness of their blended learning approach where they incorporated video presentations, online lectures and exercises, computer software, telephone calls, SMS, emails and online chatting into their module. Chen and Jones (2007) did a comparative study in their MBA programme, comparing traditional lectures versus online ones, with a limited contact approach. Some scholars focused on the effect of the implementation of a single computer tool in computer-assisted learning (CAL), for example EQL's Understand Accounts (Lane & Porch, 2002) and QuickBooks Pro (McDowall & Jackling, 2006).

In an evaluation of teaching methods applied by accounting educators, Brown and Guilding (1993) found that lecturers then used mainly lectures, seminars/tutorials or prescribed textbooks in teaching. In a more recent study Stevenson, Ferguson and Power (2014) determined that the lecture, with a PowerPoint slideshow, was still the main method of in-class teaching, followed by teacher-led problem-solving and small group activities. Out-of-class activities include textbook reading, Bb or other platforms and journal article reading (Stevenson *et al.*, 2014). Somewhat alarming is the fact that the use of television/DVD and group computer work is still limited, indicating that lecturers are slow in adopting available technology into their accounting teaching (Stevenson *et al.*, 2014).

3.3.2.2 Accountants' *ICT Skills*

Globalisation and changes in markets are mainly driven by technological change, therefore ICT skills and accounting information systems (AIS) knowledge and understanding are receiving more attention in accounting education (Boritz & Stoner, 2014; Stoner, 2009). However it might still not be at the level required for graduates (Abed, 2014; Chang & Hwang, 2003). Accounting is an information discipline and the relationship between information technology and accounting is obvious (Boritz & Stoner, 2014). ICT influences all aspects of work done by accounting professionals

and is a key skill required (Elliott, 2002). In a practice statement issued by the IAESB, four roles for professional accountants relating to ICT knowledge and skills were identified. These roles are: users of ICT, managers of information systems, designers of information systems and evaluators of information systems (Greenstein & McKee, 2004). This means that accountants should not only be able to effectively use ICT, but should also be able to evaluate clients' implemented AIS.

Students are expected to understand AIS, which they will encounter in the workplace (IFAC, 2017a). There are so many topics and aspects to consider and dealing with an already overcrowded curriculum, it becomes challenging for the lecturers to strike a balance between teaching traditional accounting and dynamic AIS (Boritz & Stoner, 2014; Chang & Hwang, 2003). The fast changing nature of technology also makes it difficult to keep up with the change from an educational point of view, as educators might be reluctant to incorporate more ICT into their teaching or elaborate upon more sophisticated systems due to a lack of knowledge and skills (Senik & Broad, 2011; Vasarhelyi, Teeter & Krahel, 2010; Wessels, 2005). A study by Greenstein and McKee (2004) identified 36 critical ICTs, both as users of ICT and managers of ICT, that accountants should be able to operate/utilise and concluded in general that both educators and practitioners lack proficiency in all these technologies, but that learning about these technologies should preferably occur before entering practice.

Students as users of technology should possess some general computer application, word processing and database management skills. In the ten year evaluation of the development of ICT skills in a study by Stoner (2009), it was found that internet and email skills have improved and can even be regarded as good. On the other hand, word processing and database management skills have not developed to the same extent, especially at university entry level. These results corresponded with the findings of Whittle and Murdoch-Eaton (2004) in the medical field.

International standard setting bodies and professional bodies have realised the importance of adequate ICT skills, since technology skills are included as core skills in IES 2 (IFAC, 2017a). Recently the focus has turned to data analytics skills where

educators regarded spreadsheet (Excel) analytical skills as more important compared to the students (Ramachandran Rackliffe & Ragland, 2016). Much of the recent research is on methods to introduce big data into the curriculum (Fay & Negangard, 2017; Janvrin & Weidenmier Watson, 2017; Sledgianowski, Gomaa & Tan, 2017).

3.3.3 Summary

Against this background it is clear that regulators and accounting bodies have set, and are continuing to set, standards for education. Developments in accounting education were triggered by the need to remain relevant. Changes in regulation revised market expectations, needs for specialisation, corporate collapses and changes in technology all impacted on accounting education developments in the USA, Australia and the UK. The debate in the USA mainly revolved around keeping education in line with the changing environment and the 150 hours requirement, and in Australia the debate focused on the limitations on funding, staff shortages, restricted curriculum and poor research performance. In the UK the focus is on teaching and in South Africa the objective of unity in the profession, the development of the competency framework and the development of ICT skills in all students are debated.

Change in accounting education is evident at universities, but it is not deemed progressive enough to keep up with the ever changing business world and practitioners' expectations. The skills debate on who should take responsibility for the skills development of prospective accountants is still ongoing and the demand for specialised ICT skills is increasing with the dawn of big data and data analytics. Closer cooperation and communication between academia and practice might cast some light on the skills development debate. The purpose of this study is to investigate how students' perceive the different elements of the holistic blended learning model to contribute to their learning and engagement of the auditing subject matter and therefore the focus of the next section is on auditing education.

3.4 Auditing education

3.4.1 Skills and knowledge

The call for change in accounting education includes audit education, as auditing is seen as a sub-discipline of accounting education (Johnson *et al.*, 2003). The audit activity of checking information dates back to ancient Greece (around 350 BC) (Teck-Heang & Ali, 2008). As a social constructed discipline, auditing evolved from checking and detecting fraud prior to the industrial revolution, to adding credibility to the financial statements prepared by management by attesting to the fairness of the information, subsequent to the industrial revolution (Teck-Heang & Ali, 2008). To add credibility to the financial information, the auditor must gather evidence that substantiates the opinion expressed on the financial information (Theron, 1999). In order for the auditor to achieve this objective, the auditor must apply professional judgment and should have sound technical knowledge of accounting, auditing, taxation and financial management principles (Buckless *et al.*, 2014; Knechel, 2000). Professional judgment is defined as "the application of relevant training, knowledge and experience, within the context provided by auditing, accounting and ethical standards, in making informed decisions about the courses of action that are appropriate in the circumstances of the audit engagement" (IFAC, 2017b:33). The term is listed 140 times in the international standards on auditing, indicating the significance thereof for the auditor (IFAC, 2017b). Thus, for the auditor to be able to apply professional judgment, the relevant training, knowledge and experience are vital, and together these represent the professional competence of the auditor (Bonner & Lewis, 1990; IFAC, 2017a; Mala & Chand, 2015). The level of competence achieved depends on the auditor's multidisciplinary integration ability, where factual knowledge of topics from different disciplines such as auditing, accounting, financial management and taxation are integrated and synthesised to solve a problem (Theron, 1999).

3.4.2 Challenges specific to teaching auditing

Teaching of auditing is not limited to the theoretical knowledge of auditing, but as explained above it also encompasses the integration of knowledge within other subjects (accounting, financial management and taxation), which could complicate the teaching thereof. Added to this is that undergraduate students often have little to no knowledge of basic business documentation, recording of transactions, accounting records, internal control or the flow of documentation in an undertaking that should provide them with the required frame of reference. This leads to memorisation of study material without fully comprehending the implications thereof (Chamberlain, 1935; Theron, 1999).

For this reason, auditing is seen as a difficult subject to teach, because students find it challenging to understand how nuances of business presented from other discipline viewpoints influence the audit process, in order to draw a conclusion (Frakes, 1987). Auditing is also different in that it is concept or principle-based and not rules-based, therefore continuous rote learning will not result in understanding (Frakes, 1987). This concept-based discipline that requires professional judgement and application of knowledge, is better understood through practical experience (Barac, Kirstein, Kunz & Beukes, 2016; Felix *et al.*, 1985; Frakes, 1987; Rudman & Terblanche, 2012), and therefore teaching auditing within a university environment remains challenging.

The notion to focus more on conceptual instead of procedural instruction was initially supported (Carmichael & Willingham, 1969), but this approach to teach auditing was later criticised by Felix *et al.* (1985:5), maintaining that it only provides students with a general view of the audit process and insufficient knowledge about the "nuts and bolts" of the application of audit procedures. At that time many universities devoted little attention to auditing and only offered a single auditing module (Frakes, 1987) which required educators to carefully consider what topics are included in the curricula, within the limited time available. Frakes (1987) reported that due to raised concerns in relation to accounting education (refer to Section 3.3.1), the vast expansion of the subject matter, the development of relevant teaching materials for teaching auditing, dissemination thereof by means of technology and the need for continued education

for auditing, many universities increased the number of auditing modules offered. It lead to an expansion of module content to meet market demands, while the available time and resources for teaching auditing remained strained (Johnson *et al.*, 2003). In response educators started to implement technology into auditing modules to extend engagement with the subject matter beyond the classroom (Dahawy & Kamel, 2006; Lillie & Wygal, 2011; Scheiwe & Radich, 1997). This was further done to enhance the technology skills of the students (Coetzee & Du Bruyn, 2003).

In meeting the challenge of teaching a practical subject in a theoretical environment to students who often have limited exposure to business, as well as the limited material in textbooks to provide students with a "fling at a real audit" (Chamberlain, 1935:17; Felix *et al.*, 1985), educators adapted their teaching strategies. Libby (1995) in his study on audit knowledge suggested that audit knowledge should be acquired through instruction and experience, as the level of knowledge gained from instruction is directly linked to the experience. Students often experience difficulty to understand the relevance of auditing, because they only see the theoretical aspects being taught at university (Rudman & Terblanche, 2012) and they are not exposed to a real work related experience (Bonner & Lewis, 1990). Only once students experience auditing concepts in the workplace, do they understand the instruction. This is in agreement with Kolb's experiential learning theory (refer to Section 2.4.2.1) as knowledge is not gained during the instruction, but only once the instruction is experienced (Buckless *et al.*, 2014; Kolb, 1984; Siegel *et al.*, 1997).

Various auditing educators have attempted to implement more experiential learning into the curriculum, by adding more active learning activities (many computer based), into their teaching repertoire (Buckless *et al.*, 2014; Butler & Von Wielligh, 2012; Horsfield, 1995; Mihret, Abayadeera, Watty & McKay, 2017; Rudman & Terblanche, 2011; Rudman & Kruger-van Renen, 2014). The added benefit of implementing more experiential learning is that many of the non-technical skills required by the profession, such as communication skills, team work and problem-solving skills are inherently developed through these activities (Bromley & Harrast, 2011; Chaffey *et al.*, 2011; Crawford *et al.*, 2016; Helliar *et al.*, 2009).

3.4.3 Examples of modes of teaching auditing

Lecturers in auditing education have long realised that more experiential learning is required to teach auditing as a practical subject in a theoretical environment such as a university, and from literature (summarised in Table 1) it appears that auditing lecturers experiment with new pedagogies.

Attempting to bridge the gap between theory and practice, some lecturers incorporated co-teaching where both the lecturer and a person from practice teaching the auditing concepts (Brown & Lint, 1982; Butler & Von Wielligh, 2012). Other educators implemented a more graphical and visual presentation of information to illustrate the connection between concepts (Bainbridge & Paul, 1986; Crockett & McKee, 1988) or requested students to make short movies about auditing concepts (Kaciuba, 2012). Davis (1997) explained audit sampling by using different coloured jellybeans and Groomer and Heintz (1999) used flowcharts to explain audit reports. Clikeman (2000) suggested how research can be incorporated into audit topics, while Boylan (2000) explained the value of auditing by using experimental asset markets. Reviewing the usage levels of business simulations from the mid-80s to the mid-90s, Faria and Nulsen (1996) reported a steady growth in usage.

Evidence is found in the literature of specialised areas in accounting and auditing education with the prominent emergence of forensic accounting and auditing since 2008 (Apostolou, Hassell, Rebele & Watson, 2010). The concept of “perceptual blindness”, which “is the phenomenon of not being able to see things that are actually there,” was introduced to the teaching of forensic accounting and auditing by Kleinman and Anandarajan (2011:37).

Four modes of teaching frequently used in auditing are (1) games and role-plays, (2) field trips, apprenticeships and client visits, (3) simulations and (4) case studies. Table 1 presents an overview of studies in which auditing lecturers used these four modes of teaching. Most of the studies were performed at undergraduate level, were aimed to understand basic concepts of auditing and revealed positive outcomes. It is further apparent that a limited number of studies involved large classes.

Table 1 - Modes of teaching Auditing

Mode of teaching	Objective of pedagogy	Finding in study	Students	Author
Games and role-plays	Three different practical role-play activities (inventory stock-count, access controls and computer assisted audit techniques) to assist in the conceptualisation of theoretical auditing concepts.	Respondents feel activity helped in gaining insight into theoretical concepts, developing new skills and providing a real world context with practical applications.	Undergraduate and postgraduate (n=1070)	Rudman and Terblanche (2011)
Games and role-plays	Teaching general computer controls by way of a role-play and co-operative learning.	Experiential learning activities are possible in large classes.	Undergraduate (n=560)	Kirstein and Kunz (2015)
Field trips, apprenticeships and client visits	Identifying potential clients, mostly non-profit organisations, and allowing students to perform an operational audit on the client under guidance of the lecturer.	Illustrated in a simple and direct way the concepts of audit planning, considerations for satisfactory client record keeping and successful communication with the client, which respondents found useful.	Undergraduate (n=50)	Dombrowski (1993)
Field trips, apprenticeships and client visits	Cooperative education and service learning project for a selected number of students to perform the audit under the supervision of the instructor.	All stakeholders should gain, namely the students, the charity and the lecturer. Initiative is experienced as labour intensive.	Undergraduate (n=9)	Tonge and Willett (2012)
Field trips, apprenticeships and client visits	An interactive professional learning experience, where practitioners have to review the work of students and provide one-on-one feedback.	Improved students' performance on an audit material skills test and improved self-perceptions of knowledge gained.	Undergraduate (n=100)	Sanchez *et al.* (2012)
Field trips, apprenticeships and client visits	A field trip visit to a prison and listening to inmates convicted of fraud and their lessons learned.	Students learned lessons on the nature of conflicts faced by professional accountants and factors contributing to fraudulent conduct.	Undergraduate (n= between 20 – 28 in a three year period)	Dellaportas and Hassall (2013)

Mode of teaching	Objective of pedagogy	Finding in study	Students	Author
Field trips, apprenticeships and client visits	Implementing an apprenticeship programme for students over the holidays, with lecturer as Executive Partner.	Programme meets challenge of transitioning students from classroom to workplace.	Undergraduate (n= 18 – 31 in a three year period)	Dombrowski *et al.* (2013)
Simulation	Computer based simulation called - Simulated Case for Audit Decision (SCAD) exposes students to audit planning and executing.	Provided a real life experience to assist students' understanding of auditing concepts, criticism was that it was time consuming.	Undergraduate (n= unknown – 15 universities implemented simulation)	Felix *et al.* (1985)
Simulation	Applied SCAD in module.	Respondents found tasks difficult and time consuming.	Undergraduate (n=72)	Ragothaman (1996)
Simulation	In collaboration with the Coopers & Lybrand Foundation, client acceptance, planning the audit, performing audit procedures and completion of the audit activities developed, which included videos and documentation.	Performance of students in experimental group was better compared to control group, due to the experiential learning.	Undergraduate (n is unknown)	Okike (1999); Siegel *et al. (*1997)
Simulation	Students required to perform cash count procedures.	Descriptive article explaining implementation.	Under and postgraduate	Lambert and Main (1998)
Simulation	Practice computer-assisted audit techniques such as teaching computer auditing with a case study, workbook and computer spreadsheet, or using Audit Command Language (ACL) software.	Respondents preferred the experiential learning experience to learn practical auditing techniques.	Undergraduate (n is unknown)	*Davies* (2000); Gelinas Jr *et al.* (2001); Nieschwietz, Pany and Zhang (2002)
Simulation	Team-based audit simulation where students complete a mock audit.	Students, practitioners and lecturers received simulation positively.	Undergraduate (n=65)	Massey *et al.*(2002)

Mode of teaching	Objective of pedagogy	Finding in study	Students	Author
Simulation	Development of a reality-based simulation to assist with detecting management fraud.	Simulation significantly contributed to learning and provided positive learning environment.	Undergraduate (n is not stated)	Green and Calderon (2005)
Simulation	Simulation that addresses the entire audit process and also allows for computer auditing activities.	Simulation helped to understand auditing and provided practical application of IT functionalities.	Undergraduate (n=394)	Steenkamp and Rudman (2007)
Simulation	Simulation with six different interventions to teach the requirements regarding auditor independence after the promulgation of the Sarbanes-Oxley Act of 2002 in the USA.	Respondents experienced significant gains in learning and retention.	Undergraduate (n=47)	Roybark (2008)
Simulation	A web based simulation with audit procedures pertaining to revenue recognition.	Descriptive article explaining implementation.	Not stated	Miller and Savage (2009)
Simulation	Computer based simulation to practice computer-assisted audit techniques with a case study, workbook and computer spreadsheet and using Audit Command Language (ACL) software.	Descriptive article explaining implementation.	Undergraduate and postgraduate	Worrell (2010)
Simulation	Wonka Chocolate Company case study that focuses on corporate governance and internal controls over reporting.	Descriptive article explaining implementation.	Undergraduate and postgraduate	Bromley and Harrast, (2011)
Simulation	Encourage written communication of students who have to evaluate the reported internal control weaknesses of companies.	Descriptive article explaining implementation.	Undergraduate and postgraduate	Weber, Erickson and Stone (2011)
Simulation	Deimante Limited case study that requires students to perform audit procedures on mining activities.	Respondents agreed that their learning experience was enhanced.	Undergraduate (n=375)	Agrawal and Hancock (2012)

Mode of teaching	Objective of pedagogy	Finding in study	Students	Author
Simulation	Simulation to experience the complexity and messiness of auditing decision making during the final stages of the audit.	Descriptive article explaining implementation.	Not stated	Beattie, Fearnley and Hines (2012)
Simulation	Interesting approach of auditing a restaurant bill was done.	Helped students grasp essential features in audit process and provided frame of reference to students.	Undergraduate (n is not stated)	Gifford and Howe (2012)
Simulation	Understanding indicators for fraud by watching two videos and determining the red flags by using the fraud triangle was done.	Feedback from respondents was positive and understanding of fraud triangle improved significantly.	Undergraduate (n=153)	Daigle, Hayes and Morris (2014)
Simulation	Cooperative learning with groups performing a business risk analysis on companies in a specific segment of the market.	Helped students to apply audit knowledge.	Undergraduate and postgraduate (n= 31 – 59 in three year period)	Messier Jr (2014)
Simulation	Web based simulation using a common virtual world platform (Second Life) to audit inventory where students have to participate with an avatar.	Students improved in observation knowledge, interviewing, critical thinking and group work.	Postgraduate (n=105)	Buckless *et al.* (2014)
Simulation	Investigating the case of the frequent flyer fraudster and weaknesses in internal controls.	Interrogation video improved understanding of the role of the interrogator.	Undergraduate and postgraduate (n=22 – 34 at different institutions and over years)	Delaney, Coe, Coussens and Reddington (2015)

Mode of teaching	Objective of pedagogy	Finding in study	Students	Author
Case studies	An extended case study with a simulation addressing all phases of the audit process was designed.	Students were more active in process and developed important pervasive skills.	Undergraduate (n= 25 – 42 over four year period)	Dennis (2003);
Case studies	Introduce "living cases" (actual corporate cases) of actual corporate failures in the media to students.	Descriptive article explaining implementation.	Undergraduate (n= 23 – 47 over three year period)	Drake (2011)
Case studies	Case study that focuses on the audit report and assembles the specific paragraphs in the report.	Students found it enjoyable and it contributed to their learning.	Undergraduate (n=162)	Diaz (2016)
Case studies	Incorporation of e-Portfolio assessments in online case studies.	Active student engagement can be implemented in online teaching of auditing.	Undergraduate (n=255)	Mihret *et al.* (2017)

From the literature presented in Table 1 it is evident that simulations are a widely used mode to incorporate experiential learning into the auditing curriculum, and some of these studies were done to bridge the gap between practice and theory, whilst others used simulations to improve students' understanding of theoretical auditing concepts. This was also the main objective for games and role-plays. Students were exposed to the workplace or business environment through field trips, apprenticeships and client visits, which broadened their insights. There appears to be a growing tendency to incorporate more advanced technology tools, such as the virtual world platform of Buckless *et al.* (2014) and ePortfolios by Mihret *et al.* (2017).

3.4.4 Summary

Auditing, a sub-discipline of accounting education, is a social constructed discipline. It requires a specific skills set, where critical thinking by way of professional judgment is required in all audit activities performed by the auditor. To develop the required professional judgment, students should have sound technical knowledge of not only auditing, but also accounting, financial management and taxation. Knowledge alone of these areas is not sufficient, as students should also be able to synthesize given information to solve the presented problems. This understanding is best obtained by experience and auditing educators have implemented experiential learning in different formats to develop skills. Over the years various modes of teaching have been used in auditing, namely games and role-plays, field trips, apprenticeships, client visits, simulations and case studies. The objective of these alternative modes of teaching is to consistently bridge the gap between theory and practice. Even with the ample evidence of changes in pedagogies to incorporate more active learning, accounting and auditing education has been criticised and calls have been made for further research (De Villiers & Fouché, 2015). This study is done to serve as an example of where more experiential learning experiences can be incorporated in an auditing module, through different learning environments.

3.5 Chapter summary

Educators have to adapt accounting education to keep abreast of changes in the profession and the environment in which it functions. Even though educators are trying to deal with current technological developments in accounting and auditing, it is expected that future technological developments will place higher demand on non-technical skills, as automated financial recording and execution of audit procedures increase and continuous auditing is incorporated with clients' systems (Lombardi, Bloch & Vasarhelyi, 2014). The current tendency towards data analytics and big data is already evidence of this movement. This chapter addresses the developments in the tension regarding skills required by practice and those delivered by educators, not only in South Africa, but globally. It also refers to the current debate as to where non-technical skills should be taught and who should take responsibility for the development thereof. Examples were provided of the ways in which educators have responded to the challenges by including different pedagogies in an attempt to improve the non-technical skills.

The unique skills required for auditing and the difficulty of teaching this practical subject in a university setting was elaborated upon in detail. The challenges faced by auditing educators will not be resolved quickly, but there is positive change in the pedagogies used for some auditing modules and the effect of online learning on skills development could also have a positive effect to allow students to become more independent and life-long learners. This is evident in the multiple examples of how educators incorporated experiential learning into auditing. This chapter concluded the literature review and the next chapter presents information about the study. It explains the context of the study as well as the way in which the study was designed and the method followed.

4 CONTEXT OF STUDY, RESEARCH DESIGN AND METHOD

4.1 Introduction

In the preceding two chapters, the literature regarding learning, student engagement and blended learning, as well as the application of blended learning in accounting education and auditing were discussed. The literature sets out the challenges in the teaching of auditing, the demand that students should possess more non-technical skills when they enter the workplace and the need for educators to follow a blended approach when auditing is taught. Against this background, this chapter discusses how this study was performed. It commences with contextualising the study, then the discussion turns to the research design and concludes with the research method followed in this study. As part of the discussion on the method of the study, the descriptive statistical analysis of the respondents in relation to the demographical questions included in the questionnaire is presented. This was done to explain profiles of respondents within the context of the study.

The contextualisation section provides a concise discussion on education requirements for prospective CAs. Thereafter the composition of the degree programme of which the auditing modules form part, at the university where the study was conducted, is described. This is followed by an explanation of the teaching approach applied in the third year auditing module and the different elements of the blended learning model.

The research design section of the chapter addresses the ontology, epistemology and paradigm for the research, followed by the selection of a suitable research design, survey and sample consideration, as well as ethical considerations.

The method section describes how the survey instrument was designed, how the data was collected and the methods adopted for the statistical analysis, before finally addressing the ethical considerations in this study.

Before proceeding with the discussion on contextualisation of the programme, module, teaching approach and elements of the blended learning model, it is important to understand the relationship between SAICA and the universities and how this relationship impacts curricula of SAICA accredited programmes.

4.2 Education requirements for prospective CAs in South Africa

There is only one way to become a CA in South Africa. Prospective CAs first have to obtain a SAICA accredited qualification. This qualification is a specialised accounting undergraduate degree which is supplemented with a one-year postgraduate programme (known as the Certificate in the Theory of Accounting (CTA)). Both the undergraduate and postgraduate programmes need to be accredited by SAICA (SAICA, 2015). Prospective CAs have the option to complete the aforementioned programmes on a part-time (via distance learning) or full-time (via residential universities) basis (SAICA, 2015). Currently there are 15 SAICA accredited universities in South Africa which can present both the undergraduate and postgraduate programmes, whilst one university is accredited to present only the undergraduate programme (SAICA, 2017). In order to qualify for accreditation, the university must ensure that all the technical, as well as non-technical skills, addressed in the SAICA competency framework are encompassed in their programme (SAICA, 2016a).

The second part of the journey towards becoming a CA(SA) entails completing a three year learnership programme (provided the trainee accountant commenced his/her learnership with a SAICA accredited qualification, otherwise the term could increase to five years – for the purpose of this study reference will be made to the three year

period of learnership), also known as a training period / contract at a SAICA accredited training office (SAICA, 2015).

In addition to the above, a prospective CA needs to pass two qualifying examinations, namely the Initial Test of Competence (ITC) and the Assessment of Professional Competence (APC) (SAICA, 2015). The ITC focuses mainly on technical competence of candidates, whereas the APC assesses professional competence. To qualify for the ITC, a prospective CA must have successfully completed a SAICA accredited undergraduate programme, as well as the CTA. The prospective CA therefore sits for the ITC during the first year of the training contract and after 20 months of training, the prospective CA can attempt the APC (SAICA, 2015). After passing both the ITC and the APC and completing the three year training contract, the prospective CA can register as a (CA)SA with SAICA.

SAICA is accredited by the IRBA. A prospective CA, having completed the abovementioned training, the qualifying exams and provided they have the necessary auditing exposure during their training and meet the IRBA specific requirements, can register as a registered auditor (RA) (IRBA, 2017). These requirements entail a minimum of 18 months training in an audit and assurance environment, at least 1500 productive hours in audit and assurance and successful demonstration of competence by way of a portfolio (IRBA, 2015; IRBA, 2017). Only RAs can sign audit reports and express assurance on the financial statements of an entity.

Against this background the discussion now moves to the contextualisation of the study. The following section discusses how auditing is taught in the SAICA accredited undergraduate programme at the university where the study was conducted.

4.3 Teaching of auditing at the relevant university

Accounting programmes have been criticised for their high volume of technical content and mismatch of knowledge required for accountants (Howieson, 2003; O'Connell *et al.*, 2015; Pathways Commission, 2012). This forms the essence of the continuous skills debate on the current skills development of accountants (Howieson, 2003; O'Connell *et al.*, 2015; Pathways Commission, 2012). The status of accounting programmes in South Africa proves to be no exception (Botha, 2001; Fouché, 2013; Lubbe, 2013). The SAICA competency framework is prescriptive on the skills and knowledge, and the level of competence that should be achieved during university education and training at the workplace (Venter & de Villiers, 2013). In order to address the high volume of technical content expected in terms of the SAICA competency framework, universities have set core modules in their academic programmes and students have little subject choice within their degree (Venter & de Villiers, 2013).

The university where the study was performed is an accredited university and its SAICA accredited programme is divided into a three year undergraduate degree (B Com Accounting Sciences) and a one year postgraduate programme (Postgraduate Diploma in Accounting Sciences which includes the CTA) (UP, 2017a). The first year of the B Com Accounting Sciences degree exposes a student to various disciplines, but from the second year of study, students enrol for year modules in the four core subjects (accounting, auditing, financial management and taxation) (UP, 2017c).

Auditing, being one of the core technical subjects addressed in the SAICA competency framework (SAICA, 2016a), is spread over a period of three years (two years at an undergraduate level and one year at a postgraduate level). Students are first introduced to auditing in their second year of undergraduate studies (B Com Accounting Sciences), followed by a third year and a postgraduate module in auditing (UP, 2017c). This study was performed on the third year auditing module at undergraduate level, which is the second year that students are exposed to auditing. The undergraduate auditing modules have to prepare students for the auditing module presented at postgraduate level in the Postgraduate Diploma in Accounting Sciences.

The auditing module which forms the focus of this study was presented simultaneously in two groups, according to the students' preferred language of instruction, namely either English or Afrikaans. During 2016, 651 students enrolled for the third year auditing module of which 169 were in the Afrikaans group and 482 were in the English group.

As mentioned earlier, students in general perceive auditing as very theoretical and somewhat challenging, while in fact it is a concept and application-oriented subject (Buckless *et al.*, 2014). One of the outcomes of the third year auditing module requires students to understand the underlying theoretical principles and apply professional judgement when using those principles, in order to conclude or decide on a course of action, but because students are studying full-time they lack practical experience and struggle to link the theory to the practical application. In an attempt to help students to understand auditing theoretical principles, and be able to apply them practically while allowing for different learning styles in different learning environments, a blended learning approach was implemented in the teaching in the Department of Auditing at the university where the study was performed. This study aims to investigate how students perceived the holistic blended learning model introduced in the third year auditing module. In particular the study aims to investigate how students perceived different blended learning elements in contributing to their learning and engagement with the auditing subject matter. Although the different blended learning elements were introduced in the literature (refer to Section 2.7), the following section explains how the holistic blended learning model was implemented in this study.

4.4 Blended learning model

The university where the study was performed actively promotes a blended/hybrid learning approach, and supports ICT use on campus (UP, 2017b). At the time of the study, free unlimited Wi-Fi was available nearly everywhere on campus, while computers were provided in the library and in a large number of student computer laboratories. In their first year, all students that participated in the study, as part of the

B Com Accounting Sciences degree, enrolled for a year-module on computer and information literacy which attempted to equip them with basic computer-efficacy skills.

In most of the undergraduate B Com Accounting Sciences modules, Bb was used to distribute reading and supplementary study material, study guides, memoranda of past papers and announcements. Participating students were thus exposed to Bb on a regular basis and in some modules (for example financial accounting at second year level) they had to regularly complete online quizzes with formative feedback. In the third year auditing module, Bb was also used to make the theory videos and AuditSIM available, while the wiki tool and assignment and test tools were used to capture the mentoring and feedback (Buddy) information.

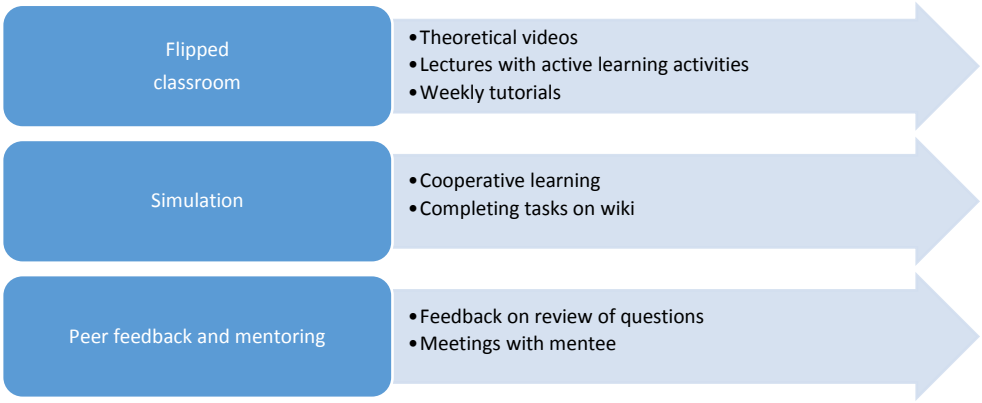

Figure 1 – Holistic blended learning model in the auditing module

The blended learning model followed in the third year auditing module is divided into three elements as depicted in Figure 1. A holistic blended learning model was followed where these elements were combined in a complementary way. The aim was to structure activities included in the elements to allow for steady progress towards deep learning in terms of Bloom's revised taxonomy of learning in the cognitive domain (Krathwohl, 2002). The first element, namely a flipped classroom, consisted of videos, formal lectures and tutorials. The videos provided an introduction to the topic, while the formal lecture provided context for the topic; these were aimed at the first two levels on Bloom's[1] revised taxonomy, *remember and understand*. A weekly tutorial

[1] Levels of cognitive domain per Bloom's revised taxonomy are: remember, understand, apply, analyse, evaluate and create.

was included, intended to move students' learning to the middle to higher levels on Bloom's revised taxonomy, namely *apply, analyse* and *evaluate*. In order to understand the perceptions of the individual activities within the flipped classroom, these activities were investigated individually and not combined as a flipped classroom. The simulation is the next element and allowed students to *evaluate* and *create* information, whilst the final element, peer-mentoring and feedback, allowed students to progress through all the levels and addressed the affective aspects of learning (non-cognitive). Each element and how they fit into the holistic blended learning model are discussed next. The discussion first explains the usage of videos.

4.4.1 Element one part a – Flipped classroom (Videos)

Theoretical videos were used to provide an understanding of auditing concepts. New topics were introduced by a video (housed as unlisted on YouTube) which was accessible to students through Bb. The video explained the related concepts, how the topic fits into the audit process, and provided the basic explanation of what the topic entails. All videos were developed by the module lecturers, with the assistance of experts of the Education Innovation Department at the university where the study was performed. In all videos both the slides and the lecturer's face were visible to students. The duration of the videos was limited to under ten minutes and for topics that could not be accommodated within such a short video, the topic was dealt with in two videos and presented as Part (1) and Part (2). Each lecture was pre-empted by a video. These videos contained factual and conceptual knowledge that required remembering and understanding, which on the knowledge dimension addressed by the lower to middle levels of Bloom's revised taxonomy (Krathwohl, 2002). It was compulsory for students to view videos during their preparation for the formal lecture, but viewing statistics were not monitored.

The study was performed in 2016 and during the last term, university activities were interrupted by students in the #feesmustfall campaign (News, 2016). At the end of the academic year, the disruption reached a high and lectures were suspended. During this three week period, the lectures were recorded and made available and students

could email questions and queries to the lecturers and academic trainee. As these videos replaced a lecture, they covered more than a specific topic and exceeded the ten minute limit previously used.

4.4.2 Element one part b – Flipped classroom (Formal lectures)

During the formal lecture, the lecturer assumed that students had watched the videos and only highlighted the important aspects on the topic that were explained in the video, before continuing to explain/elaborate aspects of the new topic not addressed in the videos. The lecturer placed theoretical understanding of the topic in context of the audit process, explained the principles of how theoretical knowledge would be applied in an audit, and illustrated this by way of basic examples. Group discussions and activities wherever appropriate formed part of the formal lectures. Activities varied, but the main focus was to ensure that students understand how to apply the auditing concepts and principles in a practical situation. Although effort was made to incorporate more active learning activities, lectures still required transmission of knowledge. The activities implemented promoted students' *understanding* and *applying,* both at the middle level of Bloom's revised taxonomy, while on the knowledge dimension they moved to procedural knowledge (Krathwohl, 2002).

4.4.3 Element one part c – Flipped classroom (Tutorials)

During the formal lecture, students were given problem based homework questions that they had to attempt in their own time. Some questions, based on case studies, addressed complex matter, whilst others were more basic questions on theory. Students could attempt the basic questions to test their basic understanding of auditing concepts and principles. Depending on the scope and complexity, students had to prepare one or two case study questions for a tutorial session on the topic. These questions were compulsory and students did not always receive suggested solutions on them before the tutorial session. The tutorial session for a specific topic usually took place during the week following the introduction of the new topic in the video, and

encompassed that which was discussed during the previous week's formal lecture. The staggered approach made provision for (1) revision of subject matter, (2) attempting basic questions and, based on suggested solutions provided, students could test their understanding of concepts and principles and (3) attempting case study questions on complex matters for tutorials.

Formal auditing lectures were presented in large classes (Afrikaans 168 and English 482). For tutorial sessions students were divided into six smaller groups (between 60 – 100 students) to encourage more open communication and participation. As explained above, students had to attempt questions for the tutorial session and were required to bring their solutions to the tutorial session. They then had the opportunity to ask questions in order to clarify their understanding, get assistance on their exam technique and discuss the different ways in which the questions could be attempted. The tutorial session addressed the middle to higher order levels of learning in Bloom's revised taxonomy, namely being able to *apply, analyse* and *evaluate* the information (Krathwohl, 2002).

4.4.4 Element two – AuditSim (Online simulation)

The next component in the teaching approach aimed to achieve the highest order of learning in terms of Bloom's revised taxonomy (Krathwohl, 2002). To access the simulation students were again directed to the Bb from which they were redirected to the simulation on an international university's Bb server. By doing the simulation, students could experience how the topic would be applied at a simulated real world audit client.

The simulation was not developed by the lecturers of the auditing module. In May 2014, the lecturers first encountered an online simulated audit called AuditSIM that was developed and used by 16 universities in the UK (Duckworth, 2017). It promised to be an effective teaching tool that would connect the students to a practical world of work experience in order to bridge the gap between the theory and practice. After

consideration, the lecturers of the auditing module in this study decided to implement the AuditSIM into their teaching model, with three reasons in mind: firstly to promote experiential learning by providing students with some practical work experience, secondly to create an environment in which students' ICT skills could develop, and lastly to incorporate intentional cooperative learning, because work had to be done in teams.

The AuditSIM contained a direct link to the standing information about the virtual audit client (Sheridan Audio Visual Ltd), which allowed students to explore the premises, view documentation and interact with the personnel employed at the client. The interaction was by way of animated videos of interviews or the audio of telephonic conversations and e-mails received from the virtual personnel. The engagement leader of the audit, who is also an animated character, would give the team members instructions as to the tasks that should be performed at specific times during the audit.

Students had to perform these tasks in an "audit team". Teams were self-selected and consisted of the same members that participated in the peer feedback initiative (TUT Buddies – refer to Section 2.7.3). Audit teams had to create wiki pages on a wiki, resembling the creation of audit working papers, and complete the specific tasks electronically in Bb. The benefit of the AuditSIM was that it allowed students to experience the entire audit process from the pre-engagement phase of accepting the client, entering into an agreement with the client, to planning and performing the audit procedures and finally completing and reporting on the audit. AuditSIM tasks were spread throughout the academic year, as the topics were discussed in the formal lectures and practiced in the tutorial sessions, and students had to engage with the AuditSIM and perform a task relating to the topic under discussion. This provided students with a real-life experience on how the theoretical information would be implemented at an actual audit client in practice. The instructions deliberately lacked some detail, and the support as to how tasks should be answered was likewise limited, in order to add to the realism of the experience. The engagement leader of an audit in practice would only brief a team member on the assignment and expect him/her to

perform the task independently, which requires the individual to identify and acquire the knowledge needed to perform the task.

The working papers that were required also varied in format. In some instances students had to complete a questionnaire to evaluate the effectiveness of the client's systems, or they had to complete a template, while in other instances they had to complete a document by filling in missing words, or they had to prepare their own working paper, using the guided principles of preparing a proper working paper. Different applications were also used, as students were required to prepare reports in a word processing programme or perform calculations in a spreadsheet. This provided variation and practice in diverse computer skills, while also allowing for different levels of learning within the simulation based on Bloom's revised taxonomy (Krathwohl, 2002).

AuditSIM also required that all members of the audit team contribute to the task. Therefore group members delegated the tasks and had to review the work performed by other members, practices similar to what actually occurs on an audit. The lecturers modified some of the original tasks in the simulation to meet the objectives of the SAICA competency framework.

In order to be able to attempt the tasks in the AuditSIM, students had to make sure that they understood the technical content, but also that they had the conceptual and procedural knowledge of how to apply this information. The AuditSIM thus expected students to demonstrate knowledge and understanding obtained through exposure to all three aforementioned elements (videos, formal lectures and tutorials) of the holistic blended learning model in the auditing module.

The AuditSIM provided a unique experience, because the information was not presented in a neat package as is done in a typical assessment. This allowed the students to see that in real business, information is not found in a structured way, but is available from different sources and that an audit team member can only perform a

task if he/she obtains the necessary information. AuditSIM further introduced new technology to the students, as many did not have any prior experience of working with a wiki or using technology in a simulated way for their learning.

4.4.5 Element three – Peer-mentoring and feedback (TUT Buddy and BuddyM)

The final element in the holistic blended learning model is peer feedback and peer-mentoring, by way of the BuddyM and TUT Buddy initiatives. For the BuddyM, students had to find another student to mentor. Mentees should preferably be a second year student, but due to a larger third year group than the second year group, in some instances both mentees and mentors were third year students. Students were required to meet with their mentee throughout the year and their interaction should have amounted to at least 14 hours of contact time. During the meetings, the mentors had to enquire about any challenges experienced by the mentees and they were expected to provide advice, encouragement or support, by sharing their own experiences with the mentee. Mentor training was provided, during which the objectives of the BuddyM and the roles and responsibilities of the mentors and mentees were explained. The focus of the BuddyM programme was to encourage development of communication and listening skills. Students had to complete an online logbook of their meetings and submit a photo as evidence of the meeting.

The TUT Buddy was a peer feedback initiative. It required students to attempt specific TUT Buddy case study type questions and then exchange their solutions with a member of their Buddy group/audit team. The Buddy group members were the same students that functioned as an audit team for the purpose of the AuditSIM. After the solutions were exchanged between students, each student then had a solution to review. Students then had to assess the solution in accordance with a provided suggested solution, provide feedback to their peers on completeness of the solution, exam technique followed and the general presentation of the solution. Afterwards, students had to complete an online logbook of their review and add a photo of their assessment, all in Bb.

4.4.6 Summary

The first part of this chapter sets out the education requirements to qualify as a CA(SA). At the university where the study was performed, both the B Com Accounting Sciences degree and the Postgraduate Diploma in Accounting Sciences is a SAICA accredited postgraduate programme. The auditing module considered in this study is one of the core year modules at third year level in the B Com Accounting Sciences degree. A large number of students enrolled for this module: 168 Afrikaans and 482 English students. A holistic blended learning model was followed in the auditing module comprising of different elements, namely a flipped classroom, an online simulation, peer feedback and peer-mentoring. The next section presents the research design for the study. It starts with a broad explanation of ontology, epistemology and paradigm. Thereafter different research designs are discussed and the last part of the discussion refers to the research done in this study.

4.5 Research design

4.5.1 Ontology, epistemology and paradigm

Educational research develops new knowledge about teaching, learning and education administration, which can improve educational practices (Gall, Gall & Borg, 2003). Educational research, being a social research area that investigates abstract constructs, is often performed from a specific worldview or paradigm. A worldview is defined as “a basic set of beliefs that guide action” (Lincoln, Lynham & Guba, 2011:13). When determining a suitable research design, the underlying philosophical foundation should be considered. Philosophical foundations of social research have been discussed at length by researchers and philosophers and often these foundations are complex and challenging to understand (Denscombe, 2010). However, such an understanding is still important, because it underpins the perspective adopted on the research topic, shapes the nature of investigation and methods implemented to obtain evidence and it influences the conclusions that can be drawn from the investigation (Denscombe, 2010). In order to understand the philosophical foundation, the

underlying ontology and epistemology which forms the foundation of the paradigm of the philosophy should also be understood.

Ontology “refers to the nature of social phenomena and the beliefs that researchers hold about the nature of social reality” (Denscombe, 2010:118). Realist researchers are on the one side of the ontology continuum and they see the social world as something ‘out there’, while constructionists are on the other side and see the social world as a creation of the human mind (Denscombe, 2010:119). Realists see the social world as something with measurable properties where structures and relationships are fairly steady and consistent, while constructionists acknowledge the possibility that the social world varies between cultures and groups and social reality is made up of multiple realities and not just a single reality (Denscombe, 2010).

Epistemology “refers to the ways that humans create their knowledge about the social world” (Denscombe, 2010:119). On the one side, positivism supports the use of scientific methods to gain knowledge and strives for objectivity, measurability, predictability, controllability, patterning and construction of laws and theories on behaviour (Creswell, 2012). The positivist epistemology fits with the realist’s ontology (Lincoln *et al.*, 2011). On the opposite side, interpretivism regards knowledge as something “that relies on human capacities to literally ‘make sense’ of a reality which, of itself, has no inherent properties, no order [and] no structure” (Denscombe, 2010:119). Interpretivists strive to understand and interpret the world in terms of the participants (Creswell, 2012). The interpretivist view (also referred to as a constructivist view) fits with the ontology of constructionists that the social world is created in the human mind (Creswell, 2009; Gall *et al.*, 2003; Lincoln *et al.*, 2011). Between these paradigms, or worldviews, are critical realism and pragmatism, where critical realism and pragmatism combine the realist and constructivist views (Denscombe, 2010). The ontological and epistemological assumptions of each paradigm are summarised in Table 2.

Table 2 - Ontological and epistemological assumptions of paradigms

Positivism	**Interpretivism**
Ontological assumptions • Patterns and regularities, causes and consequences exist, similar to natural sciences • Patterns and regulations exist independently and await discovery by man *Epistemological assumptions* • Scientific research methods are best to study reality • Empirical observations are crucial to corroborate theories and explanations • Reliable tools and techniques that provide accurate measurement of social phenomenon should be used • Researcher should be objective and detached from that which is being studied	*Ontological assumptions* • Social reality is subjective • Humans act differently when they know they are being studied, due to self-awareness *Epistemological assumptions* • The knowledge created may have consequences and reactions (making sure prediction does not come true) • It is not possible for objective knowledge, researcher is part of social reality • Phenomenon cannot always be explained in terms of grand theories or universal truths
Critical realism	**Pragmatism**
Ontological assumptions • Reality exists independently of individual's experience or interpretation thereof • It is not always possible to observe reality • Reality's impact is not always predicable • The complexity of social reality is not necessarily revealed by measurement and observation *Epistemological assumptions* • The real world is only known through theories • Research methods are theory-laden	*Ontological assumptions* • Social reality can be treated as 'out there' and at the same time regarded as something constructed and 'in the mind' *Epistemological assumptions* • No research approach is the indisputable best • Knowledge is based on practical outcomes and 'what works' • Knowledge is provisional • Dualism between quantitative and qualitative research is not helpful, and both methods should be integrated • Empirical enquiry should test what works

Summarised from Denscombe (2010)

A quantitative research design supports a positivism epistemology where populations and samples are studied and scientific statistical analysis is applied to the data to obtain evidence to answer the research question. Interpretivist or constructivist

researchers usually implement more qualitative research designs, while pragmatic researchers combine or mix qualitative and quantitative methods (Creswell, 2009; Denscombe, 2010; Gall *et al.*, 2003). Critical realist researchers tend to apply ideology critique or action research as research methodologies (Creswell, 2012).

As the purpose of this study is to investigate whether students perceived the elements in a holistic blended learning model to contribute to their learning and engagement, it is a descriptive study that investigates students' perceptions. This can be achieved with a quantitative approach, by conducting a survey. The constructs being investigated (learning and student engagement) cannot be accurately measured and therefore student perceptions are used. As accurate measurement cannot be obtained by means of student perceptions, the research paradigm is not purely positivist nor interpretivist.

4.5.2 Different research designs

Once the paradigm, ontology and epistemology have been considered, the researcher should consider the most appropriate research design. For quantitative research, the researcher can apply a descriptive, experimental or quasi-experimental or correlation design (Black, 1999; Leedy & Ormrod, 2010). A descriptive design describes the current status of a phenomenon. For experimental designs a control environment should be created where all variables are carefully controlled. A quasi-experimental design makes use of control groups to establish a causal-effect relationship. A correlation design uses statistical analysis to explore a relationship between variables (Black, 1999).

Due to the difficulty of creating a controlled environment and controlling the various variables, of which some are unanticipated, educational researchers tend to perform more descriptive or exploratory studies. These studies set out to describe and interpret relationships between variables about phenomenon that have already occurred in the past (Cohen, Manion & Morrison, 2000; Denscombe, 2010). This study is a descriptive

study, because it describes how the phenomenon, the holistic blended learning model, was perceived by students.

Behaviours and characteristics of the population can be investigated by a survey. Surveys can also be used to investigate student perceptions and experiences (Buckless, 2014; Rudman & Terblanche, 2011; Tonge & Willett 2012). Survey data can be collected, either through questionnaires or interviews, during which survey questions are posed. With questionnaires, the participants complete a form with numerous questions and return it to the researcher (Creswell, 2012). The advantages of a survey, either a questionnaire or interview based one, are that it is relatively cheap and quick to administer, standardised information can be obtained, numerical data is generated that can be statistically analysed and larger sample sizes can be obtained (Cohen *et al.*, 2000; Lefever, Dal & Matthíasdóttir, 2007). If the survey is an online questionnaire, it has the additional advantages of reducing the resources required to administer the survey, it is more environmentally friendly, it reduces transfer errors and the data is already in a format that can be transferred to the statistical analysis software (Lefever *et al.*, 2007; Minnaar & Heystek, 2013; Rosenfeld, Booth-Kewley & Edwards, 1993). Online surveys tend to have lower dropout rates and produce less incomplete data compared to paper questionnaires (Dolnicar, Laesser & Matus, 2009). The disadvantage of an online survey is that response rates could be lower compared to paper based surveys, the method is seen as more impersonal and respondents are concerned about security and confidentiality (Lefever *et al.*, 2007; Minnaar & Heystek, 2013). Another disadvantage is that in the past special software was necessary to develop the online survey, but this disadvantage has been eliminated, as many free survey generating engines are now readily available (Rosenfeld *et al.*, 1993).

This study can further be described as a cross-sectional study, as it provides a “snapshot” of the views of the students in the population at a particular point in time (Cohen *et al.*, 2000:175). In a cross-sectional study, surveys are used to “gather data at a particular point in time with the intention of describing the nature of existing conditions, or identifying standards against which existing conditions can be compared, or determining the relationships that exist between specific events” (Cohen

et al., 2000:169). A cross-sectional study often results in a higher response rate, as single participation is required, however, the disadvantages of a cross-sectional study are that the researcher is unable to analyse causal relationships identified between variables and the development or growth of individuals cannot be determined (Cohen *et al.*, 2000).

In summary, this study leans towards both a positivist and constructivist paradigm, including characteristics of both. The research design is a descriptive quantitative design, where a survey was used to obtain data after a holistic blended learning model was experienced and perceptions of students at a particular point in time were obtained. The next section provides deeper insight on the survey instrument used in the study.

4.5.3 Survey instrument

Surveys can collect both qualitative data from open-ended questions, which will provide responses that are more detailed, and quantitative data from itemised Likert-scale type questions. If both types of questions are included in the survey, a mixed methodology approach is applied, where a better causal relationship between the variables can be determined (Creswell, 2012).

In a quantitative survey, questions can be divided into three typical types of questions, (1) demographic questions that assess personal characteristics of the individuals, (2) questions that obtain individual attitudes or opinions and (3) questions about the actual behaviour of the individuals in the sample (Creswell, 2012). It is important to develop good quality questions that provide meaningful answers and do not confuse the participants, as this often leads to a higher response rate. The layout, formulation and sequence of questions also require careful consideration to ensure that evidence is obtained to answer the research questions (Creswell, 2009).

During the development of the survey, a pre-pilot and pilot study should be performed. A pre-pilot is brainstorming about the purpose, the items included and the layout of the questionnaire (Cohen *et al.*, 2000; Denscombe, 2010). During a pilot study the questionnaire is distributed to a sample of subjects prior to the distribution to the entire population, to ensure that confusion and ambiguity in questions are minimised (Cohen *et al.*, 2000; Denscombe, 2010). Piloting the questionnaire increases the reliability, validity and practicability thereof.

A survey does not have to be developed *de novo*, but can draw on existing questionnaires. However, it is often unlikely that an existing questionnaire will be used in its current format and will often require some tailoring to meet the requirements of the new project (Denscombe, 2010).

Survey pitfalls to consider – Survey validity and reliability

In order to assess the validity and reliability of data collected by way of survey, a number of considerations should be addressed. As the perspective of a group is evaluated in a survey, the validity and reliability requirements can be less strict, as compared to individual response evaluations (Gall *et al.*, 2003), but should nonetheless still be considered and acceptable. The considerations for validity and reliability of information include the response rate on the survey and the possibility of errors, such as a sample error, a measurement error, a coverage error or a non-response error included in the data collected. These considerations are briefly discussed in more detail.

The response rate on surveys is critical in determining whether reliable data, representative of the population was collected (Babbie & Mouton, 2001). The higher the response rate, the less likely errors such as non-response bias occurred (Black, 1999). An acceptable response rate for mail surveys is 50% and is deemed acceptable for analysis and reporting. A response rate of 60% is good and 70% is considered to be very good (Babbie & Mouton, 2001). These are good indicators to determine

whether the sample data could be subjected to analysis and reporting, but the response rate should be evaluated in terms of the total population and how the survey is administered to respondents. Online surveys usually result in a lower response rate and with larger populations, lower response rates could then still be regarded as acceptable (Nulty, 2008). Some scholars argue that online response rates as low as 20% could still yield accurate results and should not be the only measure to determine the validity of the study (Morton, Bandara, Robinson & Carr, 2012).

Four types of survey errors could occur during a study, namely:

A sample error

A sample error occurs when the sample (responses received) is not representative of the entire population (Creswell, 2012). The higher the response rate though, the less likely an unacceptable sample error occurred (Black, 1999).

A measurement error

A measurement error occurs when the sample statistical values differ from the true values (population), thus the instrument did not measure what it intended to measure (Babbie & Mouton, 2001). Reasons for measurement error are poor question formulation, imperfect scales and faulty assumptions on the data (Babbie & Mouton, 2001).

A coverage error

A coverage error occurs when certain participants in the survey are excluded, for example in an online survey, all users without internet capabilities are excluded from the sample (Leedy & Ormrod, 2010).

A non-response error

A non-response error occurs when individuals that did not complete the survey, would have answered differently from the ones that did answer (Creswell, 2012). This is also referred to as response bias and a wave analysis can be performed to determine if response bias is present. A wave analysis requires continuous checking of the responses to see whether answers to a few selected questions change from the participants at the beginning of the study and those that answered at the end of the study (Creswell, 2012; Dolnicar, Laesser & Matus, 2009).

4.5.4 Variables

The variable of a quantitative study is defined as “a characteristic or attribute of an individual or an organization that (a) researchers can measure or observe and (b) varies amongst individuals or organizations studied” (Creswell, 2012:112). Characteristics would include personal aspects such as gender, age or grade level and an attribute relates to how the individual feels or behaves (Creswell, 2012). Measurement of these variables can either be in categories, such as age group, where the individual selects the appropriate specific response, or as continuous scores where the variable is measured as a point along a continuum of scores such as a 5-point Likert scale (Creswell, 2012).

Different types of variables are considered in a study. These include dependent variables, independent variables, intervening variables and confounding variables. Dependent variables are influenced or affected by the independent variable, intervening variables are between the dependent and independent variables and can influence the dependent variable and a confounding variable cannot be directly measured by the researcher because it cannot be separated from other variables, but can influence the relationship between dependent and independent variables (Black, 1999; Creswell, 2012).

The independent variable used in this study was the year mark obtained for the auditing module as an indicator of academic performance. Academic performance as a variable is discussed in more detail in Section 4.7.1.1. The dependent variables in this study are student perception of learning, student engagement and the contribution of different elements incorporated in the blended learning module, namely videos, lectures, tutorials, a simulation, peer feedback and peer-mentoring. These variables have been discussed in detail in Chapters 2 and 3. Students had the opportunity to develop their ICT skills through the online simulation which introduced them to new technology requiring navigation within a web area to obtain information and prepare working papers in a wiki. The simulation also attempted to bridge the gap between theory and practice. Using concepts identified in past research, the TAM questionnaire distinguishes *inter alia* between usefulness, ease of use and affect (Venkatesh & Bala, 2008), as discussed in Section 2.6.2 and 4.7.1.4.

4.5.5 Population and sample selection

Survey researchers first have to demarcate the population of the study. The population of a study is the "group of individuals [that] possesses one characteristic that distinguishes them from other groups" (Creswell, 2012:381). Once the population is determined, the researcher must select the sample, which is the individuals being studied within the population (Creswell, 2012). The larger the sample, the greater the probability that the sample exhibits similar characteristics of the population and sample error is reduced (Cook, Heath & Thompson, 2000). Sample error results when the sample is not representative of the population being investigated (Creswell, 2012), which was discussed in Section 4.5.3. The population of the study was the third year students enrolled for the auditing module at university where the study was performed during 2016.

4.5.6 The need for ethical considerations in surveys

As social and educational research use human beings in their studies, social researchers are expected to act in an ethical manner. The researcher should obtain permission for the research from the institution's ethics committee (Denscombe, 2010). The researcher should report findings honestly and not be pressured to report findings that support the sponsor's agenda. The interests of the participants, along with the sponsor's and that of the public should be protected. In order to protect participants in the study, the researcher should ensure that participants are protected from harm, that informed consent is obtained from the participant, that the participant's right to privacy is respected and that findings are reported in a complete and honest fashion, without any misrepresentations (Creswell, 2009). Section 4.8 elaborates further upon ethical considerations for this study.

4.5.7 Summary

In considering the research design for this study, the ontology, epistemology and paradigm for the study were considered. This study is a descriptive study which describes the students' perceptions of the contribution of different blended learning elements to their learning and student engagement. A custom-developed survey was developed to meet the aims of the study. In considering the paradigm for this study, the constructs (learning and student engagement) investigated do not lend themselves to accurate measurement, thus incorporating characteristics of both a positivist and interpretivist paradigm.

As the survey instrument was custom-developed, the student's year mark was the independent variable and the blended learning elements, and the usefulness, ease of use and affect of the simulation were the dependent variables. The population for the study was the students enrolled for the third year undergraduate auditing module at the university where the study was performed and the participants were protected from harm, and informed consent and right to privacy were communicated.

4.6 Methodologies applied in the evaluation of blended learning

Various methodologies are applied in the evaluation of blended learning. Bliuc *et al.* (2007) doing a limited literature review, categorised studies into four categories. These categories are (1) case-studies with a specific focus, (2) survey-type studies with a focus on a range of specific dimensions and links between them, (3) comparative studies with a focus on a range of specific dimensions in different contexts and (4) holistic studies (Bliuc *et al.*, 2007).

Case studies focus either on general dimensions, such as performance or dropout rates, or on a specific dimension, such as experience of transactional distance in distance learning (Bliuc *et al.*, 2007). In survey-type studies, perceptions and the relationships between different aspects of the process are explored (Bliuc *et al.*, 2007). Comparative studies explore relationships between different learning environments, such as comparing blended learning with exclusively online or face-to-face learning. Holistic studies apply mixed methodologies (Bliuc *et al.*, 2007). Halverson, Graham, Spring, Drysdale and Henrie (2014) found similar results on comparative and holistic studies with reference to the work of most cited authors on blended learning, and most studies applied either a descriptive or mixed method research design. As explained in Section 3.4.3, previous studies followed a fragmented approach highlighting one blended learning element, and most studies were performed in small class settings. This study investigates students' perceptions on a holistic blended learning model in a large class setting, thus making a significant contribution towards the body of knowledge.

4.7 Method of the study

4.7.1 Questionnaire development

The purpose of the study is to investigate how the students perceived the different elements of the current holistic blended learning model in the auditing module to contribute to their learning and engagement with the subject matter.

Within this purpose, the study also investigates how the perceived contribution differs between students at different performance levels. In addition, for one of the blended learning elements (the online simulation), the study determines students' perception about the usefulness, ease of use and the influence on their affect for learning.

In order to achieve the purpose of this study, the following research questions need to be addressed:

1 How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to:

1.1 their learning of the audit subject matter; and

1.2 their engagement with the audit subject matter through different activities?

2 How do the above perceptions differ for students with different academic performance levels in relation to:

2.1 their learning of the audit subject matter; and

2.2 their engagement with the audit subject matter through different activities?

3 How do students with different academic performance levels perceive the online simulation in relation to:

3.1 the usefulness thereof;

3.2 the ease of its use, and

3.3 the influence on their affect for learning?

In order to meet the abovementioned purpose of this study and to answer the research questions, a questionnaire was developed. The majority of the questions included in the questionnaire were custom-developed, because a suitable instrument could not be found in the literature. Certain questions on the simulation were based on questions included in a survey used by Suwardy *et al.* (2013) and the TAM questionnaire developed by Venkatesh and Bala (2008) and adjusted by Lee and Lehto (2013). These questions were adopted to fit the context and purpose/ research questions of the study. The questionnaire consisted of four sections, with 14 main and 47 subsection questions, totalling 61 questions. The first section of the questionnaire included demographical information and the second section focused on technology use and the innovativeness of the students. The third section addressed the perceived learning and student engagement for the blended learning elements and the final section focused on the simulation. As the simulation required higher order thinking skills, encouraged cooperative learning and the development of ICT skills (because the wikis and interaction were a new experience for the students), more focus was placed on the effect of the simulation. The development of each section, as well as the questions included in each section, are further elaborated upon in the following discussion.

4.7.1.1 Section A

Section A included six demographical questions, which were all category questions, namely age, gender, language of instruction, home language, participation in any academic support programme and the year mark obtained for the module. The year mark was used to categorise students into high, medium or low performing students, in order to determine how students with different academic performance levels experienced/perceived the holistic blended learning model elements in the auditing module, to contribute to their learning and engagement.

Academic performance

Academic performance has been widely used by scholars as a benchmark to determine the effectiveness of educational interventions (Asarta & Schmidt, 2017; Broadbent, 2017; Hun, Loy & Hansaram, 2013; McKenzie & Schweitzer, 2001; Schmulian & Coetzee, 2011). Higher performance levels for a specific mode of teaching, for example face-to-face versus online, indicate that one mode is more effective than the other, but this method of evaluation often leads to a "no significant difference" result (Asarta & Schmidt, 2017:36) or limited interpretation possibilities.

When distinction is made between low, medium and high performance within the population, more specific results are obtained. Asarta and Schmidt (2017) concluded that when students were divided into high, medium or low performing groups, based on their grade point average (GPA), the low group achieved higher performance in the traditional approach, compared to the blended learning approach, while the medium group did not indicate any significant difference in their final grades. Sanford (2017) found similar results with low achieving students, but contradicts the result on medium and high achieving students, stating that all students benefit more from face-to-face formats. Owston *et al.* (2013) considered satisfaction, convenience, engagement and learning in a blended format based on achievement, and their results are in line with that of Asarta and Schmidt (2017). They found that high achieving students were more satisfied with the blended format. These students also experienced it as more convenient, felt more engaged and believed that they understood key concepts better with the blended format.

The difference in achievement between low (or under achieving) and high performers can often be ascribed to differences in these students' learning approaches, as distinctive characteristics could be highlighted between these approaches. High performing students, when confronted with a new learning environment, are willing to adapt their learning strategy and continue adapting it, until they find a strategy that works for them (Jovanović, Gašević, Dawson, Pardo & Mirriahi, 2017). They also tend to incorporate a wider range of learning techniques (Van der Merwe, 2007). These

high performing students tend to follow a deep learning approach, have higher intellectual ability, higher conscientiousness and motivation, with lower levels of anxiety (McCoach & Siegle, 2001; Wingate & Tomes, 2017). They are actively involved in the module and are able to self-regulate their learning (Jovanović *et al.*, 2017). These students are referred to as *intensive* students or *high-achievers* (Jovanović *et al.*, 2017; Wingate & Tomes, 2017). Low performing students often have a low activity level or are completely disengaged; they have more variation amongst module grades, lower levels of conscientiousness and motivation and higher levels of anxiety (Wingate & Tomes, 2017). A surface approach to learning is followed by these students and they tend to be more performance-goal oriented, where high achievers are more mastery-goal orientated (Jovanović *et al.*, 2017). Low performing students would also adjust their learning strategy to a new learning environment, but fall back on familiar and less effective strategies during the module (Jovanović *et al.*, 2017). These students are described as highly selective in that they aim to achieve high results through minimal effort and engagement (Jovanović *et al.*, 2017). Medium performing students, or "settlers" achieve average grades, have low variability in performance and low levels of conscientiousness, motivation and anxiety (Wingate & Tomes, 2017:179).

The abovementioned characteristics are not the only aspects that could influence academic performance, as academic performance could also be influenced by the level of students' academic entitlement (Bonaccio, Reeve & Lyerly, 2016), the cognitive competence levels of students and mental toughness (Lin, Clough, Welch & Papageorgiou, 2017). Harrell and Stahl (1983) highlighted two non-intellectual variables typically present in accounting students and these are (1) the need for achievement and (2) the need for affiliation (feeling of belonging) that affect academic performance.

Evaluation of the characteristics that affect academic performance is not the purpose of this study, but is important to understand that students with different academic abilities study differently and experience teaching interventions (presented as blended learning elements in this study) differently. This information can be used to explain

differences observed between learning and engagement of groups performing at different levels.

Academic performance for this study was based on the year mark obtained in the auditing module which was presented as a year module. This year mark was calculated by taking the formative assessments completed during the year into consideration. The formative assessments consisted of four class assessments and term assessments, which contributed 85% of the calculated mark. Due to the disruption of lectures during the second semester relating to the #feesmustfall campaign (News, 2016), the intended third term assessment was not conducted in 2016. Therefore only two term assessments contributed to a student's year mark. The remaining 15% of the year mark was based on the simulation, class activities and completion of TUT Buddy and BuddyM logbooks. The 15% awarded for these activities (referred to as other activities) encouraged students' participation and promoted their continuous engagement with the subject matter throughout the year. In general, the 15% attributed to other activities inflated the year marks. This was done to allow more students admission into the summative assessment, because a minimum year mark of 40% is required to sit for the examination. The inflation of the year mark was evident, since the summative assessment results were in general more in line with the results of the formative assessments.

4.7.1.2 Section B

Section B of the questionnaire included category questions that related to a respondent's prior work experience and technology usage. It consisted of five questions.

One question was on a respondent's prior audit experience, to determine whether the exposure to the AuditSIM was the primary or first contact with practical auditing experience.

Two questions related to a respondent's technology usage: first to determine which technology devices were used by a respondent and secondly to determine the duration of usage and the different activities performed during usage.

Two questions related to Rogers' diffusion of innovation theory (DoI) to determine the respondent's self-reported level of innovativeness. Rogers' DoI (also referred to as innovation diffusion theory), is grounded in sociology and was developed in 1956, when the diffusion (adoption) of hybrid corn seed in agriculture was investigated (Rogers, 2004). Since then the DoI has been applied in many different disciplines, such as geography, political sciences, educational innovations and public health innovations (Rogers, 2004). The aim of these two questions was to determine how innovative respondents perceived themselves to be in relation to new technology.

4.7.1.3 Section C

Section C consisted of continuous scale questions (a 5-point Likert scale) ranging from (1), being *not at all contributing* to (5), *contributing a great deal*. The questions consisted of two main questions of which the first related to a respondent's learning and the second to the respondent's engagement. Both of the main questions were divided into six sub-questions relating to the individual elements of the holistic blended learning model incorporated in the auditing module. As learning and student engagement are both multi-dimensional constructs that are difficult to measure, students' perceptions of these constructs were determined.

Researchers evaluate the impact of blended learning using two approaches: either students' opinions of the blended approach, or differences in student performance due to the different modes of teaching (Asarta & Schmidt, 2017). In this study both approaches were combined where students' perceptions were compared based on their academic performance levels.

4.7.1.4 Section D

The final section of the questionnaire focused on the simulation and also used continuous scale questions on a 5-point Likert scale ranging from (1), *strongly disagree* to (5) *strongly agree*. This section was based on a survey instrument used in the previous year with the introduction of the AuditSIM (simulation) in the third year auditing module. During the current study the simulation was thus used for the second time. During the first year of implementation, a questionnaire was developed based on questions by Venkatesh and Bala (2008) and Suwardy *et al.* (2013) and open-ended questions on the overall experience of the simulation. A survey was then administered to identify positive and negative aspects of the simulation experience. These results informed the 26 questions included in Section D. Fifteen questions were on the perceived usefulness of the simulation, of which 11 questions related to learning and bridging the gap between theory and practice and four questions related to student engagement through group work. Four questions related to the perceived ease of use of the technology, while the remaining seven questions related to the affective aspects of the simulation experience.

4.7.2 Pilot study

A pilot study was performed at the end of October 2016 involving 11 students who were exposed to the holistic blended learning model in the auditing module in 2015. Suggestions on changes and improvements to reduce ambiguity and to ensure certainty of meaning from the pilot study were incorporated. The questionnaire was also presented to a statistician who had a number of suggestions to adjust the questions in an attempt to reduce possible ambiguity.

4.7.3 Population

The population of this study was the students registered for the B Com Accounting Sciences degree and who enrolled for the third year auditing module at the university where the study was performed in 2016. All these students were exposed to the holistic

blended learning model in the module and in 2016 there were 651 students enrolled for the module.

4.7.4 Data collection and data cleaning

The questionnaire was electronically distributed using *Qualtrics*[2] towards the end of the 2016 academic year, after students had experienced all the blended learning elements. Students were given ample time to complete the questionnaire and they were continuously reminded and encouraged to complete the questionnaire by way of announcements on Bb. As the questionnaire was online, it did not interfere with any class activities. After collection, the data was downloaded into an Excel document which was used for statistical analysis. The data was analysed using SPSS.

4.7.5 Data analysis

The complete dataset was downloaded from *Qualtrics* and prepared for quantitative analysis with SPSS. Descriptive statistics are based on the demographical questions, year mark and prior audit work experience. These questions were included in Sections A and B of the questionnaire.

To evaluate respondents' perceptions of the contribution of the holistic blended learning model on their learning and engagement of the auditing subject matter, a descriptive and inferential statistics analysis was performed. The same was done for the AuditSIM sub scale. To evaluate whether statistically significant differences between respondents with different academic performance levels existed, the responses to the learning, student engagement and AuditSIM questions were analysed (refer to Sections 5.2 and 5.3).

[2] Survey software that allows for creating an online survey and collecting the data for analysis

4.7.6 Descriptive statistics on respondents

This section presents the descriptive statistics on respondents. It is discussed as part of the research method followed in the study to provide information on the sample and to address sample error and non-response bias concerns.

Response rate and gender

Survey question: What is your gender?

The above question was used to determine whether the sample was representative of the population. The overall response rate, as well as response rate per gender, was considered to determine whether the sample was representative of the population.

Table 3 - Overall response rate

	Total			
	Population		**Sample**	
	Total	**%**	**Total**	**%**
Response rate	**651**	**100%**	**461**	**71%**
Males	267	41.0%	176	38.2%
Females	384	59.0%	284	61.6%
Missing data			1	0.2%

Table 3 presents the overall response rate: a response rate of 71% was obtained. The response rate is high for an online questionnaire, as online surveys typically have lower response rates (Cook *et al.*, 2000). The gender distribution mirrors the gender distribution of the population. For both male and female respondents a 2.5% - 3% difference was found. Male respondents in the sample were slightly under represented (38.2% to the population of 41%), while female respondents were slightly over represented (61.6% to the population of 59%). Taking into account the high response rate of 71%, as well as the gender distribution of the respondents, the sample appears to be representative of the population.

Home language of respondents

Survey question: What is your home language?

Students enrolled in the third year auditing module came from diverse backgrounds, as South Africa has 11 official languages. For this study students were asked to disclose their home language based on four categories: Afrikaans, English, Other African language and Other.

Table 4 - Home language of respondents in total and per performance group

	Total respondents		High performing		Medium performing		Low performing		Missing data	
	Total	**%**	**Total**	**%**	**Total**	**%**	**Total**	**%**	**Total**	**%**
Afrikaans	169	37%	54	32%	77	46%	36	21%	2	1%
English	120	26%	32	27%	56	47%	30	25%	2	2%
Other African language	151	33%	16	11%	70	46%	61	40%	4	3%
Other	21	5%	4	19%	6	29%	11	52%	0	0%
Total	**461**	**100%**	**106**		**209**		**138**		**8**	

Table 4 sets out the home language of the respondents. The Afrikaans, English and Other African language groups were each represented by more than 25%. The Other languages group (5%) is small compared to the abovementioned three groups. The majority of respondents in all language groups were situated in the medium performing academic group, except for the Other language group, where the majority (52%) of respondents were situated in the low performing group. This raises the question of language of instruction to be a barrier for some students, as lectures were only presented in Afrikaans and English. The same tendency is noticeable in the Other African languages group where 40% of the group is in the low performing group.

Age of respondents

Survey question: What is your age?

Table 5 - Age of respondents

Total	Age 20	Age 21	Age 22	Age 23	Age 24	Age 25+
461	38	226	118	47	22	10
100%	8%	49%	26%	10%	5%	2%

Table 5 illustrates the age of respondents: the majority of respondents (75%) were between 21 and 22 years of age, which is expected for residential university students who had completed their secondary education and were in their third year of their undergraduate studies at university.

Year mark for ODT 300

Survey question: What is your year mark for ODT 300?

Students indicated their own year mark on the anonymous survey. The questionnaire provided five intervals for the year mark, (1) below 50%, (2) 50% - 57%, (3) 58% – 63%, (4) 64% - 69% and (5) 70% and above. These intervals divided the population into approximately five equal sized groups. Table 6 sets out the detail of these five groups.

As discussed in Section 4.7.1.1, an adjustment was made to control for an inflated part of the year mark, to ensure that the year mark is reflecting a student's performance in the formative assessments. The average mark for other activities was calculated for each group. For low performing students (<50% and 50% - 57%) this amounted to 8% – 10% respectively, while for the medium (58% - 63% and 64% - 69%) and high (70% and above) performing groups, it amounted to 11% and 12% out of the possible 15%. Students' year marks were accordingly redistributed into three groups based only on the formative assessment marks. Groups were redistributed as low (<57%), medium (58% - 69%) and high (>70%) performing students for the analysis. Table 7 sets out the detail of the adjusted groups and the gender distribution within these new performance level groups.

Table 6 - Distribution of respondents' year mark for ODT 300 in 2016, prior to adjustment

Interval	Year mark	Population	%	Respondents	%
1	< 50%	99	15%	44	10%
2	50% - 57%	138	21%	95	20%
3	58% - 63%	152	24%	111	24%
4	64% - 69%	144	22%	101	22%
5	>= 70%	118	18%	108	24%
	Missing data			2	
	Total	651	100%	461	100%

Table 6 presents the detail distribution of students' unadjusted year mark. As discussed above, respondents were asked to disclose their year marks in accordance with the five intervals. The results were related to the performance of the population. Intervals 2, 3 and 4 mirror the population, while Interval 1 was slightly under represented, because only 44% of the students in the interval (representing 10% of the total sample) performing at a level of lower than 50% responded, while in the total population this interval amounted to 15%. Interval 5 was slightly over represented in the sample (24% compared to 18%).

Table 7 - Distribution of respondents' year mark for ODT 300 in 2016, after redistribution

Performance group	Interval	Population		Respondents		Male* respondents		Female* respondents	
		Total	%	Total	%	Total	%	Total	%
High	>70%	118	18%	108	24%	38	35%	70	65%
Medium	58% - 69%	296	46%	212	46%	73	35%	138	65%
Low	<57%	237	36%	139	30%	64	46%	75	54%
Missing data				2		1		2	
Total		651	100%	461	100%	176		285	
* - Percentage of the respondents per category: high, medium and low									

As explained earlier, the year marks of students were inflated with marks obtained from other activities. The year marks were reconsidered to control for this matter and Table 7 presents the redistributed year marks based on the performance levels of high, medium and low performing students. The same tendency was found as reported for marks prior to the redistribution (Table 6). The high performing students were slightly over represented (24% compared to 18%), while the low performing students were

under represented (30% compared to 36%). In all the performance groups, females made up the majority of the group. The distribution between males and females within the performance groups is equal for low and medium performance groups, while for the high performing group, the males and females are distributed on a 50/50 basis.

Prior auditing related work experience

Survey questions: I have been exposed to an audit practice - Part time work, - Full time work, - Vacation work, - Work shadowing (Tagging along).

Students were requested to indicate whether they had any prior auditing related work experience, by selecting the applicable options on the survey. Students could select more than 1 type of experience. Respondents, based on their responses, were categorised into two groups; those with prior experience (selected 1 or more options) and those that did not have any prior experience (selected none of the options). These results were divided per the performance level group intervals and are presented in Table 8.

Table 8 - Prior auditing related work experience

Performance group	Total for respondents		Prior auditing related work experience		No prior auditing related work experience	
	Total	%	Total	%	Total	%
High	108	100%	79	73%	29	27%
Medium	212	100%	143	68%	69	32%
Low	139	100%	87	63%	52	37%

Table 8 sets out the prior auditing related work experience of the respondents, per performance level groups. More students in the high performance group (73%) had some sort of prior auditing work related experience, compared to the medium (68%) and low (63%) performance group respondents.

4.7.7 Summary

To achieve the purpose of the study the questionnaire was custom-developed with some questions based on prior research. The questionnaire indicates demographical information of the respondents (age, gender, language of instruction, home language and the year mark obtained). Respondents were also required to indicate their prior work experience and technology use. A 5-point Likert scale was used to obtain the students' perceptions on how the different elements of the holistic blended learning model contributed towards their learning and engagement. It was also used to obtain students' perceptions on the simulation, in particular the usefulness, ease of use and affective aspects.

The section next describes how a pilot study was conducted in October 2016. The population of the study is "all students enrolled for the auditing module in 2016" and amounted to 651 students.

The data analysis is explained and descriptive statistics on the respondents are presented. A 71% response rate was obtained and a comparison between respondents' gender and the gender distribution in the population shows little variance. The sample appears to be representative of the population. The sample is stratified in high, medium and low performance groups based on year marks reported by respondents. These year marks were redistributed to reflect only formative assessments without marks obtained from other activities.

4.8 Ethical considerations

Permission from the faculty's Ethics Committee was obtained to perform the research. This study formed part of a comprehensive study on auditing education conducted by the Department of Auditing at the university where the study was performed. The ethical clearance obtained for the comprehensive study and in particular for this study is presented in Annexure B.

Protection from harm

As the survey was completed online, students were not subjected to an unsafe environment.

Informed consent

In the cover letter (annexure C) for the research questionnaire, students' informed consent was obtained. The wording stated that by completing the questionnaire, students' anonymity was ensured and that they give their consent that the information may be used for research purposes.

Right to privacy

The questionnaire was completed anonymously and the software used does not allow for any form of identification. No question which could identify students specifically was used and students were also informed that the questionnaire was anonymous.

In summary the study met the required ethical considerations for survey research.

4.9 Validity, reliability and generalisability

4.9.1 Validity

Validity is an important concept in quantitative research designs, because the researcher has to ensure that conclusions reached in the study are based on sound and supporting information and data. Different forms of validity have to be considered, namely internal validity, such as content and construct validity, as well as external validity.

Internal validity

Content validity refers to whether the study is asking the right questions and is using the right indicators (Denscombe, 2010). Content validity can be achieved when expert opinion is sought (either in person or by reviewing available literature), or the study is in accordance with a theory (Denscombe, 2010; Muijs, 2011). Content validity in this study was achieved because the study is based on education theory, namely experiential learning and blended learning, and by reviewing the available literature. Construct validity refers to the internal structure of an instrument and the concepts it is measuring. Validity of a measurement instrument is "the extent to which the instrument measures what it is intended to measure" (Leedy & Ormrod, 2010:28). A factor analysis provides evidence of construct validity, because when factors form, it confirms that certain questions were answered in the same way or that it measures the same construct (Muijs, 2011).

A factor analysis was performed to determine construct validity in this study.

External validity

External validity of a research study relates to the extent with which the results can be applied to situations beyond the study itself. The external validity is enhanced when the study is performed in a real-life setting and not in a controlled environment. A representative sample of the population should be obtained in order to generalise the conclusions and finally, replication in a different context offers the same conclusions (Leedy & Ormrod, 2010).

For a descriptive study such as this one, external validity was achieved, since the study was performed in a real-life setting and a representative sample was obtained, but replication in a different context is not possible. The results of the findings were however compared to previous blended learning studies in the literature.

4.9.2 Reliability

Reliability is “the consistency with which a measuring instrument yields a certain result when the entity being measured hasn’t changed” (Leedy & Ormrod, 2010:29), therefore the method is reliable when it produces similar findings when used in different settings, or by different researchers, at different times with the same group or with separate groups of similar people (Denscombe, 2010).

Internal consistency reliability is important in this study, because it determines how homogeneous the items of a test are or how well a single construct is measured. Coefficient alpha (Cronbach Alpha) is a statistical test that determines the internal consistency reliability and the measure should be higher than 0.7 to be considered acceptable (Field, 2005; Muijs, 2011).

4.9.3 Generalizability

Since it is not possible to test the entire population in a study, whether the sample is a reliable representation of the population should be considered, otherwise it will not be possible to generalize the results to the entire population (Muijs, 2011). The response rate and the level of significance of difference found within the sample will directly influence the generalizability of the results. In this study, a response rate of over 70% was achieved and differences were only considered significant at the 1% and 5% levels of significance, but the 10% significant levels were also mentioned.

In summary, validity and reliability were considered in this study and these considerations allow for results to be generalizable within the context of the study.

4.10 Chapter summary

This chapter commenced with setting out the education requirements for prospective CAs in South Africa to be able to register as CAs. This was followed by contextualizing the study by presenting the teaching approach for auditing at the university where the study was performed, which includes a detailed explanation of the elements in the holistic blended learning model used in the auditing module.

After contextualizing the study, the research design explained that as a descriptive study focusing on perceptions of students, it is neither a pure positivist nor a pure interpretivist paradigm, because student perceptions are used, which cannot be accurately measured. The design is described as a cross-sectional study, where a survey was used to gather quantitative data that is subjected to statistical analysis to determine relationships between the variables.

The survey instrument was explained in detail, setting out the questions included in the survey and the dependent and independent variables. The population and sample and data collection were addressed. Examples of methodologies applied in blended learning were given before the chapter explained the data analysis methods used in this study. Thereafter an initial descriptive statistical analysis was presented. This was done to provide information on the sample and address sample error and non-response bias concerns. The sample appears to be representative of the population. The sample was stratified into high, medium and low performing groups of students and this process was explained. The chapter concluded with ethical considerations and those relating to validity, reliability and generalizability of the study.

The next chapter presents the findings of the study and discusses these in terms of the research questions. Reference is made to prior studies to place the findings of this study within the body of knowledge on blended learning.

5 PRESENTATION AND DISCUSSION OF THE FINDINGS

5.1 Introduction

This study aims to investigate whether or not a difference in the perception of auditing third year students at the university where the study was performed exists, as to the contribution that the different elements in a holistic blended learning model have on their learning and engagement with the auditing subject matter.

In Chapter 4 the context of the study, as well the research design and method applied in this study were discussed. The response rate and descriptive statistical analysis on the demographic information of the survey were discussed in Section 4.7.6, in order to verify the representativeness of the population.

This chapter consists of two main parts. In the first part it sets out the results of the statistical analysis performed and an explanation of the findings. In the second part, the findings are discussed. The chapter commences with the analysis of the blended learning model elements in terms of learning and student engagement. First a descriptive analysis was performed, which was followed by a factor analysis. The factor analysis indicated that the data came from a population that follows a probability distribution which was not based on a fixed set of parameters (did not follow a normal distribution). Therefore the Kruskall-Wallis (non-parametric) test was performed on these data sets, in order to determine whether statistically significant differences existed between the blended learning elements for learning and student engagement.

The chapter continues with findings on the one element (online simulation) of the holistic blended learning model which was further investigated. The results on how respondents perceived the usefulness, ease of use and affect of the online simulation are presented, as well as the descriptive analysis, followed by a factor analysis and an ANOVA test. The second part of the chapter discusses the findings in detail to answer the research questions in order to show how the purpose of the study was reached.

5.2 Learning and student engagement analysis

5.2.1 Descriptive statistical analysis for learning questions

Survey questions: To what extent did the following activities contribute to your *learning* of the subject matter?

- The theory videos explaining the basic concepts.
- Attending the weekly formal lectures.
- Attending the weekly tutorials.
- Completing the tasks on the AuditSim.
- Engaging with my BuddyM mentee.
- Engaging with my TUT Buddy group on the Buddy questions.

Respondents were requested to rate (on a 5-point Likert type scale ranging from (1) *not at all contributing* to (5) *contributing a great deal*) the extent to which they thought that the individual blended learning elements contributed to their learning. Table 9 indicates the mean scores of the respondents' perceptions as to the contribution to their learning for the different elements of the holistic blended learning model.

As perceptions are considered, the mean values cannot be interpreted as exact values. Therefore mean scores of 4.0 and above are regarded as contributing highly, mean scores of between 3.0 and 3.9 are regarded as contributing moderately and mean scores below 3.0 as contributing in a limited way to learning or engagement, depending on the question.

Table 9 - Perception of level of contribution of blended learning elements on respondents' learning

	Mean (out of a possible 5)
Attending the weekly tutorials	4.08
The theory videos explaining the basic concepts	3.97
Attending the weekly formal lectures	3.48
Engaging with my TUT Buddy group on the Buddy questions	2.85
Completing the tasks on the AuditSim	2.79
Engaging with my BuddyM mentee	2.33

Table 9 shows that the first three elements displayed higher mean scores (above 3.0) compared to the latter three (means below 3.0). The mean scores suggested that the tutorial appears to be the blended learning element that contributed highly to the learning of the auditing subject matter, obtaining the highest score (4.08). It is followed by the videos (3.97) and formal lectures (3.48) which are regarded as contributing moderately to the learning of the auditing subject matter. The other three blended learning elements have a mean score of below 3, indicating that respondents perceive these elements to contribute in a limited way to the learning of the auditing subject matter.

The responses were divided into three performance level groups (as discussed in sections 4.7.1.1.1 and 4.7.6), and each group of students' perception of the contribution of each of the blended learning elements are presented in Table 10 and Figure 2.

Table 10 - Mean scores for learning per performance group and blended learning model element

	Tutorial		**Video**		**Lecture**		**TUT Buddy**		**AuditSIM**		**BuddyM**	
	Mean	SD[#]	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
High[$]	4.19	1.05	4.10	0.99	3.34	1.11	2.59	1.16	2.46	1.14	2.17	1.11
Medium[$]	4.16	1.06	3.99	1.07	3.51	1.21	2.88	1.08	2.66	1.15	2.33	1.12
Low[$]	3.89	1.15	3.83	1.14	3.52	1.20	3.01	1.09	3.24	1.15	2.46	1.13

[#] - Standard deviation
[$] - Performance group

In Figure 2, the difference in perceptions between respondents in different performance groups are portrayed graphically and the differences are more noticeable.

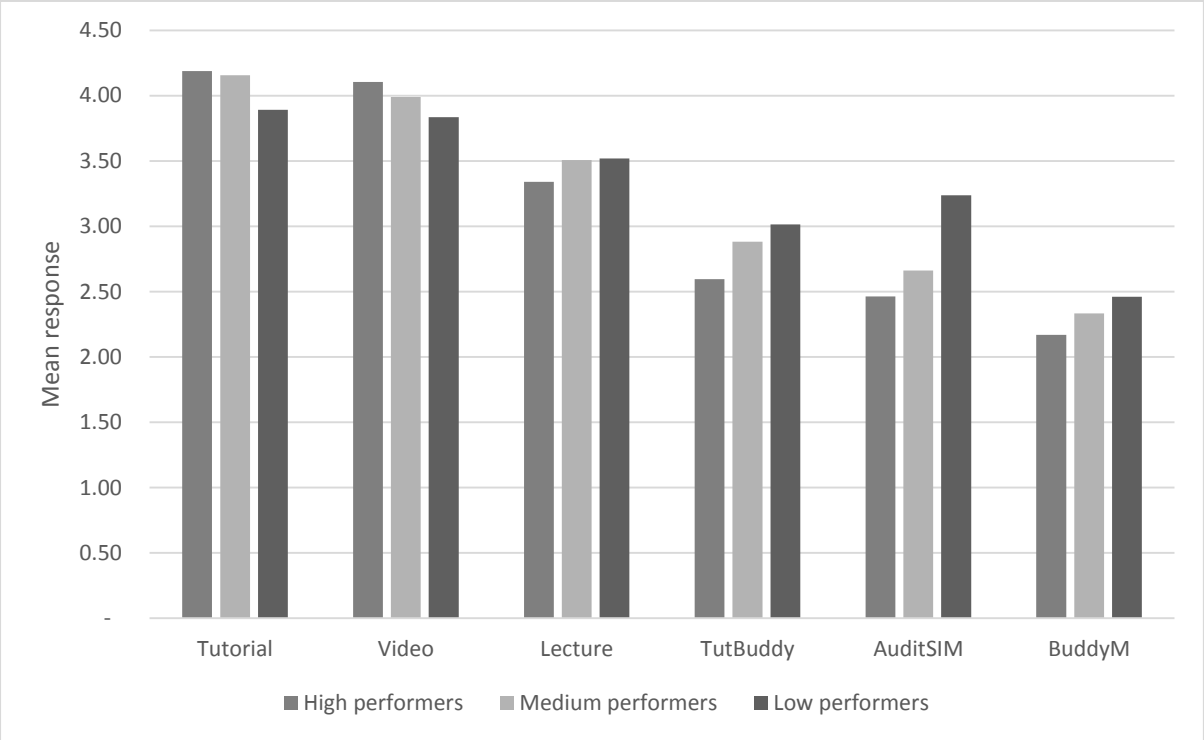

Figure 2 - Mean scores for perception of learning per performance group for each blended learning element

When the elements of the blended learning model are presented graphically (Figure 2) per the three performance groups for learning, the differences are more obvious. The high performing respondents scored their perception of the learning value of videos and tutorials higher compared to the medium and low performing group, and the medium performers scored those elements higher than the low performers. This pattern was reversed in the perception of learning in lectures, TUT Buddy, AuditSIM and BuddyM, with the high performers rating those elements lower than the medium and low performers. According to the high performers, the tutorial (mean score of 4.19) and videos (mean score of 4.10) contributed highly to their learning, while the formal lectures (mean score of 3.34) contributed moderately. The TUT Buddy, AuditSIM and BuddyM elements only had a limited contribution (mean scores of 2.59, 2.46 and 2.17 respectively) to their learning of the auditing subject matter.

The perceived values of the medium performing respondents are intermediate between high and low performers for every element. Medium performing respondents only perceived the tutorial (mean score of 4.16) to make a high contribution to their learning, while videos (mean score of 3.99) and lectures (mean score of 3.51) were moderate and the last three elements were experienced as making a limited contribution (all mean scores below 3.0).

Low performing respondents perceived most of the blended learning elements to contribute moderately (mean scores between 3.0 and 4.0) to their learning of the auditing subject matter, except for the BuddyM (mean score of 2.46) of which they perceived limited contribution to their learning.

Observing the trends within the groups indicate that the higher the grades, the more the respondents valued the tutorials and videos, and the lower the grades, the more they valued the lectures, TUT Buddy, AuditSIM and BuddyM. In order to venture an explanation for this phenomenon, it is worth noting that the activities in each of the following elements: the videos, lectures and tutorials, are driven by the lecturer who controls the format and pace of these activities. These elements also form part of the flipped classroom, because tutorials are another opportunity for students to practice their understanding under the guidance of the tutor or lecturer. The AuditSIM and two Buddy activities are more student driven, as they require more active student participation and cooperation with peers. These activities also aims at developing additional skills (communication, ICT and co-operation) that practitioners require graduates to possess at entry level into the workplace. Based on the mean scores, the high performing respondents perceived the lecturer driven activities (flipped classroom) to contribute more to their learning, whilst the low performing respondents, with the exception of BuddyM, found relatively more value from both the lecturer and student driven activities than the higher performing students. The consideration of statistical significance of these findings is further elaborated upon in Section 5.2.4.

5.2.2 Descriptive statistics for student engagement questions

Survey questions: To what extent did the following activities contribute and promote *engagement* with the subject matter?

- The theory videos of basic concepts.
- Different methods of presentation in the formal lectures.
- Attending the weekly tutorials.
- Completing the tasks on the AuditSim.
- Engaging with my BuddyM mentee.
- Engaging with my TUT Buddy group on the Buddy questions.

As in the case of learning, respondents were requested to rate the extent to which the blended learning elements contributed and promoted engagement with the auditing subject matter. Table 11 indicates the mean scores for the different elements of the blended learning model with regard to student engagement.

Table 11 - Perception of level of contribution of blended learning elements on respondents' engagement

	Mean (out of a possible 5)
Attending the weekly tutorial	4.01
The theory videos of basic concepts	3.93
Different methods of presentation in the formal lectures	3.51
Completing the tasks on the AuditSim	2.90
Engaging with my TUT Buddy group on the Buddy questions	2.84
Engaging with my BuddyM mentee	2.32

As engagement is closely related to learning, the same pattern of preference emerges with the perception of engagement for the blended learning model elements as for learning (refer to Table 9). The mean scores suggest that respondents perceived tutorials to contribute highly (mean score of 4.01) to their engagement with the subject matter, whilst videos and lectures (mean scores of 3.93 and 3.51 respectively) contributed moderately to their engagement with the auditing subject matter. The

difference in mean scores between videos and lectures (0.42) indicates that respondents perceived tutorials and videos to contribute more to their engagement than the lectures. The student driven (skills development) elements were perceived to contribute only in a limited way towards the respondents' engagement with the subject matter (mean scores below 3.0). The AuditSIM was perceived to contribute more to engagement than learning, because for learning it had the fifth highest mean score, whereas for engagement it had the fourth highest mean score.

Dividing respondents per the performance groups, Table 12 and Figure 3 provide more detail on respondents' perceptions of engagement.

Table 12 - Mean scores for student engagement per performance group and blended learning model element

	Tutorial		Video		Lecture		AuditSIM		TUT Buddy		BuddyM	
	Mean	SD[#]	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
High[$]	4.06	1.15	3.88	1.09	3.49	1.05	2.61	1.20	2.63	1.11	2.15	1.14
Medium[$]	4.10	1.06	3.96	1.06	3.55	1.04	2.84	1.18	2.88	1.14	2.33	1.05
Low[$]	3.83	1.10	3.89	1.12	3.50	1.03	3.21	1.14	2.97	1.13	2.45	1.03

[#] - Standard deviation
[$] - Performance group

In Figure 3, the difference in perceptions between students in different performance groups is portrayed graphically and the differences are more noticeable.

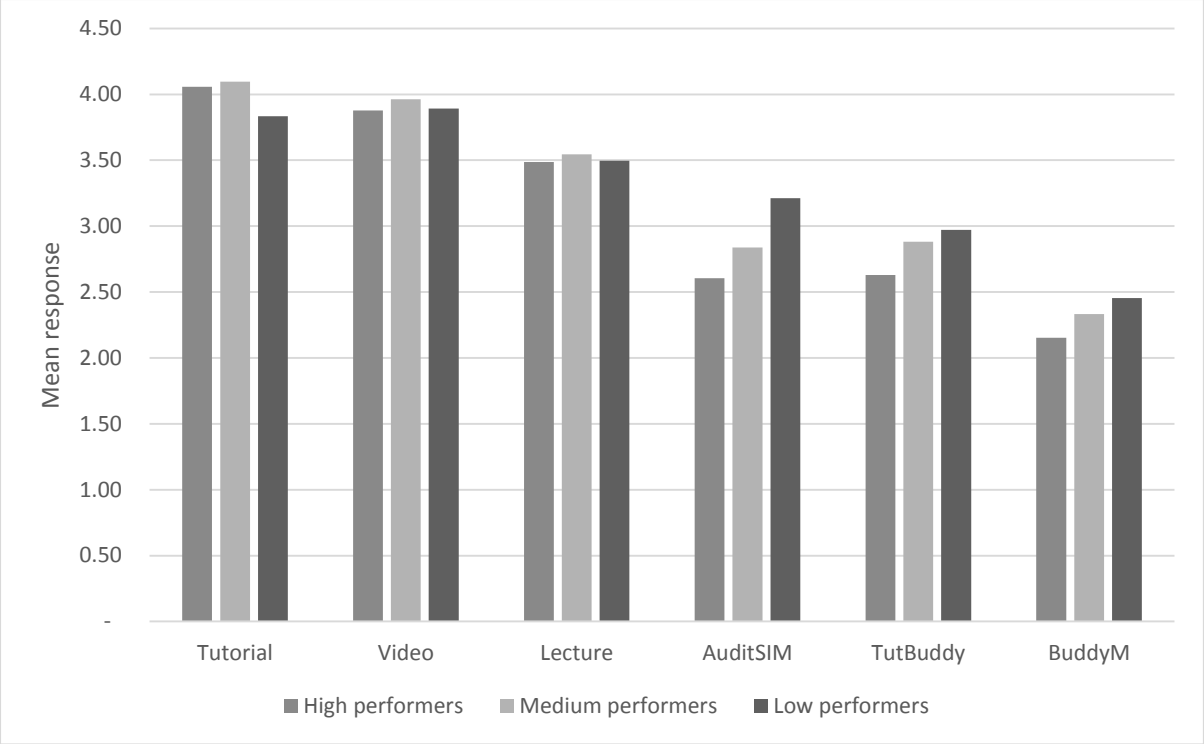

Figure 3 - Mean scores for student engagement per performance group for each blended learning element

With engagement, the medium performing respondents scored their perception of the engagement value of tutorials, videos and lectures higher compared to the high and low performing group. High performers scored videos and lectures equal to the low performers, but the tutorials higher, compared to the low performers. This pattern was, as it was for learning, reversed in the perception of engagement in AuditSIM, TUT Buddy and BuddyM, with the high performers rating those lower than the medium and low performers. According to the high performers, the tutorials highly contributed to their engagement (mean score of 4.06), while the videos and lectures contributed moderately to their engagement (mean score between 3.0 and 4.0). The TUT Buddy, AuditSIM and BuddyM elements only had a limited contribution (mean score below 3.0) to their engagement of the auditing subject matter.

The perceived values of the medium performing students for the tutorials, videos and lectures are above the high and low performers, indicating that they perceived these elements to make a higher contribution to their engagement. As with the high performing respondents, medium performing respondents perceived the tutorials to

contribute highly, the videos and lectures to contribute moderately and the three cooperative activities to only contribute in a limited way to their engagement with the subject matter.

Low performing respondents perceived most of the blended learning elements to contribute moderately to their engagement with the auditing subject matter, except for the TUT Buddy and BuddyM, of which they perceived limited contribution to their learning.

The tendency with learning within the groups is that the higher the grades, the more the respondents valued the tutorials and videos, and the lower the grades, the more they valued the lectures, TUT Buddy, AuditSIM and BuddyM. This tendency is not detected for engagement. Medium performing respondents perceived higher contribution to engagement for the tutorials, videos and lectures. The medium performing respondents perceived more value of the flipped classroom (lecturer driven) elements in contributing to their engagement with the subject matter compared to the activities aimed at skills development (student driven).

Based on the mean scores, the high performing respondents perceived the flipped classroom elements to contribute slightly less to their engagement, compared to their medium performing counterparts. Low performing respondents, with the exception of AuditSIM, also found relatively more value from the lecturer driven activities to encourage engagement. The consideration for statistical significance of these findings is further elaborated upon in Section 5.2.4.

In order to determine whether there was unidimensionality (whether all items measured the same construct) within the blended learning elements (subscales) of learning and student engagement, a factor analysis was performed.

5.2.3 Factor analysis for learning and student engagement

In order to identify underlying relationships between the blended learning elements, an exploratory factor analysis was conducted. This was done on the items of the subscales for learning and student engagement, using maximum likelihood extraction and direct oblimin rotation, to determine the unidimensionality of each of the subscales for learning and engagement for this study. A summary of the factor analysis for learning is provided in Table 13 and for engagement in Table 14.

Table 13 - To what extent did the following activities contribute to your learning of the subject matter?

Item description	KMO & Bartlett's test	% Variance explained	Factor Loadings		Cronbach Alpha
			1	2	
	.728 *p*< .000	36.5			
The theory videos explaining the basic concepts				.408	0.405
Attending the weekly formal lectures				.534	
Attending the weekly tutorials				.358	
Completing the tasks on the AuditSim			.655		0.757
Engaging with my BuddyM mentee			.696		
Engaging with my TUT Buddy group on the Buddy questions			.820		

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy value was above the recommended threshold of 0.5 (value = 0.728), indicating that the sample posed sufficient observations. The Bartlett's Test of Sphericity was statistically significant (p< .000) for all the items in this questions (Field, 2013), verifying the assumption that variances across samples are equal and that a factor analysis was appropriate.

Table 14 - To what extent did the following activities contribute and promote engagement with the subject matter?

Item description	KMO & Bartlett's test	% Variance explained	Factor Loadings		Cronbach Alpha
			1	2	
	.704 *p*< .000	43.8			
The theory videos of basic concepts				.439	0.543
Different methods of presentation in the formal lectures				.722	
Attending the weekly tutorial				.477	
Completing the tasks on the AuditSim			.620		.0.778
Engaging with my BuddyM mentee			.747		
Engaging with my TUT Buddy group on the Buddy questions			.864		

For student engagement, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was above the recommended threshold of 0.5 (0.704) indicating that the sample was large enough. The Bartlett's Test of Sphericity was statistically significant (p< .000) for all the items in both this questions (Field, 2013), verifying the assumption that variances across samples are equal and that a factor analysis was appropriate.

For both the learning and student engagement constructs, two factors have been identified based on the eigenvalue criterion (eigenvalue greater than one) (Field, 2013), thus indicating that the learning and student engagement constructs are not unidimensional. The items that cluster in the same factor suggest that Factor 1 for both learning and engagement constructs represents the lecturer driven elements (flipped classroom - tutorial, video and lecture), where students are relatively passive participants, a role that they are more accustomed to. The formation of this first factor also confirms that respondents perceived the tutorials to be included in the flipped classroom approach and that they perceived similar value from these elements towards their learning and engagement. The second factor represents the student driven (skills development elements - AuditSIM, TUT Buddy and BuddyM), where students have to take the lead, which are also the elements that students are less accustomed to. These groupings agree with the differences observed in the descriptive statistics.

The Cronbach Alpha coefficient values for both learning and student engagement for Factor 1 (lecturer driven elements) are not above the acknowledged threshold of 0.7 (0.405 for learning and 0.543 for student engagement) (Field, 2013), and these factors' internal consistency was unacceptable. This is also evident in the fact that the percentage of variance explained is also low for both learning and student engagement (36.5% and 43.85% respectively). For Factor 2 (student driven elements) for both learning and student engagement, the Cronbach alpha was above the 0.7 (0.757 for learning and 0.778 for student engagement) threshold and the reliability was considered satisfactory.

5.2.4 Kruskall-Wallis Test

The Kruskal-Wallis test was conducted to determine if statistical significant differences exist between the three performance groups with regard to the blended learning elements for both learning and student engagement. The test was used due to the ordinal nature of the data. The results are presented in Table 15 for learning and Table 16 for engagement.

Table 15 – Kruskall-Wallis test results for learning

Test Statistics[a,b]						
	Learning - The theory videos explaining the basic concepts	**Learning -** Attending the weekly formal lectures	**Learning -** Attending the weekly tutorials	**Learning -** Completing the tasks on the AuditSIM	**Learning -** Engaging with my BuddyM mentee	**Learning -** Engaging with my TUT Buddy group on the Buddy questions
Chi-Square	3.371	1.876	6.896	28.985	4.919	7.249
df	2	2	2	2	2	2
Asymp. Sig.	Not significant (p=0.185)	Not significant (p=0.391)	5% (p=0.032)	1% (p=0.000)	10% (p=0.085)	5% (p=0.027)

a. Kruskal-Wallis Test
b. Grouping Variable: year mark – high, medium and low performance groups

Table 16 - Kruskall-Wallis test results for student engagement

Test Statistics[a,b]						
	Engagement - The theory videos of basic concepts	**Engagement** - Different methods of presentation in the formal lectures	**Engagement** - Attending the weekly tutorial	**Engagement** - Completing the tasks on the AuditSIM	**Engagement** - Engaging with my BuddyM mentee	**Engagement -** Engaging with my TUT Buddy group on the Buddy questions
Chi-Square	.482	.178	6.552	15.528	5.378	4.882
df	2	2	2	2	2	2
Asymp. Sig.	Not significant (p=0.786)	Not significant (p=0.915)	5% (p=0.038)	1% (p=0.000)	10% (p=0.065)	10% (p=0.087)

a. Kruskal Wallis Test
b. Grouping Variable: year mark – high, medium and low performance groups

The results of Table 15 and 16 indicate that statistically significant differences were identified between performance levels. There is a strong statistically significant difference, at the 1% level of significance, with regard to the AuditSIM between performance groups for both learning (p = 0.000*)* and student engagement (p = 0.000). A medium statistically significant difference exists, at the 5% level of significance, with regard to attending the weekly tutorials for both learning (p = 0.032*)* and student engagement (p = 0.038*).* There is also a medium statistically significant difference at the 5% level of significance, with regard to engaging with the TUT Buddy for learning (p = 0.027), but only at the 10% significant level for student engagement (p = 0.087).

Table 17 - Ranking for significant difference for learning and student engagement

		Group	N	Mean Rank
10% Significance level	Learning - Engaging with my BuddyM	Low	139	243.01
		Medium	210	228.77
		High	106	206.79
		Total	455	
10% Significance level	Student engagement - Engaging with my BuddyM	Low	139	243.38
		Medium	211	229.09
		High	105	205.45
		Total	455	
10% Significance level	Student engagement - Engaging with my TUT Buddy group on the Buddy questions	Low	137	240.65
		Medium	211	229.19
		High	105	204.80
		Total	453	
5% Significance level	Learning - Engaging with my TUT Buddy group on the Buddy questions	Low	139	245.68
		Medium	211	230.64
		High	106	201.70
		Total	456	
5% Significance level	Learning - Attending the weekly tutorials.	Low	139	205.77
		Medium	211	237.37
		High	106	240.64
		Total	456	
5% Significance level	Engagement - Attending the weekly tutorial	Low	139	204.24
		Medium	208	236.58
		High	105	236.00
		Total	452	
1% Significance level	Learning - Completing the tasks on the AuditSim	Low	139	275.14
		Medium	210	213.86
		High	106	194.19
		Total	455	
1% Significance level	Engagement - Completing the tasks on the AuditSim	Low	137	259.64
		Medium	211	219.39
		High	104	197.27
		Total	452	

The rankings values of the different elements indicate the same tendencies on preferences between the high, medium and low performance groups as depicted in Figures 2 and 3. The low performing respondents perceived the Buddy M, TUT Buddy and AuditSIM activities to contribute more to their learning and engagement as did

the high performing respondents. The tendency on preference is switched around for the tutorials, where the high performing respondents perceived the tutorials to contribute more to their learning and engagement with the subject matter. The ranking value for the medium performing respondents was slightly higher for engagement in the tutorials (0.58) compared to the high performing respondents, but with all other elements, the medium performing respondents were between the high and low performing respondents.

5.3 Audit simulation analysis

5.3.1 Descriptive statistics for the audit simulation

Respondents perceive the AuditSIM to contribute only in a limited way to their learning and engagement with the subject matter, as the mean scores were below 3.0 for both learning and engagement (refer to Tables 9 and 11). The AuditSIM was investigated in more detail to determine the perception of adoption of the new technology, since students have not been subjected to an online simulation or working in a wiki before this module. As discussed in section 4.7.1.4, 26 questions in the survey related to the simulation to determine the respondents' perception of the usefulness, ease of use and affect of the simulation. The results are presented in Table 18.

Table 18 – Descriptive statistics on the AuditSIM presented per technology adoption constructs

Number	Construct	Question	Mean	Standard deviation
1	Usefulness	I think that the practical learning experience of the AuditSim improved my understanding of how an audit is performed in practice.	3.45	1.218
2	Usefulness	I think that the practical learning experience in the AuditSim improves my desire to perform an audit.	3.23	1.268
3	Usefulness	Using the AuditSim makes it easier to learn how to perform an audit.	3.31	1.217
4	Usefulness	Using the AuditSim helped me to understand the phases of the audit process.	3.45	1.196
5	Usefulness	The simulation helped me to understand the specific topic(s) in the audit process better.	3.30	1.197
6	Usefulness	The AuditSim helped me to develop professional skills that I will be able to use in the work place.	3.08	1.199

Number	Construct	Question	Mean	Standard deviation
7	Usefulness	I learned more about conducting an audit because of the the AuditSim than I would have by more traditional methods.	3.23	1.236
8	Usefulness	The AuditSim helped me to put classroom theory into practice during the performance of the tasks.	3.50	1.193
9	Usefulness	The AuditSim enabled me to discover through its context and information, the factors contributing to the issues and problems of an audit.	3.40	1.128
10	Usefulness	The AuditSim challenged me to develop professional judgment in an audit.	3.43	1.149
11	Usefulness	The AuditSim enabled me to evaluate the consequences of different decisions I made.	3.26	1.145
12	Usefulness	The discussions on the AuditSim with my TUT Buddy group encouraged me to see the issue(s) from new angles.	3.45	1.155
13	Usefulness	The AuditSim provided an authentic scenario to encourage open ended discussions with peers.	3.42	1.142
14	Usefulness	The AuditSim provided opportunities for decision making within groups.	**3.62***	1.124
15	Usefulness	The AuditSim provided meaningful feedback from my peers to my decisions.	3.23	1.164
16	Ease of use	The interface (webpage) of the AuditSim is user friendly.	3.10	1.254
17	Ease of use	The task instructions were clear.	3.34	1.176
18	Ease of use	The task instructions were understandable.	3.39	1.159
19	Ease of use	The wiki was easy to use.	3.14	1.299
20	Affect	The videos included in the AuditSim were entertaining.	3.01	1.229
21	Affect	The AuditSim relates to an actual audit client where the setting felt authentic.	3.31	1.146
22	Affect	I find using the AuditSim to be enjoyable.	2.85	1.257
23	Affect	The AuditSim presented a stimulating alternative way of learning.	3.35	1.246
24	Affect	I enjoyed Auditing more because of the AuditSim.	**2.66****	1.301
25	Affect	I endorse the inclusion of the AuditSim in the ODT 300 curriculum.	3.10	1.389
26	Affect	My overall experience of the use of the AuditSim for a practical learning experience was positive.	3.25	1.266

* Highest mean score
** Lowest mean score

Table 18 presents the results on the AuditSIM. Mean scores for the majority of the questions are between 3.01 and 3.62. The mean scores of two questions (22 and 24) were below 3.0 (2.85 and 2.66). These questions enquired about respondents' affect of the AuditSIM, focusing on the enjoyment. Except for the above, all mean scores, with the exception of Question 14, were between 3.0 and 3.5 indicating on a 5-point Likert type scale that respondents' perceptions of the AuditSIM were moderately favourable. Question 14, which was the question with the highest mean score, focused

on usefulness and specifically cooperative learning and decision making within a group, and this aspect was perceived as more favourable. In order to determine whether there was unidimentionality within the subscales of the AuditSIM, a factor analysis was performed.

5.3.2 Factor analysis for the technology adoption of the AuditSIM

A factor analysis was performed on the items of the subscale for the AuditSIM, using maximum likelihood extraction and direct oblimin rotation, to determine the unidimensionality of this subscale in the study. The expectation was that the items were not unidimensional, and that the three constructs of usefulness, ease of use and affect should emerge. The results of the factor analysis are presented in Table 19.

Table 19 - Factor analysis for the AuditSim items

Item description	KMO & Bartlett's test	% Variance explained	Factor Loadings			Cronbach Alpha
			1	2	3	
	.968 *p*< .000	68.0				
Question 1			.729			0.967
Question 2			.624			
Question 3			.702			
Question 4			.712			
Question 5			.703			
Question 6			.761			
Question 7			.694			
Question 8			.825			
Question 9			.930			
Question 10			.885			
Question 11			.758			
Question 12			.839			
Question 13			.767			
Question 14			.816			
Question 15			.625			
Question 16				-.556		0.885
Question 17				-.936		
Question 18				-.951		
Question 19				-.562		
Question 20					-.514	0.940
Question 21					-.349	
Question 22					-.754	
Question 23			.388		-.443	
Question 24					-.712	
Question 25					-.703	
Question 26					-.600	

The KMO Measure of Sampling Adequacy was above the recommended threshold of 0.5, while the Bartlett's Test of Sphericity was statistically significant ($p < .000$) for all the items (Field, 2013), indicating that a factor analysis was appropriate for the subscales.

As anticipated, three factors have been identified based on the eigenvalue criterion (eigenvalue greater than one) (Field, 2013), thus indicating that the AuditSIM items are not unidimensional. The items that cluster on the same factor as Factor 1, confirmed the usefulness construct. The questions on usefulness did not form a cluster relating to learning (Questions 1 - 11) or engagement (Questions 12 -15), indicating that respondents did not make a distinction between the learning and engagement for the AuditSIM. Factor 2 confirmed the ease of use and the third factor confirmed that it relates to the affective aspects of the simulation. As the Cronbach Alpha coefficient values for all three factors are above the acknowledged threshold of 0.7 (0.967, 0.885 and 0.940 respectively), the internal consistency (reliability) was considered satisfactory. This is confirmed by the fact that the factor loadings for all the elements in these three factors are above 0.5, with the exception of Question 21 and Question 23. Question 23, *the AuditSIM presented a stimulating alternative way of learning,* had loadings for both Factor 1, relating to the usefulness, and Factor 3, relating to the affect. Since the question intended to determine the level of enjoyment from the simulation, the focus is more on the stimulating alternative than on the learning that occurred. Thus Question 23 was grouped together with Factor 3 relating to the affect of the simulation.

Both the ease of use and affect factors had negative factor loadings for all items, indicating that the factors actually represent *Not easy to use* and *Non-affective.* The mean, standard deviation, skewness and kurtosis of the factors were determined to evaluate whether a normal distribution was present, and these results are included in Table 20.

Table 20 – Mean, standard deviation, skewness and kurtosis of factors

		Usefulness	Ease of use	Affect
N	Valid	433	447	443
	Missing	29	15	19
Mean		3.36	3.24	3.08
Median		3.53	3.25	3.29
Std. Deviation		.97845	1.06128	1.08563
Skewness		-.588[a]	-.323 [a]	-.234 [a]
Std. Error of Skewness		.117	.115	.116
Kurtosis		-.210 [b]	-.617 [b]	-.802 [b]
Std. Error of Kurtosis		.234	.230	.231
Minimum		1.00	1.00	1.00
Maximum		5.00	5.00	5.00

a – between the acceptable values of -0.5 and 0.5 (usefulness factor just over the acceptable 0.5 and still regarded as symmetrical)

b – between the acceptable values of -1.96 and 1.96 (Field, 2013)

The mean, standard deviation, skewness and kurtosis of each of the identified factors indicate that it can be assumed that these factors are normally distributed. In terms of the technology adoption constructs, usefulness had the highest mean score (3.36), while affect had the lowest score (3.08) and ease of use was in between with a mean score of 3.24. This indicates that respondents perceived the simulation as moderately useful, but even with the mean scores above 3.0 for ease of use and affect, these factors had negative factor loadings indicating that the AuditSIM was not perceived as easy to use or an enjoyable experience. To determine whether a correlation between the factors exists, the Pearson's correlation coefficient was computed.

5.3.3 Correlation between factors

A Pearson's correlation coefficient was computed to evaluate the relationship between the factors' usefulness, ease of use, and affect. Table 21 provides an overview of the Pearson correlation values.

Table 21 - Pearson correlation values for the AuditSIM factors

Variables		Usefulness	Ease of use	Affect
Usefulness	Pearson Correlation	-		
	Sig. (2-tailed)			
	N	433		
Ease of use	Pearson Correlation	.615**	-	
	Sig. (2-tailed)	.000		
	N	425	447	
Affect	Pearson Correlation	.852**	.677**	-
	Sig. (2-tailed)	.000	.000	
	N	420	435	443

** Correlation is significant at the 1% level (2-tailed).

The correlation coefficients between each of the factors with the two other factors were statistically significant at 1%. There were very strong, positive correlations between the usefulness and affect factors ($r = 0.852$, $p < .01$). Those that perceived the AuditSIM as useful also perceived the affect of the AuditSIM in a positive light. There were strong, positive correlations between the usefulness and ease of use factors ($r = 0.615$, $p < .01$) as well as between the ease of use and affect factors ($r = 0.677$, $p < .01$). It therefore appears that those respondents who perceive the AuditSIM as useful also perceived it as easy to use, together with the perceived positive affect of the AuditSIM.

5.3.4 Descriptive statistics for the AuditSIM per performance group and technology adoption construct

As indicated in Table 18, the questions on the AuditSIM related to three constructs: usefulness (Questions 1 – 15), ease of use (Questions 16 – 19) and affect (Questions 20 – 26). Tables 22, 23 and 24 present the mean scores of the separate questions relating to each construct, which is also split per performance group. In Figure 4, the difference in perceptions between students in different performance groups are portrayed graphically and the differences are more noticeable.

Table 22 - Mean scores for usefulness construct, per performance group

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Overall mean score
High[$]	3.27	3.07	3.16	3.21	3.08	2.84*	3.08	3.30	3.28	3.23	3.15	3.33	3.28	3.44[#]	2.94	3.18
Medium[$]	3.38	3.17	3.20	3.38	3.24	3.04*	3.19	3.45	3.32	3.37	3.14	3.39	3.34	3.59[#]	3.30	3.30
Low[$]	3.66	3.47	3.58	3.75	3.55	3.36*	3.39	3.67	3.60	3.70	3.55	3.66	3.72	3.80[#]	3.45	3.60

[$] - Performance group
* - Lowest mean score per performance group
[#] - Highest mean score per performance group

Table 23 - Mean scores for ease of use construct, per performance group

Question	16	17	18	19	Overall mean score
High	2.90*	3.24	3.30[#]	2.94	3.10
Medium	3.01*	3.29[#]	3.28	3.03	3.15
Low	3.41*	3.53	3.60[#]	3.47	3.50

* - Lowest mean score per performance group
[#] - Highest mean score per performance group

Table 24 - Mean scores for affect construct, per performance group

Question	20	21	22	23	24	25	26	Overall mean score
High	2.79	3.22[#]	2.72	3.11	2.43*	2.80	3.02	2.87
Medium	3.03	3.31[#]	2.75	3.29	2.58*	2.98	3.18	3.02
Low	3.26	3.45	3.19	3.62[#]	3.01*	3.51	3.57	3.37

* - Lowest mean score per performance group
[#] - Highest mean score per performance group

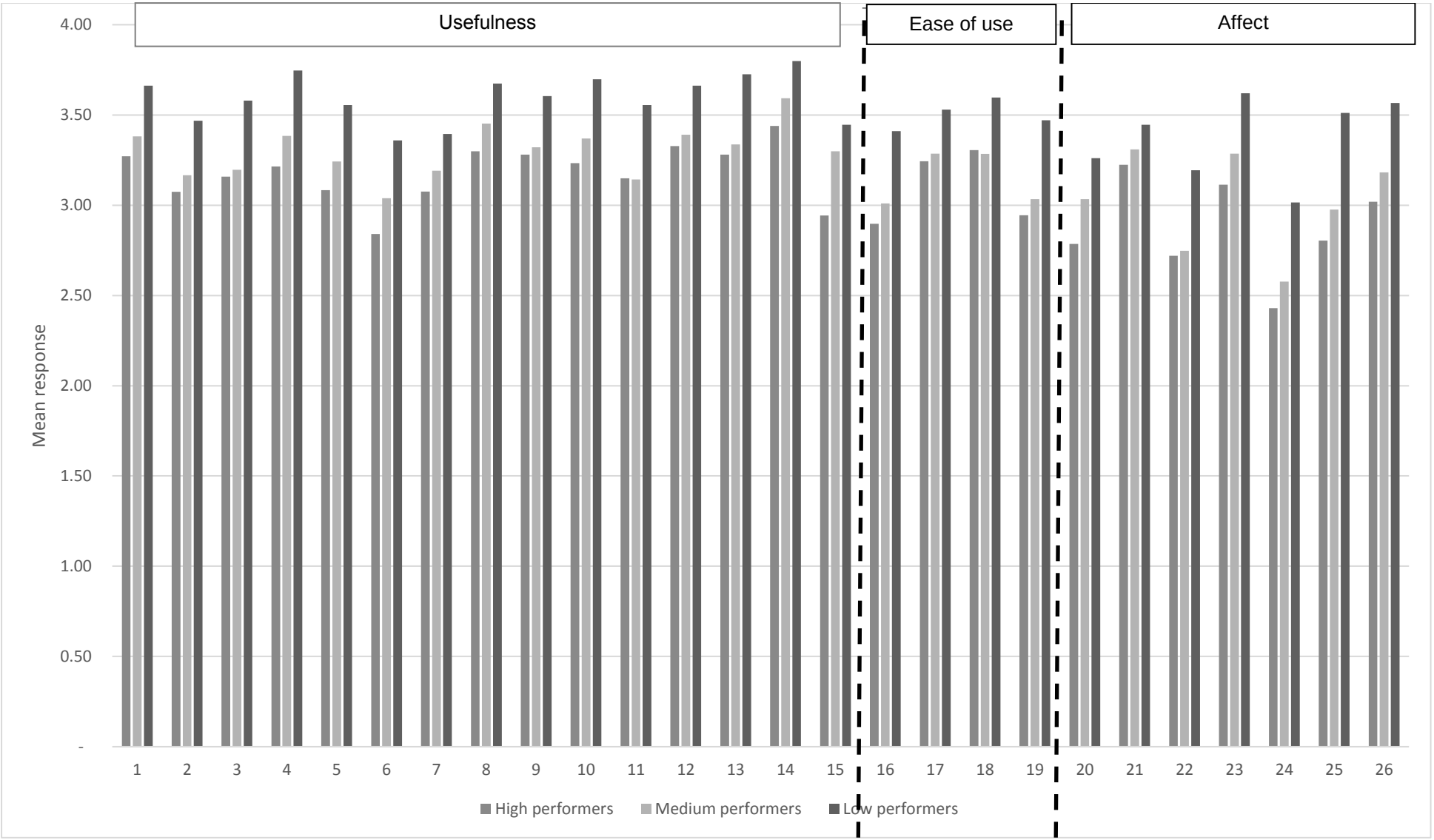

Figure 4 - Mean scores per question and performance group

From Tables 22, 23 and 24, as well as Figure 4, it is evident that the low performing respondents consistently scored the simulation higher than the high performing group for all three constructs of the TAM. This agrees with findings reported in Section 5.2.4, where these respondents also perceived the AuditSIM to contribute more to their learning and engagement (difference was statistically significant). All mean scores for the low performing group were above 3.0, whereas the high performing group scored some questions below 3.0, with the lowest being question 20 (2.79). In Table 22, for the usefulness questions, all three performance groups scored Question 14 the highest, whilst Question 6 was the lowest for all three groups. For the ease of use construct in Table 23, the high and low performing group agreed on the highest (Question 18), however the medium performance group scored Question 17 highest. All three performance groups scored Question 16 the lowest. The same is true for the affect construct in Table 24, where all three groups scored Question 24 lowest, whilst the low performance group perceived Question 23 as highest and the high and medium performance groups scored Question 21 highest.

5.3.5 Analysis of variance (ANOVA)

An analysis of variance (ANOVA) was used to analyse the differences amongst the high, medium and low performing respondents. The results of the ANOVA are presented in Table 25.

Table 25 – ANOVA between high, medium and low performance groups

Factor	F	p
Usefulness	F(2,429) = 6.257	1% (p=0.002)
Ease of use	F(2,443) = 6.192	1% (p=0.002)
Affect	F(2,439) = 7.187	1% (p=0.001)

The ANOVA for the factors, based on performance levels, indicates that differences were statistically significant between the performance groups for each of the three factors. Post Hoc tests were subsequently performed, in order to determine where the differences in perception originated, and the results are shown in Table 26.

Table 26 - Post Hoc tests

Performance level	Factor	Sig.
Low – Medium	Usefulness	5% (p=0.023)
Low – High	Usefulness	1% (p=0.002)
Low – Medium	Ease of use	1% (p=0.005)
Low – High	Ease of use	1% (p=0.009)
Low – Medium	Affect	1% (p=0.009)
Low – High	Affect	1% (p=0.001)

The Post Hoc tests indicate the differences between the low performing and medium performing respondents, and also between the low performing and high performing respondents for all the factors, as indicated in Table 26. Taking the descriptive statistics as presented in Tables 22, 23 and 24 into account, it is apparent that low performing respondents perceived the usefulness of the AuditSIM higher than both medium and high performing respondents. This difference is statistically significant for the usefulness between low and medium respondents at a 5% level of significance, while between the low and high performing respondents it is significant at a 1% level. The same trend is apparent in relation to the case of the ease of use of the AuditSIM and the perceived affect. In both cases mean scores of low performing respondents were higher and the difference is significant at the 1% level of significance.

5.4 Discussion of findings

5.4.1 Research purpose and research questions of this study

The purpose of the study is to investigate how the students perceived the different elements of the current holistic blended learning model in the auditing module to contribute to their learning and engagement with the subject matter.

Within this purpose, the study also investigates how the perceived contribution differs between students at different performance levels. In addition, for one of the blended learning elements (the online simulation), the study determines students' perception about the usefulness, ease of use and the influence on their affect for learning.

In order to achieve the purpose of this study, the following research questions had to be addressed:

1 How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to:

1.1 their learning of the audit subject matter; and

1.2 their engagement with the audit subject matter through different activities?

2 How do the above perceptions differ for students with different academic performance levels in relation to:

2.1 their learning of the audit subject matter; and

2.2 their engagement with the audit subject matter through different activities?

3 How do students with different academic performance levels perceive the online simulation in relation to:

3.1 the usefulness thereof;

3.2 the ease of its use, and

3.3 the influence on their affect for learning?

The remainder of the chapter discusses the results of the study in accordance with the research questions. Where applicable, reference is made to the literature. This is done to demonstrate how the results of this study contribute to the understanding of blended learning.

5.4.2 Learning and student engagement

5.4.2.1 Research Question 1

How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to:

1.1. their learning of the audit subject matter; and

1.2. their engagement with the audit subject matter through different activities?

This question had two sub-questions to distinguish between the contribution made to learning and engagement with the auditing subject matter through different activities. These two concepts (contribution to learning and engagement) are discussed in the following section.

When focusing on the blended learning model elements and the level of perceived contribution to learning and student engagement, respondents, based on the mean score, preferred the elements as follow:

Table 27 – Comparing respondents' mean perceptions of their learning against their engagement in the blended learning elements

Blended learning model element for learning	Mean	Blended learning model element for student engagement	Mean
1 Weekly tutorial	4.08	1 Weekly tutorial	4.01
2 Theoretical videos	3.97	2 Theoretical videos	3.93
3 Formal lecture	3.48	3 Formal lecture	3.51
4 TUT Buddy	2.85	4 AuditSIM	2.90
5 AuditSIM	2.79	5 TUT Buddy	2.84
6 BuddyM	2.33	6 BuddyM	2.32

Based on the mean scores, the order of preference for learning and student engagement shows many similarities. The weekly tutorial was the highest rated element for both learning and engagement, followed by the theory videos and formal lecture. The scores of these three elements indicate that they were perceived to contribute moderately to highly. The only element where learning and engagement was not rated almost similarly was the AuditSIM, where respondents' mean score is

higher for engagement than for learning, which places AuditSIM in the fourth position for engagement and the fifth position for learning. The difference between mean values comparing learning and engagement for each element is much smaller (varies between 0.01 and 0.07) than the differences between comparison of the elements. The difference in rating between tutorials and videos was the smallest amongst the elements (0.11 and 0.08 for learning and engagement respectively), indicating that they were somehow related. The three most highly-rated elements for both learning and engagement represent the flipped classroom (also per the factor analysis), which is characterised by content dissemination largely outside formal lectures and tutorials. This is achieved mostly through videos, while time on campus is reserved for problem-solving activities, which in this study is by way of interactive lectures and tutorials.

Based on the mean scores it is apparent that respondents perceived the lecturer driven activities (flipped classroom – videos, lectures and tutorials) to contribute more to their learning and engagement than the student driven activities (skills development – AuditSIM, TUT Buddy and BuddyM).

The element that respondents perceived as highly contributing (mean score of above 4.0) to their learning and engagement was the tutorials. Even though research cautions that tutorials should not be the only mode of teaching (Sweeney *et al.*, 2004), Zhou and Chua (2016) have found in a similar context, that students preferred tutorials above other blended learning interventions. The results of the current study are unique, because of its large class setting. It indicates that although the number of students per tutorial group in this study (between 60 and 100) is much higher than the norm of one-to-one or one-to-few suggested in literature (Frey & Reigeluth, 1986; Sweeney *et al.*, 2004), and therefore not optimal, respondents still perceived tutorials as contributing highly to their learning and engagement. This finding is similar to results found by Gordon (2009), that respondents preferred a smaller and more informal setting which allows for frequent questioning. Between the three lecturer driven elements, the tutorial is the element that requires most active participation from students. As this is the preferred element in the holistic blend, this finding is in line with that of Yoder and Hochevar (2005), that active learning activities could improve understanding and performance. Interestingly, even though tutorials are the preferred element for both learning and engagement, the mean score is higher for learning

(4.08) than for engagement (4.01), which is contrary to the suggestion by Radloff and Coates (2010) that tutorials encourage engagement, but supports the notion by Hartman (1990) that mandatory tutorials could hinder engagement by all students. The large size of the groups at the university where the study was performed would necessarily limit the amount of interaction amongst students and therefore engagement, and necessitate some measure of one-way communication.

Based on the results displayed in Table 27, the second and third highest scoring elements in the model were also part of the flipped classroom (videos and lecturing) which were perceived as moderately contributing (mean score of 3.97 and 3.48 respectively for learning and 3.93 and 3.51 for engagement respectively) to respondents' learning and engagement. The positive view on the flipped classroom agrees with Butt (2014), who viewed the concept from an Australian perspective, with actuarial students. Based on mean scores, theoretical videos are in the second position of the different blended learning elements. This could indicate that students make use of theoretical videos as and when the need arises, and they are becoming more self-regulated learners with the guidance provided in the videos. The fact that the videos were perceived to contribute more to respondents' learning and engagement is in line with the study by Gilboy *et al.* (2015) and with Little (2015) for the flipped classroom overall.

According to Crook and Schofield (2017), it is easy to capture a lecture in digital format and the resultant videos allow for the additional benefits of going back, recapping, note taking and revision. The fact that both these elements obtained mean scores of moderate contribution could point to the fact that respondents perceive videos as an integral part of the lecture. This possibility supports the notion by Gorissen *et al.* (2012) that students prefer accompanying online content with their lectures. Videos were perceived to contribute more to learning (3.97 vs 3.93 for engagement), signifying the individual learning element thereof (Bergmann & Sams, 2012), whereas the lectures were perceived to contribute more to engagement (3.51 vs 3.48 for learning), characteristic of collaborate learning spaces (Bergmann & Sams, 2012). This confirms that engagement is improved during the lecture by incorporating more pedagogies of engagement and provides support for the flipped classroom approach to allow for more engagement during lectures (Bishop & Verleger, 2013; Smith *et al.*, 2005).

Respondents in this study were more accustomed to videos, because they had been exposed to videos for preparation in their second year and it appears that they had accepted this method of teaching and learning. Further research could determine how students apply videos in their learning and engagement by investigating the time when and location for which videos are accessed, and identifying areas for improvement to enhance students' engagement and learning.

Respondents still perceived formal lectures to contribute moderately to their learning and engagement and based on mean scores, it is in the third position. Since students were more accustomed to videos, it allowed for various activities to be introduced in the formal lectures to promote engagement. The result for lectures could indicate that, even though an effort was made in the lecture to improve interaction and allow for more active learning opportunities, respondents did not perceive these to contribute highly to their learning and engagement. More investigation as to the reasons for the result is necessary.

Overall, respondents perceived the online simulation and peer-mentoring and feedback (TUT Buddy and BuddyM) to contribute to a limited (mean score below 3.0) extent to their learning or engagement with the subject matter. This is in line with conclusions from Levine *et al.* (2007) on peer feedback, but could also be an indication that respondents were less comfortable with the experience, as these elements required respondents to actively engage with their mentees and provide feedback (including criticism) to peers. The fact that the mentoring and feedback were compulsory in the auditing module could create a negative association, a notion reported in the literature (Jackling & McDowall, 2008; Saunders, 1992). Prior studies have indicated that the benefit of peer learning and mentoring is not realised by the senior students, as they experience these as an additional burden that will offer limited additional credit to help them pass the subject (Ertmer *et al.*, 2010; Fox *et al.*, 2010). This could have been the case with respondents in this study who were third year students in their final year of undergraduate studies. All of them wanted to complete their studies and many wanted to achieve high marks to meet the admission requirements for the postgraduate programme. Furthermore, the impression is created that respondents did not link the experience (TUT Buddy and BuddyM) to the real world relevance of the skills developed, whereas students will be required to mentor junior staff and provide feedback to peers in future, when performing audits at clients.

The findings of the AuditSIM are discussed in detail in Section 5.4.3.

5.4.2.2 Research Question 2

How do the above perceptions differ for students with different academic performance levels in relation to:

2.1. their learning of the audit subject matter; and

2.2. their engagement with the audit subject matter through different activities?

When comparing the perceptions on the elements in the blended learning model per performance group, more specific differences emerge. With regard to the contribution made for learning, high performing respondents scored the tutorial sessions and videos higher than the low performing respondents, but for the other elements, the low performing respondents scored these elements higher than the high performers (refer to Table 10 and Figure 2). This difference for the tutorials proved to be statistically significant on the 5% level of significance using the Kruskall-Wallis test between the performance groups, for both learning and engagement. For engagement, the medium performing respondents scored the tutorials slightly higher than the high performing respondents (refer to Table 12 and Figure 3), indicating that the medium performing group perceived the tutorial to contribute most to their engagement, but the same is not evident for learning. A possible explanation is the difference in approach to their studies between the groups. The tutorial requires prior preparation and participation during the session to be effective, and the literature confirms that high performing students are more self-directed learners and willing to work on their own (Owston *et al.*, 2013). This finding is also in line with the tutorial attendance for the population (the class at large), where the low performing group averaged at 63% attendance, the medium performing group at 78% and the high performing group at 87% attendance. This confirms the medium and high performing respondents' perception that the tutorial sessions contribute to a larger extent to their learning and assist in engaging with the subject matter, as compared to their low performing counterparts (statistically significant at the 5% level of significance). This finding, where higher performing students perceived tutorials to highly contribute to their learning, is in line with conclusions reached by Gordon (2009).

In relation to learning, the high performing respondents scored the videos higher, but the lectures lower, compared to the low performing respondents. This indicates that high performing respondents perceived videos explaining the concepts as contributing highly to their learning, while this is not the case with formal lectures. The deduction could be made that, as mentioned previously, high performing respondents are self-directed learners who can work on their own (Owston *et al.*, 2013), and have become less dependent on lectures. The fact that the technology element (videos) was scored higher compared to the lectures, confirms the tendency that preference for a specific singular mode of instruction (face-to-face only) is declining, and that respondents are becoming more comfortable with alternative modes of instruction, a notion supported by the literature (Dziuban & Moskal, 2011; Kelly *et al.*, 2007).

The three student driven elements were perceived to contribute moderately to the learning and engagement of the low performing respondents, but were perceived as limited in contribution for the high and medium performing respondents. Statistically significant differences were identified between the three performance groups with regard to the AuditSIM (at the 1% level of significance) and the TUT Buddy element (at the 5% level of significance). The literature on cooperative learning shows that even though cooperative learning does not impact on students' performance, students are generally positive about the mode of learning (Ballantine & McCourt Larres, 2009; Johnson, Johnson & Smith, 2014; Ravenscroft *et al.*, 1999). The deduction could thus be made that, regardless of their performance, low performing respondents still perceived the student driven elements to contribute moderately to their learning. The result of the AuditSIM is further considered in the next section, which casts light on the statistically significant difference between performance groups' perceptions of the AuditSIM.

From the findings a clear profile emerges of the low and high performing groups. High performing respondents perceived the contribution of the lecturer driven activities towards their learning and engagement to be higher than for the other activities, and therefore expressed a preference for the lecturer driven activities. They appear to see the value of tutorials, are able to work on their own by using videos and attending lectures, which could be used to clarify their understanding. The results show that,

even though high performers participated in peer activities, they did not perceive them as contributing highly or even moderately to their learning. A substantial number of respondents in this group have prior audit working experience (73%) (refer to Table 8 in Section 4.7.6.), which could be an explanation as to why they perceived the simulation as contributing little to their learning to bridge the gap between theory at university and practice (discussed in detail in the next section).

A noticeable difference between the high performing and low performing respondents (which is statistically significant), is that low performing respondents perceived the contribution of two elements of student driven activities (AuditSIM and TUT Buddy) at a higher level. In comparison with high performing respondents, they thus expressed more preference for these cooperative activities. Fewer respondents in this group had prior audit work experience (63%) (refer to Table 8 in Section 4.7.6.), and therefore their preference for the simulation could perhaps be that the AuditSIM bridged the gap between theory at university and practice (refer to Section 4.4.4).

The literature reports that low performing students struggle to cope within a blended learning environment where effective time management and more self-regulated learning are required (Owston *et al.*, 2013), and that students are often disengaged with lower levels of motivation (Wingate & Tomes, 2017). Even though the low performing respondents perceived that the lecturer driven elements contributed less to their learning and engagement, compared to the high and medium performance groups, these elements were still perceived to contribute highly or moderately for the low performing respondents. This indicates that the low performing respondents did not struggle within the blended learning environment in this blended learning model, as could be expected based on the literature.

5.4.3 Audit simulation

An improved understanding of students' perceptions regarding the effectiveness of ICT tools allows for the development of more tailored ICT tools which succeeds in reaching the learning objectives of the lecturer and the expectations of students.

The AuditSIM included ICT tools that students were not previously exposed to, and this allowed for the opportunity to determine their perception with regard to the usefulness, ease of use and affect of the tools, based on the TAM (Davies, 1989).

5.4.3.1 Research Question 3

How do students with different academic performance levels perceive the online simulation in relation to:

3.1. the usefulness thereof;

3.2 the ease of its use, and

3.3 the influence on their affect for learning?

At first glance, respondents did not perceive the AuditSIM as positively as they did the lecturer driven elements, because the mean score for the simulation was below 3.0 for both learning (2.79) and engagement (2.90). The questions relating to the simulation specifically (Section D in the questionnaire) had slightly higher values, but none of the mean scores were above 3.5, indicating that students were quite neutral towards the simulation. The original objectives for the AuditSIM were to first introduce the students to a more authentic audit experience where they could experience how an actual audit would be performed at a client, secondly, to develop ICT skills by forcing students to work on a wiki and navigate on the platform, and thirdly to incorporate more cooperative learning by working in teams.

Usefulness

Looking at the first factor, namely the perceived usefulness, there were 15 questions of which 11 questions related to the learning and 4 questions related to peer learning and engagement. The questions on learning focused on the first objective of the simulation in providing a real life audit experience and improving the understanding of the audit process. The results for these 11 questions were somewhat disappointing, as it was anticipated that students would find an experience of an actual client very useful. However Question 8, *putting classroom theory into practice,* attracted the

second highest mean score (mean score of 3.5) of all the AuditSIM questions (refer to Table 18), indicating that respondents perceived the simulation to link the worlds of theory and practice. Relating to the usefulness factor to the prior work experience, 68% of all respondents had some prior experience in an audit environment. When the prior work experience is differentiated for the different performance groups, a clearer picture emerges, because the low performing respondents had less prior audit work experience (63%), compared to the high performing respondents (73%) (refer to Table 8 in Section 4.7.6). This could explain why the low performing respondents scored all 11 questions included in the first factor higher than the high performing respondents, as the experience was novel to them.

The other 4 questions in the first factor referred to the peer learning and engagement. Interestingly, the factor analysis did not distinguish engagement from learning by extracting a separate factor for engagement, and respondents answered the questions in line with the questions on learning. The mean scores for these questions were all neutral (mean score around 3.5), indicating that respondents did not particularly find the aspect of group work and peer learning in the wikis to be useful. However the highest scoring question (mean score 3.62) for the simulation was Question 14 (refer to Table 18), which related to decision making within the group and cooperative learning, which is encouraging, as the questions related to the third objective of the simulation. A number of plausible explanations could be presented for the results. First, this generation, even though they are highly connected, do not like to work in groups, as highlighted by Hope (2016). Secondly, group formation and cooperation may also not have been effective, as students were allowed to form their own group, and participation by all members was difficult to monitor. This could have led to work being distributed equally between group members and that they could have worked individually rather than as a collective. These explanations are purely speculative and further investigation is required to determine the reason for the neutral scores.

Based on the information per performance groups (refer to Table 22 and Figure 4), there are differences in how the respondents perceived the usefulness of the simulation. These differences were statistically significant for the usefulness between low and medium respondents at a 5% level of significance, while between the low and high performing respondents it is significant at a 1% level of significance. The low

performing students scored the questions higher than the high performing students, confirming the finding on the learning and student engagement in the previous section, in that the low performing students perceived cooperative learning activities such as the AuditSIM to contribute more towards their learning and engagement than high performing respondents.

Ease of use

The second factor extracted by the factor analysis was based on the four questions focusing on the ease of use with regard to the design elements of the simulation. All the questions in this factor had a negative value, indicating that respondents experienced the inverted experience, thus they did not experience the simulation as easy to use nor user friendly. They also did not feel that the instructions were clear and the wiki, even though a new technology tool, did not get a stamp of approval from the respondents. These negative findings reflected how the respondents' expectations compared to those reported in the literature, namely that online material should be of a high quality, easy to navigate and user friendly (Venkatesh & Bala, 2008; Bates 2016b; Schneiderman & Pleisant, 2005). These expectations stem from the different multimedia that these students are exposed to, and they are critical about what is of an acceptable standard.

Focusing on the performance levels, there were significant differences between the perceptions of the low performing respondents and the medium performers, as well as the high performing respondents. These differences were statistically significant for the ease of use between low and medium respondents, as well as between the low and high performing respondents at the 1% level of significance. A plausible explanation for the differences is that, based on the demographic composition of the low performing respondents, many of the respondents could have been subjected to the digital divide (Van Deursen & Van Dijk, 2014), where students with lower exposure to ICT have lower expectations on the ease of use and are therefore more accommodating with their rating. This result has to be investigated further to be clarified.

Affect of the AuditSIM

The third factor extracted by the factor analysis was based on seven questions and addressed the emotional side (affective) of the experience, in order to determine whether students enjoyed using the simulation and working on a wiki. Again these questions all had negative values, which was unexpected. It could be that respondents with smart phones have become acquainted with new applications and that an ICT tool should really be extraordinary to make an impression (Dorsey, 2016; Hope, 2016). On the other hand, these respondents were in their final year of undergraduate studies and their focus was to complete their degrees, and for many, also to achieve high marks in order to be admitted into the postgraduate programme. The simulation could be seen as a deterrent of their focus. As in the case of the other constructs of the simulation, further research is needed to provide clarity.

Focusing on the performance levels, there were significant differences between the perceptions of the low performing respondents and the medium, as well as the high performing respondents. These differences were statistically significant for the affect between low and medium respondents, as well as between the low and high performing respondents at the 1% level of significance. For both the second and third factor, the low performing respondents were more positive compared to the high performing respondents. This means that they felt that they benefitted more from the simulation experience, perceived it to contribute more to their learning and engagement, and they enjoyed the experience more, compared to the high performing group. This confirms the conclusions by Lin *et al.* (2014) and Schute *et al.* (2015) that negative emotions could hinder learning, while positive emotions enhance it.

From the results it is clear that the simulation did not contribute to all respondents' learning and engagement, but it did benefit the students that did not have any (or less) prior work experience. Therefore it can be concluded that the objective of the simulation of bridging the gap between theory and practice and encouraging more cooperative learning has been met.

5.5 Chapter summary

This chapter presented the statistical analysis of the data and a discussion of the findings.

From the findings it was evident that respondents had a strong preference for the blended learning elements making up the flipped classroom, since these were activities to which they were more accustomed to. They perceived these activities as useful in an academic sense, assisting in reaching the objective of passing the auditing module. A stronger preference for the tutorials, as to the videos and lectures was noted for both learning and engagement. High performing students perceived tutorials and videos to contribute more to learning, whereas medium performing respondents perceived these elements, together with the lecture, to contribute more to their engagement. Even though the low performing respondents perceived these lecturer driven activities to contribute less to their learning and engagement compared to the other two performance groups, they still perceived these elements as contributing more to their learning and engagement and perceived the flipped classroom positively.

Students rated elements that have large student driven components, and are aimed at developing non-cognitive skills like cooperation, ICT skills and communication skills relevant to the workplace, as less useful, and, in relation to the AuditSIM, also less usable and less enjoyable. The inclusion of the three collaborative elements in the blend were well reasoned, in order to contribute to work-place readiness, but were not perceived as such by the majority of respondents.

Teasing apart the responses to the AuditSim revealed that usefulness was the most strongly perceived value of the simulation, while the ease of use was limited due to navigational difficulty, and the affect was lower. It is significant that the low performing respondents consistently rated the value of the simulation (usability, ease of use and affect) higher than the other students.

Chapter 6 concludes the study by bringing the findings in line with the research questions. The chapter also presents recommendations and future research possibilities.

6 CONCLUSION

6.1 Introduction

This study was introduced in Chapter 1. This was followed by a two part literature review. Chapter 2 presented the literature on learning, student engagement and blended learning, which included current literature on all the different elements of the blended learning model applied in this study. Chapter 3 provided the literature surrounding the call for change in accounting education, the debate regarding skills development of accounting students and the challenges faced in teaching an auditing module in a university setting.

Chapter 4 set out the context of how blended learning was incorporated in the auditing module at the university where the study was performed, it discussed the research design and method followed in this study and concluded with the descriptive statistical analysis of the demographical questions in the questionnaire. Then Chapter 5 presented and discussed the findings based on a statistical analysis of the data relating to the blended learning elements and the perceived contribution that they had on the learning and engagement with the auditing subject matter. In addition, statistical analysis was used to interpret data on the usefulness, ease of use and affect of the online simulation as a new technology introduced.

This chapter concludes the study. It summarises the findings per research question, draws an overall conclusion and offers recommendations and future research opportunities.

6.2 Addressing the research questions

In concluding this study, it is necessary to determine whether the purpose of the study has been achieved. The purpose of this study was to determine whether or not a

difference existed in the perception of auditing third year students at the university where the study was performed, as to the contribution that the different elements in a holistic blended learning model had on their perceived learning and engagement with the auditing subject matter. Within this purpose, the study also investigated how the perceived contribution differed between students at different performance levels. In addition to this purpose, for one of the blended learning elements (the online simulation), the study determined students' perception about the usefulness, ease of use and the affect for learning.

In order to achieve the purpose, three main research questions, with sub-questions, needed to be answered.

The research questions for this study are as follows:

1. How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to:
   1.1. their learning of the audit subject matter; and
   1.2. their engagement with the audit subject matter through different activities?

2. How do the above perceptions differ for students with different academic performance levels in relation to:
   2.1. their learning of the audit subject matter; and
   2.2. their engagement with the audit subject matter through different activities?

3. How do students with different academic performance levels perceive the online simulation in relation to:
   3.1. the usefulness thereof;
   3.2. the ease of its use, and
   3.3. the influence on their affect for learning?

Table 28 presents information to explain how these research questions were addressed in the literature review and the findings of the study.

Table 28 - Addressing the research questions

Research question	Literature	Findings and discussion
Question 1.1: How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to: Their learning of the audit subject matter?	Chapters 2 and 3	Findings: Chapter 5 (Section 5.2) Discussion: Chapter 5 (Section 5.4.2) Conclusion: There are differences in the respondents' perceptions of the contribution made by the various elements in the holistic blended learning to their learning of the auditing subject matter. Respondents perceived the tutorial to contribute highly to their learning, whilst the other two elements of the flipped classroom (video and lecture) were perceived to contribute moderately. This offers support to the flipped classroom approach, because respondents realise the benefits of this approach. The elements directed at skills development, AuditSIM, TUT Buddy and BuddyM were perceived to contribute only in a limited way to their learning.
Question 1.2: How do students' perceptions on the contribution of different elements in the holistic blended learning model differ in relation to: Their engagement with the audit subject matter through different activities?	Chapters 2 and 3	Findings: Chapter 5 (Section 5.2) Discussion: Chapter 5 (Section 5.4.2) Conclusion: There are differences in the respondents' perceptions of the contribution that the various elements in the holistic blended learning had on their engagement with the auditing subject matter. Little differentiation on respondents' perception between learning and engagement was found, as the preferences for the elements for engagement were in line with that for learning. The tutorial was again perceived to contribute highly to their engagement. The other two elements of the flipped classroom (video and lecture) were perceived to contribute moderately, while the elements directed at skills development, AuditSIM, TUT Buddy and BuddyM were perceived to contribute only in a limited way to their engagement.

Research question	Literature	Findings and discussion
Question 2.1: How do the above perceptions differ for students with different academic performance levels in relation to: Their learning of the audit subject matter?	Chapter 2 Sections: 2.2, 2.4, 2.5, 2.7 Chapter 4 Section 4.7.1	Findings: Chapter 5 (Section 5.2) Discussion: Chapter 5 (Section 5.4.2) Conclusion: Statistically significant differences are found between the perceptions of the high and low performing respondents with regard to the tutorials, AuditSIM and TUT Buddy elements and the perceived contributions that these elements made to their learning. High performing respondents perceived the tutorials to contribute more to their learning, compared to the low performing respondents. The low performing respondents perceived the AuditSIM and TUT Buddy elements to contribute more to their learning, compared to the high performing respondents.
Question 2.2: How do the above perceptions differ for students with different academic performance levels in relation to: Their engagement with the audit subject matter through different activities?	Chapter 2 Sections: 2.3, 2.4, 2.5, 2.7 Chapter 4 Section 4.7.1	Findings: Chapter 5 (Section 5.2) Discussion: Chapter 5 (Section 5.4.2) Conclusion: Statistically significant differences are found between the perceptions of the high and low performing respondents with regard to the tutorials, AuditSIM and TUT Buddy elements and the contributions these elements had to their engagement. Medium performing respondents perceived the tutorials to contribute more to their engagement with the subject matter, in comparison to the high and low performing respondents. This preference was also true for the videos and lectures, where the medium performing respondents perceived the elements to contribution more to their engagement, compared to the high and low performing respondents. The low performing respondents perceived the AuditSIM and TUT Buddy and BuddyM elements to contribute more to their engagement with the subject matter compared to the high performing respondents.

Research question	Literature	Findings and discussion
Question 3.1: How do students with different academic performance levels perceive the online simulation in relation to: The usefulness thereof?	Chapter 2 Section 2.7.3 Chapter 4 Section 4.4.4	Findings: Chapter 5 (Section 5.3) Discussion: Chapter 5 (Section 5.4.3) Conclusion: When considering the three constructs (usefulness, ease of use and affect) respondents scored usefulness the highest, indicating that they perceived the simulation to be useful. For the perception of usefulness of the audit simulation, statistically significant differences were identified between all three of the academic performance groups. Low performing respondents preferred the audit simulation, as they perceived the simulation to contribute more to their learning and engagement, than with the high and medium performing respondents.
Question 3.2: How do students with different academic performance levels perceive the online simulation in relation to: The ease of its use?	Chapter 2 Section 2.7.3 Chapter 4 Section 4.4.4	Findings: Chapter 5 (Section 5.3) Discussion: Chapter 5 (Section 5.4.3) Conclusion: When considering the three constructs (usefulness, ease of use and affect) respondents scored ease of use lower than usefulness, and the factor loadings in the factor analysis for the questions on this construct were all negative, indicating that they did not perceive the simulation as easy to use. The same statistically significant differences as for usefulness were observed between the different performances groups for the ease of use construct.
Question 3.3: How do students with different academic performance levels perceive the online simulation in relation to: The influence on their affect for learning?	Chapter 2 Section 2.7.3 Chapter 4 Section 4.4.4	Findings: Chapter 5 (Section 5.3) Discussion: Chapter 5 (Section 5.4.3) Conclusion: The affect construct has the lowest score between the three constructs (usefulness, ease of use and affect) and the factor loadings in the factor analysis for the questions on this construct were again all negative. This indicates that respondents did not particularly enjoy the simulation experience. The same statistically significant differences as for usefulness and ease of use were observed between the different performance groups for the affect towards the simulation.

6.3 Conclusion on overall purpose of the study

The purpose of this study was to investigate whether or not there were differences in the perception of auditing third year students at the university where the study was performed, as to the contribution that the different elements in a holistic blended learning model have on their perceived learning and engagement with the auditing subject matter.

The investigation indicates that there are differences in the perception of auditing third year students at the university where the study was performed, as to the contribution that the different elements in a holistic blended learning model have on their perceived learning and engagement with the auditing subject matter. Respondents' perceptions show clear preferences for certain elements which were perceived to contribute more to their learning and engagement. Distinct differences emerged between the low, medium and high academic performance respondents.

The purpose behind incorporating a more blended approach into the auditing module was to encourage more self-regulated learning by providing alternative teaching environments where students could regulate the pace of the learning. Also considering the different learning styles of students, a more holistic blended learning approach would provide more variety to meet the different styles. A better understanding as to what blended learning elements students prefer now allows for adjustment in the model, in order to achieve the right combination between the elements, not only to enhance their learning and engagement, but to motivate and encourage students to develop other pervasive skills necessary for the workplace.

This study found support for the flipped classroom approach, indicating that respondents are willing to accept this approach consisting of formal lectures, videos and tutorials. They perceive the combination of online and face-to-face learning to enhance their overall learning experience. This study contradicts available literature that low performing students struggle within a blended learning environment (Owston *et al.*, 2013). Low performing respondents in this study indicated that they perceive the flipped classroom approach to also contribute highly to moderately to their learning and engagement.

With the demand for improved pervasive skills in the workplace, this study found that, even though efforts were made by lecturers to incorporate activities (TUT Buddy, BuddyM and simulation) in the curriculum to develop these skills, respondents perceive these activities to contribute in a limited way to their learning and engagement. More effort by lecturers to explain the purpose and benefit of these activities could improve this perception.

When developing an online simulation, careful consideration of the purpose and design should be done to meet the higher demand of a generation that has become accustomed to high quality and realistic online environments. The usefulness of the simulation should be visible to students through the experience and navigation of the tools should be easy, otherwise the intended learning benefit is negatively influenced.

6.4 Recommendations

From the findings a number of recommendations are made which are discussed per the different role-players who could benefit from the findings. These role-players are: educators, university management, students, professional bodies and practitioners.

Educators

With regard to the blended learning model, the following recommendations are made to improve teaching pedagogies:

- Careful planning and implementation of a blended learning model is necessary to achieve the right combination of elements.
- Students should be made aware of the purpose of the different elements, for example cooperative learning and a simulation to recognise the benefits of the exercises to develop pervasive skills and not to only perceive it as a burden.
- Knowing that tutorials are the preferred element, more focus could be placed on the tutorial to develop a deeper understanding of concepts and testing knowledge.

Specific recommendations on the different elements

- When implementing videos, careful consideration should be given to the objective of the video. If the video is a recording of a lecture, its purpose should be clearly communicated to the students. When the video is an extension of the lecture by providing the theoretical background, the videos should be short, only address one topic and should only include relevant information. Any repetition in the videos should be avoided.
- In the contact session, the content of the video should not be repeated and a more problem-based learning approach, instead of theoretical explanations, should be adopted. Also, student centered and lecturer driven activities in lectures should be balanced to promote learning and engagement.
- For tutorials, tutors should be properly prepared, and students should be encouraged to participate, in that students should take the lead for the discussion and the tutor should only facilitate the discussion. Participation and preparation should be monitored to encourage the low performing students to also gain maximum benefit from the tutorials.
- For the simulation, clear and continuous instructions should be provided and students should receive detailed and continuous feedback. Focusing on the usefulness, sections of the simulation can be included in the lecture and specific reference to examples in the simulation can be used, in order to assist students in linking all the information of the simulation. Effective design is crucial to meet the high expectations of students with regard to content richness, and high definition video should be used. The positive emotions as to the benefit in the students' learning and understanding should be emphasised, and frustrations due to possible computer anxiety and technical problems should be addressed as a priority.
- For peer feedback students should clearly understand what the objectives are, so that it is not perceived as just an additional activity. This should also be the case for the peer-mentoring, where the focus for the senior students should be on the development of communication and listening skills.

University management

Knowing that tutorials, videos and lectures are preferred modes of learning by students, more resources could be made available to enhance the flipped classroom approach campus wide. Improvements can include: more tutors, so that group sizes can be reduced even further, dedicated video recording and editing support, to improve the quality of videos, and more human resources during the lecture to manage more active learning activities during the lecture.

Encouraging the implementation of a blended learning approach in all modules throughout all faculties and providing training and support to lecturers for the transition would be beneficial.

Students

Knowing that the different elements in a blended learning model meet the learning preferences of different students, students can learn that they only have to utilise those elements that are beneficial to them individually, and thus address the issue of information overload.

For simulations, students must be informed to see the value of presenting auditing in a practical environment. Lecturers must ensure that care is taken to present the simulation in such a way that students understand the usefulness and perceive the simulation as enjoyable and easy to use.

Students' awareness about the need to develop pervasive skills for the workplace should increase. This could be done by changing assessment practices where the current focus is on the achievement of grades to be admitted into the postgraduate programmes.

Professional bodies

Understanding that students learn auditing best by way of experiential learning, professional bodies could consider incorporating a prescribed and compulsory number of hours so that students can be exposed to practical experience in auditing (this could form part of projects that incorporate work integrated learning in the education model).

The professional bodies can act as a link between lecturers and practitioners and encourage practitioners to offer support to lecturers with real life examples or allowing students to shadow along on audits.

Practitioners

By taking cognisance of the challenges faced by lecturers to implement experiential learning in a more blended learning environment, practitioners can offer support to lecturers and provide insight into real life examples. Practitioners can allow students to shadow along on audits, to observe how the process is executed and the professional judgment required to evaluate audit evidence.

6.5 Future research

Deeper investigation as to the possible reasons for the respondents' preferences should be done with a more qualitative or mixed methods research design. For example to investigate:

- The differences identified between the academic performance groups with regard to their perception of level of contribution to their learning and engagement to understand the specific reasons for the differences. This will allow for improvement of future teaching practices and allow for flexibility in teaching to meet the requirements of all the students.

- The differences identified between the academic performance groups with regard to their perception of the usefulness, ease of use and affect of the simulation.

Future studies need to expand on the following matters:

- How students apply videos in their learning and engagement by investigating the time when and location for which videos are accessed, to identify areas for improvement to enhance students' engagement and learning.

- Investigation as to why the different active learning activities implemented were not perceived to highly contribute to learning and engagement.

- Since tutorials are perceived positively by students for their learning and engagement, the effect of change in modality between face-to-face and e-tutorials needs further attention.

- The effect of group formation on cooperation within groups should be investigated as respondents did not experience the group work positively.

- The difference in skills level due to a possible digital divide between high, medium and low performing students should be investigated to determine if it could explain the difference in expectations of the ease of use or the level of enjoyment (affect) of online activities.

- The evaluation of student engagement as a construct to support learning, could be expanded to also include behavioural and affective engagement and not only cognitive engagement.

- Investigating the different learning strategies applied by students in a flipped learning environment should be done, in order to understand how students adapt

and approach the new environment and how the resources available are utilised, with the focus on the approaches of difference academic performance level students.

- The impact that exposure to work integrated learning has on the teaching of auditing should be further investigated.

- The study can be expanded by repeating the investigation of blended learning models in other disciplines or faculties, and between first, second and third year undergraduate modules, in order to be able to compare results.

- By using a mixed method methodology, a deeper understanding of the students' preferences of the different blended learning elements could be obtained.

- Undergraduate and postgraduate students can also be compared to determine whether students mature in their learning approaches. Such a study could include graduates and whether the blended learning approach encourages self-regulated learning in future, or the perspective of the lecturers could be included to determine any mismatch in perceptions of the contribution to learning and engagement.

- Investigation of the effect that other elements, such as problem-based learning and field trips, might have on the perception or contribution to learning and engagement.

6.6 Overall concluding remarks

This quantitative study expands on the understanding of blended learning in auditing. Prior studies on blended learning were mostly limited to a single or two blended learning elements and these studies were done in small class settings. Based on the perceptions of the third year auditing students at a residential university, this study investigates a holistic blended learning model in a large class setting.

This study set out to investigate how the students perceived the different elements of the current holistic blended learning model in the auditing module, in order to contribute to their learning and engagement with the subject matter. Within this purpose, the study also investigated how the perceived contribution differed between students at different performance levels and for one of the blended learning elements (the online simulation) the study determined students' perception about the usefulness, ease of use and the influence on their affect for learning. The findings of the study suggest that students perceived different elements to contribute differently to their learning and engagement of the auditing subject matter, and that differences exist in the perceptions between students with different academic capabilities. Lower performing students perceived all the support they receive throughout the module as contributing to their learning and engagement with the subject matter, while higher performing students were more selective as to which activities contributed to their learning and engagement. The findings indicate that students need to understand the objective of the new technology, such as the simulation, and that they expect technology tools to meet basic design expectations.

In conclusion, this study contributed to the body of knowledge by offering insights into students' preferences in activities in a blended learning model, but also acknowledged that this study was performed with certain limitations. These limitations included *inter alia* the fact that this study only investigated one group of third year students enrolled for the auditing module in 2016 at the university where the study was performed, or that other disciplines or undergraduate and postgraduate modules were not compared. The findings were also based on perceptions that include a degree of subjectivity. It offered suggestions for future research to further investigate the phenomenon of blended learning. This study concurs with Sams and Bergmann's (2013:20) view that "[e]ducation is for everyone, but the way we deliver education - and the way students receive it - is not the same for everyone".

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ANNEXURE A

Extract of list of pervasive skills included in the SAICA Competency Framework (SAICA, 2016a)

IA-Ethical behaviour and professionalism

IA-1	Uses an ethical reasoning process
IA-2	Protects the public interest
IA-3	Acts competently with honesty and integrity
IA-4	Performs work competently and with due care
IA-5	Maintains objectivity and independence
IA-6	Avoids conflict of interest
IA-7	Protects the confidentiality of information
IA-8	Maintains and enhances the profession's reputation
1A-9	Adheres to laws, professional standards and policies and the rules of professional conduct when exercising professional judgement

IB - Personal attributes

IB-1	Self-manages
IB-2	Demonstrates responsible leadership
IB-3	Maintains and demonstrates competence and recognises limits
IB-4	Strives to add value in an innovative manner
IB-5	Manages change
IB-6	Treats others in a professional manner
IB-7	Is a life-long learner
IB-8	Plans and effectively manages teams and projects
IB-9	Works effectively as a team member
IB-10	Manages time effectively
IB-11	Demonstrates good corporate citizenship attributes

IC - Professional skills

IC-1	Obtains information
IC-1.1	Gathers or develops accurate and relevant information and ideas
IC-1.2	Develops an understanding of the entity's environment
IC-2	Examines and interprets information and ideas critically (critical thinking)
IC-2.1	Analyses information or ideas
IC-2.2	Performs computations
IC-2.3	Verifies and validates information
IC-2.4	Evaluates information and ideas
IC-2.5	Integrates ideas and information from various sources (integrated thinking)
IC-2.6	Draws conclusions / forms opinions
IC-3	Solves problems and makes decisions
IC-3.1	Identifies and diagnoses problems and/or issues
IC-3.2	Develops solutions
IC-3.3	Makes decisions and recommendations and provides advice
IC-4	Communicates effectively and efficiently
IC-4.1	Seeks and shares information, facts and opinions through written and oral discussion
IC-4.2	Prepares documents in written and graphic form
IC-4.3	Presents information effectively to enhance understandability and usefulness
IC-5	Manages and supervises
IC-5.1	Plans and manages projects
IC-5.2	Identifies need for internal and external expertise
IC-5.3	Facilitates decision making
IC-5.4	Leads effective meetings
IC-5.5	Supervises
IC-6	Understands how IT impacts a CA's daily functions and routines
IC-6.1	Understands computerised business systems

IC-6.2	Uses appropriate IT software tools
IC-7	Considers and applies legal concepts
IC-8	Understands how the national and international environment impacts a CA's role

ANNEXURE B

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

RESEARCH ETHICS COMMITTEE

Tel: +27 12 420 3395
E-mail: ronel.rensburg@up.ac.za

Faculty of Economic and Management Sciences

23 November 2017

Strictly confidential

Prof K Barac
Department of Auditing

Dear Professor Barac

Protocol No:	EMS051/17
Principal researcher:	**B Beukes**
Research title:	Student perceptions of blended learning interventions in teaching auditing
Student/Staff No:	04144007
Degree:	MCom (Auditing)
Supervisor/Promoter:	Prof K Barac / Dr L Nagel
Department:	Auditing

The Committee's letter dated 22 November 2017 granting conditional approval for the above research refers.

I have pleasure in informing you that the Dean granted permission for the participation of the students identified in the application. Approval is further subject to the candidate abiding by the principles and parameters set out in the application and research proposal in the actual execution of the research.

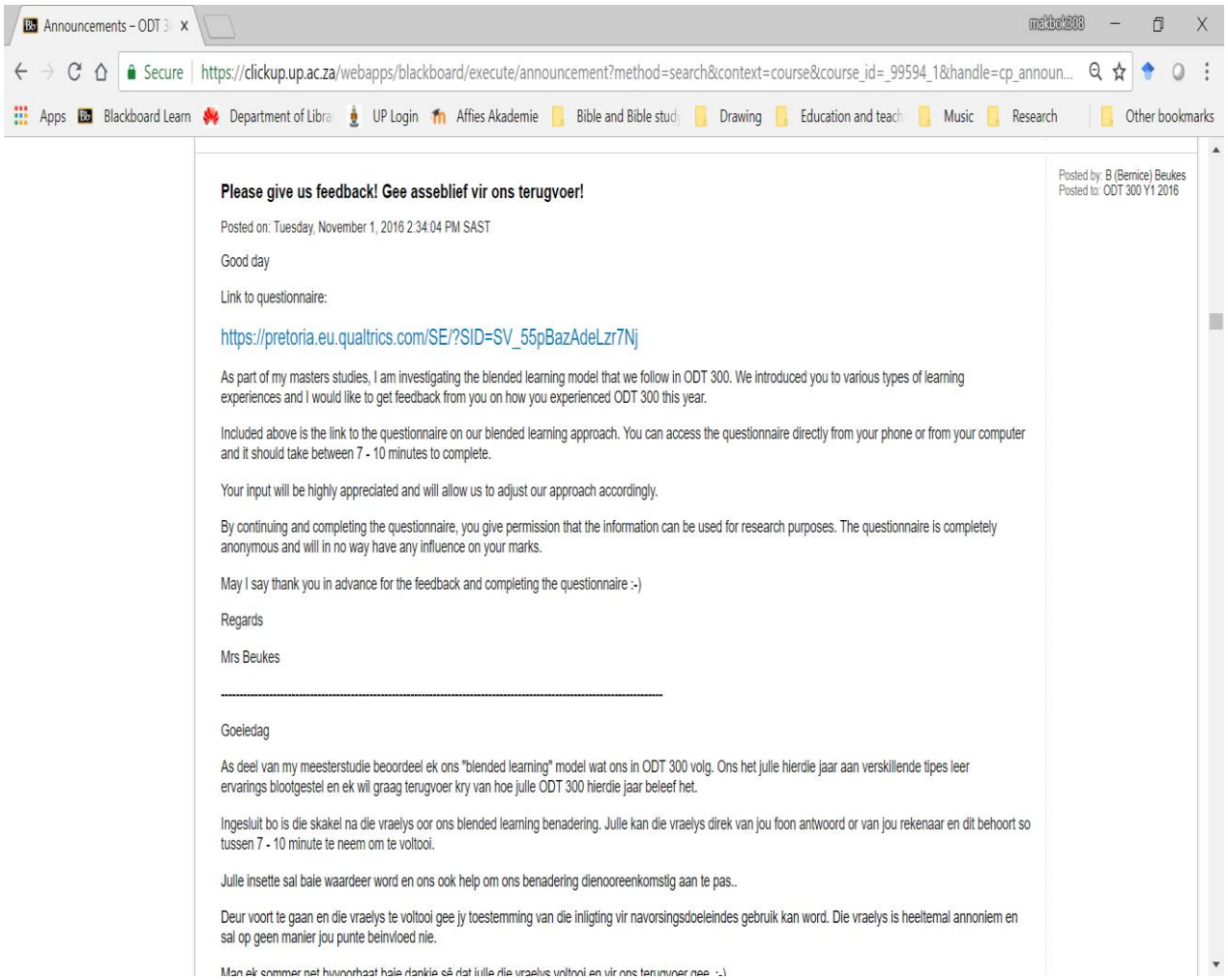
The Committee requests that you convey this approval to the researcher.

Sincerely

pp PROF RS RENSBURG
CHAIR: COMMITTEE FOR RESEARCH ETHICS

cc: Dr L Nagel
Student Administration

ANNEXURE C


Announcements – ODT 3
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Secure
https://clickup.up.ac.za/webapps/blackboard/execute/announcement?method=search&context=course&course_id=_99594_1&handle=cp_announ...
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Blackboard Learn
Department of Libra
UP Login
Affies Akademie
Bible and Bible studi
Drawing
Education and teach
Music
Research
Other bookmarks
Please give us feedback! Gee asseblief vir ons terugvoer!
Posted by: B (Bernice) Beukes
Posted to: ODT 300 Y1 2016
Posted on: Tuesday, November 1, 2016 2:34:04 PM SAST
Good day
Link to questionnaire:
https://pretoria.eu.qualtrics.com/SE/?SID=SV_55pBazAdeLzr7Nj
As part of my masters studies, I am investigating the blended learning model that we follow in ODT 300. We introduced you to various types of learning experiences and I would like to get feedback from you on how you experienced ODT 300 this year.
Included above is the link to the questionnaire on our blended learning approach. You can access the questionnaire directly from your phone or from your computer and it should take between 7 - 10 minutes to complete.
Your input will be highly appreciated and will allow us to adjust our approach accordingly.
By continuing and completing the questionnaire, you give permission that the information can be used for research purposes. The questionnaire is completely anonymous and will in no way have any influence on your marks.
May I say thank you in advance for the feedback and completing the questionnaire :-)
Regards
Mrs Beukes
Goeiedag
As deel van my meesterstudie beoordeel ek ons "blended learning" model wat ons in ODT 300 volg. Ons het julle hierdie jaar aan verskillende tipes leer ervarings blootgestel en ek wil graag terugvoer kry van hoe julle ODT 300 hierdie jaar beleef het.
Ingesluit bo is die skakel na die vraelys oor ons blended learning benadering. Julle kan die vraelys direk van jou foon antwoord or van jou rekenaar en dit behoort so tussen 7 - 10 minute te neem om te voltooi.
Julle insette sal baie waardeer word en ons ook help om ons benadering dienooreenkomstig aan te pas..
Deur voort te gaan en die vraelys te voltooi gee jy toestemming van die inligting vir navorsingsdoeleindes gebruik kan word. Die vraelys is heeltemal annoniem en sal op geen manier jou punte beinvloed nie.

Survey instrument

Q1 What is your gender?
- Male
- Female

Q2 What is your age
- 20
- 21
- 22
- 23
- 24
- 25+

Q3 What is your language of instruction?
- Afrikaans
- English

Q4 What is your home language?
- Afrikaans
- English
- Other African language
- Other

Q5 Are you part of the following academic support programs?
- Fasset
- Thuthuka
- Other (E.g. Dell)
- None

Q6 What is your year mark for ODT 300?
- < 50%
- 50% - 57%
- 58% - 63%
- 64% - 69%
- >= 70%

Q7 I have been exposed to an audit practice

	Yes	No
Part time work		
Full time work		
Vacation work		
Work shadowing (Tagging along)		

Q8 Do you use any of the following devices for study purposes?

	Yes	No
Desktop computer		
Laptop computer		
Tablet		
Internet enabled mobile phone (Smartphone)		
Speakers, webcam and microphone		

Q9 How much time (on an average day) do you spend on the internet (irrespective of device) for:

	None at all	Less than 30 minutes	Between 30 and 60 minutes	Between 60 and 120 minutes	More than 120 minutes
Studies (i.e. videos, reading, slides, assignments and tasks)					
Socializing (i.e. Facebook, Twitter, WhatsApp, WeChat, Blog)					
Gaming (online and offline)					
Gathering information (i.e. reading news or Wikipedia)					
Leisure (i.e. Reading a book, Pinterest)					

Q10 Which of the following best describes your attitude towards technology innovations?

I love new technologies and I am among the first to experiment with and use them.
I like new technologies and use them before most people I know.
I use new technologies when other people start to use them.
I usually use technologies when most people I know are already using them.
I am usually one of the last people I know to use new technologies.

Q11 My attitude towards adapting innovations is

I like to understand and apply complex technical knowledge and regard myself as venturesome
I like to be the person that everyone comes to for advice on a new innovation and is respected for my advice on innovations.
I like to deliberate with my peers before adopting a new idea
I approach a new innovation with a sceptical and cautious air.
I have traditional values and must be certain that it will work before I use it.

Q12 To what extent did the following activities contribute to your learning of the subject matter?

	Not at all	Little	Somewhat	Much	A great deal
The theory videos explaining the basic concepts.					
Attending the weekly formal lectures.					
Attending the weekly tutorials.					
Completing the tasks on the AuditSim					
Engaging with my Buddy M mentee					
Engaging with my TUT[Buddy] group on the Buddy questions					

Q13 To what extent did the following activities contribute and promote engagement with the subject matter?

	Not at all	Little	Somewhat	Much	A great deal
The theory videos of basic concepts.					
Different methods of presentation in the formal lectures.					
Attending the weekly tutorial					
Completing the tasks on the AuditSim					
Engaging with my Buddy M mentee					
Engaging with my TUT[Buddy] group on the Buddy questions					

Q14 The following questions will address the **AuditSim** specifically. Consider both the **webpage** leading to the client information and the **wiki** used to complete the tasks.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I think that the practical learning experience of the AuditSim improved my understanding of how an audit is performed in practice.					
I think that the practical learning experience in the AuditSim improves my desire to perform an audit.					
Using the AuditSim makes it easier to learn how to perform an audit.					

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Using the AuditSim helped me to understand the phases of the audit process.					
The simulation helped me to understand the specific topic(s) in the audit process better.					
The AuditSim helped me to develop professional skills that I will be able to use in the work place.					
I learned more about conducting an audit because of the the AuditSim than I would have by more traditional methods.					
The AuditSim helped me to put classroom theory into practice during the performance of the tasks.					
The AuditSim enabled me to discover through its context and information, the factors contributing to the issues and problems of an audit					
The AuditSim challenged me to develop professional judgment in an audit.					
The AuditSim enabled me to evaluate the consequences of different decisions I made.					
The discussions on the AuditSim with my TUT-Buddy group encouraged me to see the issue(s) from new angles.					
The AuditSim provided an authentic scenario to encourage open ended discussions with peers.					
The AuditSim provided opportunities for decision making within groups.					
The AuditSim provided meaningful feedback from my peers to my decisions.					
The interface (webpage) of the AuditSim is user friendly.					

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The task instructions were clear.					
The task instructions were understandable.					
The wiki was easy to use.					
The videos included in the AuditSim were entertaining.					
The AuditSim relates to an actual audit client where the setting felt authentic.					
I find using the AuditSim to be enjoyable.					
The AuditSim presented a stimulating alternative way of learning.					
I enjoyed Auditing more because of the AuditSim.					
I endorse the inclusion of the AuditSim in the ODT 300 curriculum.					
My overall experience of the use of the AuditSim for a practical learning experience was positive.					

Q15 How did the experience in blended learning in the subject up to September influence your transition to fully online learning during the last quarter of the semester?