Developing a teaching intervention to expose accounting students to pervasive skills

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Thesis submitted in fulfillment of the requirements for the degree *Philosophiae Doctor in Accountancy* at the Potchefstroom Campus of the North-West University

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- This thesis is dedicated to my loving parents, André Viviers and Elsa Viviers -

PHD THESIS

Developing a teaching intervention to expose accounting students to pervasive skills

- Herman Albertus Viviers -

It all starts here ®

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PHD THESIS

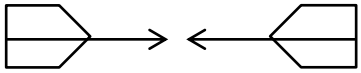
"Experience has long been considered the best teacher of knowledge. Since we cannot experience everything, other people's experiences, and hence other people, become the surrogate for knowledge"

- Karen Stephenson -

Thesis summary

Title: Developing a teaching intervention to expose accounting students to pervasive skills

Keywords: Accounting education; accounting students; accounting educators; accounting employers; action research; chartered accountant; competency; competency-based approach; competency framework; design; development; education; expose; higher education; perceptions; professional accounting bodies; professional competency; design variables; pervasive skills; South African Institute of Chartered Accountants (SAICA); skills development; South Africa; teaching intervention; teaching methods; training; university.



The need is widely advocated for accounting graduates to demonstrate competency upon entering the profession. Competency reflects the ability to execute tasks in the real world in an effective, meaningful and contributing manner. Graduates need to be well-rounded, possessing both core technical and pervasive skills and qualities. In order to demonstrate true competency, accounting students must be able to apply knowledge, and for this, specific pervasive skills and qualities are required. In order to attain true competency, accounting students should be exposed to pervasive skills at the higher education level by means of learning experiences which provide them the opportunity to apply knowledge by demonstration pervasive skills. These pervasive skills in accounting students included ethical awareness, professionalism, leadership, influencing others, teamwork, time management, critical thinking, strategic thinking, problem-solving and communication (verbal), communication (listening) and communication (writing).

A teaching intervention was designed, implemented and evaluated to expose accounting students to pervasive skills. Gamification was applied as a vehicle to promote active learning. The intervention was outcome-based and employed a student-centred approach. This approach was inquiry-based and combined various active and experiential learning methods to encourage students to be actively (physically, mentally and emotionally) engaged throughout the learning process. The teaching intervention created a problem-based, interactive reality-learning environment where the practical application of knowledge was motivated by the demonstration of pervasive skills. The teaching intervention was structured in the form of a race against time within a relaxed and safe learning environment in which students were allowed to freely express their opinions and to make mistakes.

Furthermore, no formal assessment was performed. The intervention relied on the successful completion of each activity by means of resolving specific problems as the measure to indicate that learning objectives have been achieved. A wide variety of activities, the element of surprise and time constraints enriched the innovative, adventurous, entertaining, fun and creative nature of the environment, all of which addressed the needs and suited the characteristics of the Generation Y student profile. Various active learning methods were incorporated into this single intervention and accommodated several leaning styles and preferences. This, in turn created multiple opportunities for various pervasive skills to be applied and demonstrated – thus covering the full spectrum of the required pervasive skills set.

The study employed action research, following a phenomenological approach, to holistically evaluate the newly developed teaching intervention from the perspective of various role-players in the accounting education arena. These included: accounting students, accounting educators, accounting professional bodies and accounting-related employer companies. A parallel-convergent mixed method research design was used to evaluate and conclude upon research results and findings reported in four research articles. The teaching intervention was developed (designed, implemented and evaluated) in two different formats. The first format was hosted to third-year accounting students at a single SAICA-accredited university and second was hosted on a national level in two regions (north and south) to tax students from seven universities across South Africa.

The outcomes of this research are presented in four articles. The first article took stock of and evaluated, from three different perspectives (students, educators and employers), the current state of pervasive skills development of accounting students at a South African SAICA-accredited university, namely the North-West University (NWU) (Potchefstroom campus). From this investigation it was clear that numerous challenges are prevailing and that there is still a need for improving the overall awareness and responsiveness towards pervasive skills development in the South African accounting education environment. The second article evaluated the usefulness of the newly developed teaching intervention presented, in its format of *The Amazing Tax Race*, to accounting students of a single SAICA-accredited university, namely the NWU (Potchefstroom campus). Perceptions were gathered from three groups (student participants, student committee members and staff of employer companies) who indicated that the teaching intervention overall positively contributed towards pervasive skills development. Students indicated that they would recommend the teaching intervention to other students to obtain exposure to pervasive skills. The third article determined the usefulness of the teaching intervention presented in the format of *The Tax*

Amazing Race on a national level to tax students from various South African universities. Students overall indicated a positive experience regarding the teaching intervention and perceived the intervention to be useful in developing their pervasive skills. Finally, the fourth article evaluated the design variables of the developed teaching intervention and determined how each variable either contributed to or strained pervasive skills development.

Overall, the teaching intervention was found to be successful in enhancing pervasive skills in accounting students in order to equip them with the skills required to effectively apply knowledge in the formal workplace in a meaningful manner and to motivate them to become life-long learners and contributing members of society. In conclusion, the study contributes to the body of knowledge on the development of teaching interventions that successfully expose accounting students to pervasive skills at the higher accounting education level. The study established a new theoretical framework that accounting educators and trainers could apply to develop teaching interventions aimed at incorporating pervasive skills into higher accounting education curricula. In addition, the study also established a new framework of design variables to be considered in the design and implementation of new teaching interventions to expose accounting students to pervasive skills. The newly developed teaching intervention serves as a one-of-its-kind teaching tool which contributes to enhancing accounting education pedagogy with regard to pervasive skills development.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACCA	Association of Chartered Certified Accountants
AGA(SA)	Associate General Accountant South Africa
AICPA	Association of International Certified Professional Accountants
ANOVA	Analysis of Variance
BTS	Bartlett's Test of Sphericity (statistical significance)
CA	Chartered Accountant/Accountancy
CA(SA)	Chartered Accountant South Africa
CASEL	Collaborative for Academic, Social and Emotional Learning
CAQDAS	Computer-Assisted Qualitative Data Analysis Software
CGMA	Chartered Global Management Accountant
CIMA	Chartered Institute of Management Accountants
CTA	Certificate in the Theory of Accounting
***d*-value**	Effect size (practical significance in statistics)
DfEE	Department for Education and Employment
ELM	Experiential Learning Model
F	F-statistic (the test statistic used for ANOVA)
IAESB	International Accounting Education Standards Board
IFAC	International Federation of Accountants
IIED	International Institute for Environment and Development
KMO	Kaiser-Meyer-Olkin (measure of sampling adequacy in statistics)
NQF	National Qualifications Framework
NWU	North-West University
***p*-value**	Statistical significance
SAFE	Sequenced; Active; Focused; and Explicit (best practice criteria for program implementation)
SAICA	South African Institute of Chartered Accountants
SAIPA	South African Institute of Professional Accountants

SAIT	South African Institute of Tax Professionals
SAQA	South African Qualifications Authority
SPSS	Statistical Package for the Social Sciences
Std. Dev.	Standard Deviation (in statistics)
***T*-test**	Levene's statistical test of comparing two means

REMARKS

The reader is reminded of the following:

This thesis is presented in the article format in accordance with the policies of the *WorkWell* Research Unit in the Faculty of Economic and Management Sciences of the North-West University and consists of **four** research articles. According to E.10.5.1 relating to the degree *Philosophiae* Doctor (PhD), a minimum of three published articles **or three unpublished manuscripts in article format** should be presented, and to obtain the degree there must be proof that at least **one** article has been **submitted** for publication.

- The four articles are presented in a logical sequence in this thesis based on the order in which data were gathered and analysed, although the finalisation and submission of each written manuscript did not necessarily occur in the same order.

- Each of the individual articles complies with the writing style requirements of the specific journal in which the applicable article will be published, or to which the specific article was submitted.

- The author requirements and related documentation specific to each journal are included as part of the annexures at the end of the thesis.

- Three of the four articles have been **accepted for publication** at the date that this thesis was finally submitted.

- The following **articles were submitted** for publication to the below-mentioned DHET accredited peer-reviewed academic journals as follows:

  Viviers, H.A. 2016. Taking stock of South African accounting students' pervasive skills development: Are we making progress? *South African Journal of Higher Education*, 30(2):242-263. (ISSN: 1753-5913).

  Viviers, H.A., Fouché, J.P. & Reitsma, G.M. 2016. Developing soft skills (also known as pervasive skills): Usefulness of an educational game. *Meditari Accountancy Research*, 24(3):368-389. (ISSN: 2049-372X).

Viviers, H.A., Reitsma, G.M. & Fouché, J.P. 2016. Nationally hosted tax intervention: South African students' perceptions of its usefulness to develop pervasive skills. *Journal of Economic and Financial Sciences*, Unpublished. (ISSN: 1995-7076).

- The following **article was submitted** for publication to the below-mentioned IBSS-indexed and internationally peer-reviewed academic journal as follows:

  Viviers, H.A. 2016. Qualitative evaluation of the design variables of a teaching intervention to expose accounting students to pervasive skills. *Industry & Higher Education*,0950422216664244:1-11. (ISSN: 0950-4222).

- All the articles were written by the first author as the PhD candidate (Viviers, H.A.). The second and/or third authors (Fouché, J.P. and Reitsma, G.M.), the promoters of this PhD thesis, reviewed all the articles subsequent to their completion. The first author, as the PhD candidate, therefore contributed more than 50% to all articles, as required by the North-West University.

The use of terminology:

- *Accounting and accountancy*

Within the context of South African literature it seems as if the terms '*accounting*' and '*accountancy*' have different meanings. '*Accountancy*' is submitted to be a broader term which refers to all accounting-related subjects and modules (e.g. financial accounting, forensic accounting, auditing, management accounting and finance, strategy, and taxation), while '*accounting*' only refers to the individual subject of financial accounting. However, the general term used within international literature is '*accounting*' where '*accounting education*' is the standardised term used to refer to all accounting-related subjects and modules. Therefore, in the context of this thesis the term '*accounting*' is used to refer to all accounting-related subjects and modules and should thus be read and interpreted within the same context.

- *SAICA-accredited university*

'*SAICA-accredited universities*' constitutes programmes accredited by SAICA and means that: (i) the academic unit has put in place the appropriate resources that, if utilised effectively, should enable it to deliver the programme at the required standards and levels of quality; and (ii) the programme meets SAICA's requirements in terms of the standards of learning and teaching. Accreditation of a programme is not an assurance that the academic

unit is achieving the required standard of delivery of that programme. Rather, accreditation certifies that a programme contains the requirements necessary to meet SAICA's accreditation standards. There are currently 14 SAICA-accredited universities in South Africa.

- *Teaching and learning methods*

Although teaching methodologies involve the methods of teaching and giving instruction to students the distinction between the concept of '*teaching*' and '*learning*' is easily confused. This is due to the fact that many teaching methods include the word '*learning*' within the name of a specific teaching method. In order to clarify this and to put '*teaching methods*' into perspective, it is important to note that, within the text of this thesis, where either '*teaching*' or '*learning*' appears within the name of a teaching method it both represents the strategies that educators may apply (teaching) for learning to take place.

CHAPTER 1

INTRODUCTION, PURPOSE AND SCOPE OF THIS STUDY

"The great aim of education is not knowledge, but action"

- Herbet Spencer -

Chapter 1

Introduction, purpose and scope of this study

1.1 Introduction and background

Professional accountancy bodies around the world are moving away from a purely knowledge-based accreditation process for new members to include specific additional competencies to be acquired before registration as professional accountants is possible (Boritz & Carnaghan 2003; Bui & Porter; 2010; Steenkamp, 2012:482; Straus-Keevy, 2014). These additional competencies encompass the interpersonal, people or behavioural skills needed to apply technical skills and knowledge in the workplace (Weber, Finely, Crawford & Riviera, 2009:356). In the South African accounting education context these additional competencies are referred to as “pervasive skills and qualities” (Barac & Du Plessis, 2014; De Villiers, 2010, 2015; SAICA, 2014; Strauss-Keevy, 2014). Other terminology used in the literate to describe these skills include “employability” or “transferable” skills (Albrecht & Sack, 2000; Kermis & Kermis, 2010; Stovall & Stovall, 2009; Strauss-Keevy, 2015), and “generic” or “soft” skills (Brungardt, 2009; Jackson & Chapman, 2012; Jackson, Sibson & Riebe, 2013). These skills include the ability to communicate (verbal, listening and writing) effectively, to interact (both personally and interpersonally) with others, to think critically, to solve problems, and to demonstrate leadership, strategic and analytical ability (Barac & Du Plessis, 2014:57; Hartie, Kavanagh & Zraa, 2011; Hassall, Joyce, Arquero Montaňo & Anes, 2005:391-392; Paisey & Paisey, 2010:89).

This change in approach in the education and training of professional accountants originated from a decision by the International Federation of Accountants (IFAC) to follow a competency-based approach to qualify candidates for the profession. This new approach was adopted by IFAC in terms of its International Education Standard for Professional Skills (IES 3) and took effect on 1 January 2005 (IFAC, 2003). One of the fundamental educational elements set out in the IES for becoming a professional accountant is to be equipped with knowledge, skills and professional values (IFAC, 2003:1-2). The shift from a knowledge-based to a competency-based approach is being driven by the concern expressed by stakeholders in accounting practice that graduates do not possess the required pervasive skills and qualities upon entering the profession (Confederation of British Industry [CBI], 2011; Jackson & Chapman, 2012; Kavanagh & Drennan, 2008; Milner & Hill, 2008; Paisey &

Paisey, 2010:89; Robles, 2012; Sin, Reid & Jones, 2012:2; Van der Merwe, 2013; Webb, De Lange & O'Connell, 2009:183).

Many studies claim that technical skills are presumed and it is the pervasive skills that are associated with career success (Gammie, Gammie & Cargill, 2002; Hassall *et al.*, 2005; Hutchinson & Fleischman, 2003; Mohamed & Lashine, 2003). In a study conducted by Grant Thornton among 500 senior finance executives, 55% of CFOs indicated that the most significant challenge in recruiting accounting professionals was finding applicants with the required soft skills beyond technical training (Priborsky, 2011). The twenty-first century is becoming the era in which recognition is given to the importance of soft, or pervasive skills, as well as the pivotal role that education plays in the development of soft skills (Kyllonen, 2013:22). Robles (2012) indicated that technical skills and knowledge accounts for about 15% of success in the workplace, while 85% of job success is based on the individual's soft skills. Competencies such as people skills, business acumen and leadership skills are becoming more prominent, and employers are expecting accountants to possess these competencies over and above mere technical skills and knowledge (CIMA, 2014).

In the South African context, the South African Institute of Chartered Accountants (SAICA) is responsible for the regulation and standard-setting of requirements for a person to obtain the Chartered Accountant (South Africa) (CA[SA]) designation. As a member of IFAC, SAICA strives to equip aspirant CA(SA) candidates with the competencies and skills required for becoming high-performing professional accountants in the global arena (Strauss-Keevy, 2012:6). Consequently, SAICA has responded to the call for a change in approach and introduced proposed changes to its Competency Framework during 2010 to be incorporated by 2013 (SAICA, 2010).

Competency frameworks are documents developed by professional bodies to assist their upcoming and existing members, the employers of their members and academic providers to understand the knowledge, skills and competencies required by these bodies for registration and membership with such bodies. SAICA's Examinable Pronouncements are contained in a detailed syllabus document indicating topics and technical knowledge to be acquired by students in the chartered accounting academic programme. In addition, SAICA's Competency Framework document details the skills that a CA(SA) should possess upon entering the profession (SAICA, 2014). This Framework states that the goal of accounting education and training is to produce competent professional accountants (SAICA, 2014). To demonstrate professional competency, the accounting student must be able to execute tasks in the real world. Thus, students need to be equipped with the necessary skills (the

pervasive skills and qualities) to apply knowledge in order to function at the level required by the globalised business environment.

It could, therefore, be submitted that pervasive skills represent the skills, apart from intellectual ability, that will equip accounting students to apply themselves in a wide range of demanding work environments and to successfully respond to the fast-changing variables in such environments. The SAICA Competency Framework identifies pervasive skills in three categories, namely (i) *Ethical Behaviour and Professionalism*, (ii) *Personal Attributes,* and (iii) *Professional Skills* (SAICA, 2010:12). The pervasive skills falling under these categories include *ethical awareness, professionalism, leadership, influencing others, teamwork, time management, critical thinking, strategic thinking, problem-solving and communication (verbal, listening and writing).*

1.2 Motivation for the study

Although numerous studies have proven the importance of incorporating pervasive skills into higher education accounting curricula, very few state explicitly how to achieve this integration and actual implementation (De Villiers, 2010:11). According to Barac and Du Plessis (2014), the development of pervasive skills is presented and incorporated into the curricula of undergraduate programmes of SAICA-accredited universities in various ways and more integration of pervasive skills into course majors should be considered.

Beard, Schwieger and Surendran (2007:179) highlight that new and more appropriate strategies towards developing both the student's technical and pervasive skills are required. Current teaching strategies applied in accounting education still majorly rely on traditional teaching and assessment practices such as assignments, examinations and tests to incorporate pervasive skills into undergraduate modules (Barac & Du Plessis, 2014:74). However, in order to acquire professional skills, such as communication, decision making and teamwork, new concepts, strategies and methodologies need to be introduced into the teaching of accounting (Kermis & Kermis, 2010:5). Kirstein and Plant (2011) and Strauss-Keevy (2015) indicate that, in comparison with international studies, limited research has been conducted in South Africa on the delivery methods of the pervasive skills and competencies required by SAICA.

Despite the fact that pervasive skills are not subject specific and could be developed independently from a specific field of study or domain of knowledge (Barrie, 2004:262; Boyce, Williams, Kelly & Yee, 2001:37), the question remains as to which teaching methods

are the most suitable for developing these skills in an accounting education context. In terms of the SAICA Competency Framework for CA(SA) academic programmes, accounting educators at SAICA-accredited universities are tasked with the responsibility to address all appropriate professional skills in the academic programme – which includes exposing candidates to the development of pervasive skills. In addition, as part of the on-going SAICA-accreditation process, these academic programmes need to explain how the pervasive qualities and skills are addressed and must provide full motivation if any skill is excluded from the academic programme (SAICA, 2014:17).

It is, therefore, evident that accounting educators are tasked with the challenge of finding and developing teaching methods and strategies that will effectively expose accounting students to pervasive skills. This challenge is further enhanced by the fact that accounting educators and trainers are primarily professionally trained accountants and auditors who do not perceive themselves as experts in developing soft skills (IIED, 2003; Shakir, 2009). In addition, SAICA's Competency Framework is explicit in stating that the framework itself does not intend to provide direct guidance to academics, educators and academic programmes on how CA candidates should achieve the competencies which they are required to possess upon entry to the profession (SAICA, 2014:11). This inherently flexible approach allows accounting educators to be creative and innovative when developing teaching and learning practices and curriculum design that include opportunities for students to be exposed to pervasive skills development (SAICA, 2010). However, in the absence of clear guidelines, accounting educators could be left with more questions than answers as to which teaching methods would be effective in order to meet SAICA's pervasive skills education and training requirements.

1.3 Problem statement

Based on the introduction and background information provided (see 1.1), together with the motivational factors highlighted in the previous section (see 1.2), the following problem statement was formulated:

Uncertainty prevails regarding the teaching methods and strategies that accounting educators need to apply in order to effectively incorporate the development of pervasive skills into higher education accounting curricula. It is evident that there is a need for innovative teaching interventions to be developed that would be successful in exposing accounting students to the full spectrum of the required pervasive skills set. It is further a

need to have these interventions assessed to the success thereof in creating opportunity to expose students to pervasive skills.

Consequently this thesis aims at developing a teaching intervention that will expose accounting students to pervasive skills in the field of accounting education and training, and more specifically within the context of taxation.

The development of teaching interventions aimed at pervasive skills development is complex and problematic due to factors such as (i) questions on clear definitions of the required pervasive skills; (ii) uncertainty regarding the level of complexity at which these skills should be incorporated at the higher education level; (iii) limited time and space in the curriculum for teaching interventions to be incorporated; (iv) the notion of transferability; and (v) the difficulty in measuring and assessing the ultimate effectiveness of these interventions.

The process to develop a teaching intervention is threefold: it needs to be designed, it needs to be implemented, and it needs to be evaluated. This process needs to be followed to develop teaching interventions that will positively contribute to expose students to pervasive skills at the higher education level.

The development of pervasive skill involves a continuous process as skills development is an inherent process which is influenced by multiple internal and external factors such as an individual's true personality, human nature and ability as well as by the variables in the environment in which one operates. Therefore, the development of pervasive skills could occur on different levels of which the starting point is to create opportunities in which students are exposed to it by means of being encouraged to apply and demonstrate pervasive skills in a safe and favorable learning environment. It is therefore submitted that participation in a single interventions alone might not be sufficient to adequately develop the wider spectrum of pervasive skills entirely. Pervasive skills development (refinement of skills) only occurs through repetition over time. It is however argued that the development and implementation of interventions could serve as a platform to create opportunities in which students are effectively exposed by means of encouraging them to apply and to demonstrate (thus, developing) various pervasive skills before its true development (refinements of skills) on a higher level is possible.

1.4 Hypothesis

The hypothesis tested in this study was formulated as follows:

The development (i.e. the design, implementation and evaluation) of a new teaching intervention will expose accounting students to pervasive skills and will positively contribute to accounting education pedagogy in respect of pervasive skills development at the higher education level.

1.5 Primary research objectives

The primary research objective, and also the main aim of this study, was to develop a teaching intervention that could be incorporated as part of the higher education accounting curricula to effectively expose accounting students to pervasive skills.

In order to achieve the aforementioned main objective, a list of secondary research objectives needed to be formulated to address and support the main aim of this study. These secondary research objectives formed the basis of and underpinned the research conducted in this study as set out in chapters 2 to 7. A motivation for and a description of each secondary research objective are provided below.

Before developing a new teaching intervention to expose accounting students to pervasive skills, it was first necessary to conduct a comprehensive review of literature pertaining to the teaching methodology and learning theories which underlie the development (education and training) of pervasive skills, both in general and in the context of accounting education. This review assisted in identifying various key elements to be considered for incorporation into a theoretical framework that would guide and inform the design and development of the teaching intervention. Therefore, the first secondary research objective was:

i To explore, inspect and review various elements pertaining to pervasive skills development existing in the literature in order to establish a theoretical framework on which the design of a teaching intervention could be based (addressed in chapter 2).

After the theoretical framework was established, the teaching intervention needed to be developed. The design and implementation of such a teaching intervention (in all its formats) needed to be clearly described in order to map (i.e. illustrate by means of providing a conceptual framework) the incorporation of the key elements of the theoretical framework into the design of the teaching intervention. Consequently, the second and third secondary research objectives were formulated as follows:

ii To describe the overall design and implementation of the teaching intervention (in both its formats) and to indicate the main differences between the designs of *The Amazing Tax Race* and *The Tax Amazing Race* (addressed in chapter 2).

iii To map the key elements of the established theoretical framework against the overall design and implementation of the developed teaching intervention (addressed in chapter 2).

Informed by the results of the first three secondary research objectives, the developed teaching intervention (as hosted in both its formats) needed to be evaluated with regard to its usefulness in exposing accounting students to the development of pervasive skills. In order to perform these evaluations, the next step was to obtain a holistic understanding of the most suitable research methods for conducting an empirical evaluation of the newly developed teaching intervention. Thus, the fourth secondary research objective was:

iv To explore the methodological design and methods for application in the sciences of accountancy and education to evaluate and analyse the usefulness of a teaching intervention developed to expose accounting students to pervasive skills (addressed in chapter 3).

Based on the findings of the fourth secondary research objective, specific research methods were identified with which to address the secondary research objectives of chapters 4 to 7 (representing articles 1 to 4).

The first research article (chapter 4) reports on the current state of and progress made with regard to pervasive skills development at the higher education level in the South African accounting education environment. This evaluation was based on the period since 2010 when SAICA had introduced changes to its Competency Framework to bring about the shift towards a competency-based approach for the education and training of CAs in South Africa. Perceptions were gathered from third-year accounting students near the end of their undergraduate studies (at the end of 2014). Thus, the majority of these students studied in the period 2012 to 2014 – the period during which SAICA-accredited universities had to incorporate pervasive skills into their SAICA-accredited academic programmes. Thus, the secondary objective of the first research article was formulated as follows:

v To take stock of and to evaluate, from three different perspectives (students, educators and employers), the current state of pervasive skills development at the higher

education level of accounting students at a South African SAICA-accredited university, namely, the North-West University (NWU) (Potchefstroom campus) (addressed in chapter 4).

The findings of the aforementioned objective contributed to highlighting areas of pervasive skills development in the South African accounting education environment which are still in need of improvement at the higher education level.

The second research article (chapter 5) evaluates the developed teaching intervention presented in the format of *The Amazing Tax Race* hosted to accounting students of a single SAICA-accredited university, namely, the NWU (Potchefstroom campus). The secondary objective linked to the second research article was:

vi To determine the usefulness of an innovative tax intervention in encouraging the application of pervasive skills in final-year undergraduate accounting students (addressed in chapter 5).

The third research article (chapter 6) evaluates the developed teaching intervention presented in the format of *The Tax Amazing Race*. This intervention was presented on a national basis to tax students from various South African universities in the northern and a southern region of the country. The secondary objective linked to the third research article was:

vii To evaluate the usefulness of a tax-related intervention aimed at pervasive skills development hosted on a national level (in two regions) with tax students from various universities across South Africa during the 2015 Tax Student Conferences held by the South African Institute of Tax Professionals (SAIT) (addressed in chapter 6).

The fourth research article (chapter 7) reports on a qualitative evaluation of the design variables of the teaching intervention. The focus was on the way in which the design variables either contributed to or strained pervasive skills development. The secondary objective linked to the fourth research article was:

viii To critically evaluate and analyse the design variables of a newly developed teaching intervention to expose South African accounting students to the development of pervasive skills required in terms of SAICA's Competency Framework (addressed in chapter 7).

Each of the secondary research objectives indicated above was further supported by detailed and specific tertiary research objectives described under paragraph 1.7 and formulated as additional research questions in each chapter (2 to 7), where relevant.

Based on the findings of the literature review (chapter 2), the research methodology (chapter 3) and the results of the research objectives for the four research articles (chapters 4 to 7), the final secondary research objective was:

ix To conclude and to make recommendations as to whether the developed teaching intervention could be applied as an effective teaching tool to expose accounting students to the development of pervasive skills as part of their accounting curricula at a higher education level (addressed in chapter 8).

This study aimed to contribute towards the current body of knowledge on teaching methods and practices to be incorporated as part of higher education accounting curricula to expose accounting students to pervasive skills development. The study aimed to not only establish a framework for electing suitable design variables for developing a teaching intervention aimed at exposing accounting students to pervasive skills, but to also evaluate the effectiveness of each design variable to serve as a platform for the future design of teaching interventions aimed at the development of pervasive skills.

1.6 Research design and method

As this study encompassed the development of a new teaching intervention, the overall research design and method comprised three parts: Firstly, a literature review was conducted (chapter 2) in order to establish a theoretical framework to guide and inform the design and implementation of teaching intervention. Secondly, the most suitable methodological design and methods for evaluating a newly developed teaching intervention in the accounting and educational sciences were explored (chapter 3). Lastly, four empirical studies were conducted: one study (chapter 4) to determine the current state of pervasive skills development at the higher education level in a South African accounting education context; and a further three studies (chapters 5 to 7) to evaluate the usefulness of the newly developed teaching intervention in exposing accounting students to pervasive skills. An overview of the aforementioned overall research design and methods employed is provided next.

1.6.1 Literature review

Both South African and international literature, comprising peer-reviewed articles, referenced work, public books, conference proceedings, reports and electronic media, were explored, inspected and reviewed. The main objective was to identify various key elements supporting pervasive skills development which could be incorporated into a theoretical framework. The aim of establishing such a theoretical framework was to provide a sound platform from which to guide the design and implementation of the teaching intervention in an attempt to enhance its chances of success in effectively exposing accounting students to the development of pervasive skills (*to address secondary objective i*). The literature reviewed pertained to the following key elements:

- The learning objectives;
- The learner profile (generation type and needs, learning styles and learning preferences);
- Teaching methodology (teaching paradigms, teaching approaches, methods of instruction, and teaching and learning methods);
- Pedagogical approaches taken to develop pervasive skills in accounting education;
- Challenges, gaps and limitations highlighted from accounting education teaching methods and strategies previously applied to develop pervasive skills; and
- Learning theory elements of the four identified scientific disciplinal domains underlying the development of pervasive skills in an accounting education context.

In addition, the literature review included an inspection of the competency frameworks set by both local and international accounting professional bodies (responsible for accrediting various accounting-related degree academic programmes at universities across South Africa), as well as peer-reviewed articles, public books and other relevant electronic media, to achieve the following in respect of pervasive skills:

- Defining the concept of “pervasive skills” both in general and in the context of accounting education;
- Classifying pervasive skills into “personal” and “interpersonal” skills; and
- Ascribing meaning to each of the required pervasive skills by identifying actions to be performed in order to demonstrate each pervasive skill.

1.6.2 Developing the teaching intervention

In order to achieve the primary objective of this thesis (see 1.5, page 6) a teaching intervention was developed to expose accounting students to pervasive skills. The design was based on the theoretical framework (see 1.6.1) incorporating the key elements which were identified in the literature as supporting pervasive skills development. The teaching

intervention was designed to be presented in two formats, namely *The Amazing Tax Race* (hosted to students at a single SAICA-accredited university) and *The Tax Amazing Race* (hosted to students from multiple South African universities on a national basis). The aim was to evaluate whether the intervention could be successfully implemented at a single higher education institution and also as a national teaching intervention to various South African higher education institutions in an attempt to enhance pervasive skills development in accounting students. The design of the two formats were described and mapped (conceptualised) to ensure the following: (i) that they incorporated the key elements contained in the theoretical framework; and (ii) that they reflected the learning theory elements of the four scientific disciplinal domains underlying the development of pervasive skills in an accounting education context (*to address secondary objectives ii and iii*).

The design of the newly developed teaching intervention attempted to incorporate, address and overcome some of the challenges, gaps and limitations identified from the literature relating to accounting education teaching methods and strategies previously applied to develop pervasive skills. Furthermore, the design aimed at exposing accounting students to not only specific or a limited number of pervasive skills, but to the full spectrum of the required pervasive skills set instead (see chapter 2, figure 2.1).

1.6.3 Empirical research

In order to evaluate whether the newly developed teaching intervention (in both its formats) was successful in exposing accounting students to pervasive skills, various research methodological designs and methods were explored to elect the most suitable research methodology (*to address secondary objective iv*).

Overall, a *parallel-convergent mixed method* research design was followed in this study. This research design incorporates both quantitative and qualitative data collection and analysis techniques and aims at building on the synergy and strength that exist between these two methods of research (Creswell & Plano Clark, 2011; Johnson & Turner, 2003). Action research, following a phenomenological approach, was conducted in this study to gather perceptions on the newly developed teaching intervention from various role-players (accounting students, educators and employers) in the accounting education environment at the higher education level.

To address the *secondary research objectives v to viii* (see 1.5, pages 7 and 8), this study embarked on four research studies (articles 1 to 4, contained in chapters 4 to 7). The

specific methodological design and methods applied for each of these four studies are indicated and motivated in detail in chapter 3 (see 3.4, page 122). Further details on the profile of the study populations, data collection methods, and data analysis procedures are provided in chapters 4 to 7.

1.7 Scope of this study: Chapter overview

This thesis consists of eight chapters. The section to follow provides an overview of the scope of each chapter.

Chapter 1: Introduction, purpose and scope of this study

The first chapter provides an introduction and background to the study. Emphasis is placed on the call from various stakeholders, including local and international professional accounting bodies, accounting and business-related employer companies, accounting academics and accounting students, to expose accounting students to the development of pervasive skills as part of higher education accounting curricula. The cause for the shift from a knowledge-based to a competency-based approach for the education and training of accountants is explained, together with a brief overview of what is meant by and required with regard to pervasive skills development at the higher education level. Based on this background information, the problem statement is identified, supported by a motivation for the study, and the hypothesis is stated. Subsequently, the overall and main primary research objective is formulated. The latter is supported with a motivation for and a formulation of secondary objectives to be achieved in each chapter and/or article. This is followed by a description of the research design and methods employed in this study. Lastly, an overview on the scope of the chapters in this thesis is provided, after which the chapter is concluded.

Chapter 2: Theoretical framework for developing a teaching intervention to expose accounting students to pervasive skills

The purpose of this chapter is to provide an overview of, and to consider, various key elements to be included in a theoretical framework that will guide the development of the teaching intervention in this study (*therefore addressing secondary objective i*). The chapter identifies and determines how the development of pervasive skills in an accounting education context is theoretically underpinned and embedded within the learning theories of its four underlying scientific disciplinal domains. A theoretical framework is established and a description of the design and development of the teaching intervention (in both its formats) is provided. Finally, the developed teaching intervention is mapped (conceptualised) against

the key elements of the theoretical framework to illustrate (by providing a conceptual framework) the incorporation of the key elements into the design of the teaching intervention (*therefore addressing secondary objective ii and iii*).

Chapter 3: Methodological design and methods to evaluate a teaching intervention in the accountancy and educational sciences

This chapter explores the methodological design and methods for application in the sciences of accounting and education to evaluate and analyse the usefulness of a newly developed teaching intervention to expose accounting students to pervasive skills (*therefore addressing secondary objective iv*). The methodological design and methods explored include the following: research philosophies/paradigms; research approaches; research strategies; research choices; research time horizons; and research techniques and procedures. An overview of the ethical aspects considered and altered is also provided. Subsequently, the overall research methodology selected for the study, as well as the specific methodology applied for each of the empirical studies (articles 1 to 4, contained in chapters 4 to 7), are discussed and motivated.

Chapter 4 (Article 1): Taking stock of South African accounting students' pervasive skills development: Are we making progress?

Chapter 4 takes stock of and evaluates, from three different perspectives (students, educators and employers), the current state of pervasive skills development of accounting students at a South African SAICA-accredited university, namely the NWU (Potchefstroom campus) (*therefore addressing secondary objective v).* To support this objective, the following secondary research objectives are addressed in this chapter:

- To establish the level of awareness and perceived importance of pervasive skills development at the higher education level by each of the three groups of role-players operating in the accounting education environment;
- To determine whether South African accounting students perceive themselves to be competent, based on self-assessment and reflection upon the level of their exposure to the development of pervasive skills in undergraduate accounting degree modules, to possess the pervasive skills at the end of their third year of studies as required by SAICA's Competency Framework; and
- To determine what employers (accounting, auditing and advisory firms) perceive their role and responsibilities to be with regard to pervasive skills development of accounting students at the higher education level.

The process of stock taking entailed a review of literature pertaining to the development of pervasive skills in the South African accounting education environment. In addition, the chapter indicates how questionnaires were used to gather perceptions from the three groups of role-players (as previously stated) with regard to the research objectives formulated. These quantitative findings are further informed by focus group interviews conducted with accounting students and educators.

The results of the aforementioned research objectives served, firstly, to indicate the progress that has been made with regard to pervasive skills development at the higher education level since the shift towards a competency-based approach for the education and training of accountants and, secondly, to highlight areas that are still in need of improvement. These findings further direct and motivate the design and development of teaching interventions aimed at enhancing accounting pedagogy of pervasive skills development at the higher education level.

Chapter 5 (Article 2): Developing pervasive skills: Usefulness of a tax intervention

This chapter evaluates the usefulness of the newly developed teaching intervention presented, in its format of *The Amazing Tax Race*, to accounting students of a single SAICA-accredited university, namely the NWU (Potchefstroom campus). The aim was to determine whether the intervention had succeeded in encouraging students to apply the broader set of pervasive skills required by SAICA and had provided students with the opportunity to develop pervasive skills (*therefore addressing secondary objective vi*). The introduction section reiterates the call for pervasive skills to be developed in graduates before they enter the formal workplace, and again highlights the gaps regarding pervasive skills development that still need to be addressed. This is followed by a description of the development of the teaching intervention (presented in the format of *The Amazing Tax Race*) and the research design and methodology applied to evaluate the teaching intervention. The tertiary research objectives this chapter aimed to address included the following:

- To determine whether the teaching intervention encouraged students to apply pervasive skills;
- To determine which pervasive skills were most and least prominent in the teaching intervention; and
- To establish the main perceived benefits and main perceived constraints with regard to being part of the teaching intervention.

Chapter 5 concludes by providing a summary of the empirical key findings and conclusions, followed by suggestions for further research.

Chapter 6 (Article 3): Nationally hosted tax intervention: South African students' perceptions of its usefulness to develop pervasive skills

This chapter aims to determine the usefulness of the teaching intervention, presented in the format of *The Tax Amazing Race* on a national level in two regions (north and south), to develop pervasive skills in tax students from various South African universities (*therefore addressing secondary objective vii*). The chapter provides an overview of the requirements regarding pervasive skills development from local and international professional accounting bodies. This is followed by a description of how the teaching intervention was developed in order for it to be hosted on a national level. The tertiary research objectives that this chapter aimed to address included the following:

- To determine which pervasive skills students applied during their participation in the teaching intervention;
- To determine the pervasive skills to which the tax students were exposed in the intervention; and
- To establish the main perceived benefits and the main perceived constraints as a result of participation in the teaching intervention on a national level.

Empirical findings are reported and conclusions are drawn based on the perceptions of participants from both regions gathered by means of questionnaires. Finally, recommendations are stated, suggestions for further research are made and the limitations of the research conducted in this chapter are highlighted.

Chapter 7 (Article 4): Qualitative evaluation of design variables of a teaching intervention to expose accounting students to pervasive skills

This chapter reports on focus group interviews held with accounting students who participated in the newly developed teaching intervention hosted at a single South African SAICA-accredited university. Based on the analysis of the transcripts from the interviews, this chapter qualitatively evaluates the design variables of the teaching intervention (*therefore addressing secondary objective viii*). Chapter 7 commences by providing an overview of literature regarding teaching methods to develop pervasive skills in accounting education. This is followed by a description of the teaching intervention and each of its design variables. Subsequently, each design variable is critically evaluated and analysed based on the extent to which it either contributes to or strains pervasive skills development. Based on the findings of the analysis and evaluations, conclusions are drawn and recommendations are made. The chapter concludes by making suggestions for future

research and by highlighting the limitations of the qualitative analysis conducted in this chapter.

Chapter 8: Reflections, conclusions and recommendations

This chapter serves as the concluding chapter of this thesis. It summarises all the research findings and reflects upon them in order to report on how the secondary research objectives and their underlying tertiary research objectives were addressed, where relevant. Chapter 8 revisits the primary objective of the study to reflect, conclude and make recommendations on whether the developed teaching intervention could be applied as an effective teaching tool to expose accounting students to the development of pervasive skills as part of accounting curricula at the higher education level (*therefore addressing secondary objective ix*). This is followed by proving the hypothesis and by stating the contributions of this thesis. Lastly, final recommendations are made and areas for further development and research are highlighted.

1.8 Limitation of scope

The scope of the research, relating to the evaluation of the teaching intervention developed in this thesis, is limited to the perceptions of the various role-players who volunteered to participate in the intervention hosted in both its formats (namely *The Amazing Race* and *The Tax Amazing Race*). This self-selection of individuals who were willing to participate in the research (by either completing a questionnaire or who also agreed to be interviewed) might only represent that portion of role-players who were most positive about the intervention which might have a consequent effect on the positive nature of the results. It is therefore submitted that the scope to which the results of this thesis could be generalised, is limited, and should be interpreted in this context.

1.9 Chapter summary

Against the backdrop of the opening quote by the English philosopher, Herbert Spencer, it is clear that education instilling knowledge would be worthless and invaluable if that knowledge could not be turned into action. Action reflects true competency as it demonstrates the ability to apply knowledge. Action encapsulates activities, concrete experiences, practical trials, explorations, or applications (Zuber-Skerritt, 2001). Action is also energetic and seeks to cause effect, to impact and to influence. Furthermore, *action* is defined as the act one consciously wills and is characterised by physical and mental activity (Oxford Dictionary, 2016).

As professional bodies around the globe have shifted towards adopting a competency-based approach for the education and training of professional accountants, SAICA has also required CA(SA) candidates to demonstrate professional competency. Professional competency includes the skills and professional values that professional accountants should be equipped with during education and training (SAICA, 2014). Therefore, in order to demonstrate professional competency, accounting students need to be equipped with the necessary skills (the pervasive skills and qualities) to actively apply knowledge in order for that knowledge to be of value.

Because "*the great aim of education is not knowledge, but action*" (Spencer, n.d.), this study actively aimed to develop (i.e. to design, to implement and to evaluate) a teaching intervention that could be incorporated as part of higher education curricula to expose accounting students to pervasive skills. This chapter took action by introducing the research topic, formulating and motivating the problem statement and research objectives, describing the scope, and providing an overview of the action steps taken in each chapter of this thesis. Overall, the study endeavoured to enhance accounting education pedagogy relating to pervasive skills development at the higher education level.

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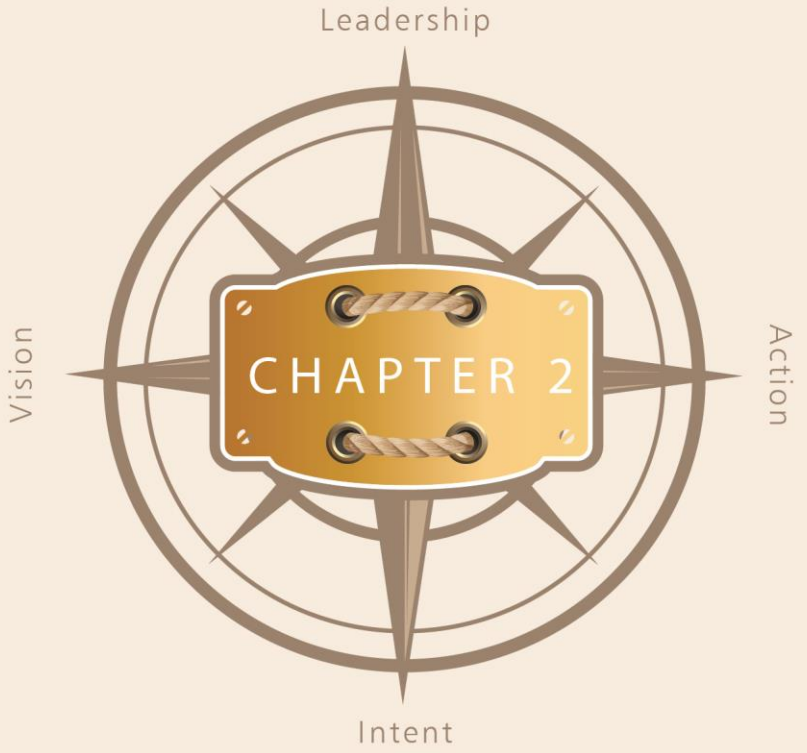

THEORETICAL FRAMEWORK FOR DEVELOPING A TEACHING INTERVENTION TO EXPOSE ACCOUNTING STUDENTS TO PERVASIVE SKILLS

"When it is obvious that goals cannot be reached, don't adjust the goals, adjust the action steps"

- Confucius -

Chapter 2

Theoretical framework for developing a teaching intervention to expose accounting students to pervasive skills

2.1 Introduction

In developing a teaching intervention to successfully expose accounting students to pervasive skills, the researcher (author) needed to explore, inspect and review various elements pertaining to pervasive skills development from the literature in order to establish a theoretical framework on which to base the design of the intervention. To address the primary objective of this thesis, namely *to develop a teaching intervention that could be incorporated as part of the higher education curricula to effectively expose accounting students to the development of pervasive skills*, the following questions had to be considered as the key elements in establishing a suitable theoretical framework:

- What is the *learning objective* to be achieved? (see 2.2.1);
- What is the *meaning* of "pervasive skills" and what is the *definition* that could be ascribed to each of the 12 pervasive skills required in terms of the SAICA Competency Framework? (see 2.2.2);
- What is the *learner profile* of the individuals who need to achieve the learning objective? (see 2.2.3)
- Which *teaching paradigm, approach* and *methods (teaching methodology)* are considered appropriate and need to be followed in developing pervasive skills? (see 2.2.4); and
- Which *pedagogical approaches* have already been taken in the accounting education environment (both locally and internationally) to expose accounting students to pervasive skills development? What are the limitations identified, gaps highlighted and lessons learned from these approaches that need to be addressed and incorporated in the development of a new teaching method and strategy aimed at pervasive skills development? (see 2.2.5)

The purpose of this chapter is to provide an overview of the aforementioned key elements in establishing a theoretical framework for the development of the teaching intervention under review in this thesis. This is followed by a discussion as to how the development of pervasive skills in an accounting education context was theoretically underpinned and

embedded in the learning theories of its four underlying scientific disciplinal domains (see 2.3). The theoretical framework for the development of the teaching intervention is then set out based on a conclusion of the key elements considered (see 2.4), followed by a description of the teaching intervention in its two formats (see 2.5). Lastly, the teaching intervention is mapped against the key elements of the theoretical framework to illustrate by means of a conceptual framework how the key elements were incorporated into the design of the teaching intervention (see 2.6).

2.2 Theoretical framework: Considering the key elements

To guide the planning, design and implementation of the teaching intervention under review, various key elements were considered for the theoretical grounding of a framework which incorporates particular approaches, theories and methods. These considerations also served to motivate the positioning of the teaching intervention within the theory of soft skills development in general, and specifically within accounting education.

2.2.1 The learning objective

Learning objectives (also referred to as learning outcomes) are described by Harden (2002) as the broad statements representing what needs to be achieved and assessed at the end of a course of study. Therefore, learning objectives are synonymous with competencies. Cranmer (2006) indicates that competencies are generally associated with the requirements of vocational training and professional bodies, while “graduate attributes” (i.e. learning objectives, outcomes or capabilities) are associated with university education.

Learning objectives set for higher education degree programmes (such as accounting-related degrees and programmes presented by universities) need to be aligned with the outcomes-based theoretical framework set by the South African Qualifications Authority (SAQA) known as the National Qualifications Framework (NQF) (SAQA, 2012). Furthermore, learning objectives set by universities which provide Chartered Accountancy (CA) education and training and are accredited with SAICA, need to adhere to the requirements stipulated by the SAICA Competency Framework.

The NQF is philosophically underpinned by the concept of applied competence which is encapsulated within each of the level descriptors that drive learning objectives (SAQA, 2012). Applied competence has three constituent elements, namely (i) foundational competence, which includes the intellectual/academic skills of knowledge together with

analysis; (ii) synthesis and evaluation, which include information processing and problem-solving; and (iii) practical competence, which includes the concept of operational context, and reflexive competence, which incorporates learner autonomy. On the other hand, the SAICA Competency Framework (2014) highlights that competency does not relate to knowledge and understanding alone, but specifically to the ability to execute a task in the real world. In order to acquire a competency (thus, to achieve a learning outcome) a candidate must have the ability to apply knowledge and be able to understand it within practical circumstances (SAICA, 2014). Competency is formally defined in terms of the SAICA Competency Framework (2014:16) as:

> The particular tasks that CAs(SA) perform while applying, or bringing to bear, the pervasive qualities and skills that are characteristic of CAs(SA) to the level of proficiency defined as appropriate by the profession.

A strong sense of coherence, synergy and alignment is present in the pervasive skills required by the SAICA Competency Framework when compared to the categories used in terms of the NQF to describe applied competency. The latter includes problem-solving; ethics and professional practice; producing and communicating information; and accountability (SAQA, 2012:10).

The SAICA Competency Framework (2014:16) states that the process of acquiring a competency (thus, achieving a learning objective) involves an integrated process of three non-discrete steps in which the candidate should:

- acquire the specific technical knowledge and pervasive skills;
- develop an understanding of where and why the knowledge is to be applied; and
- experience the execution of tasks (practical application).

The learning objective to be achieved by participating in the teaching intervention under review is for accounting students to be exposed to pervasive skills. This *exposure* encompasses the creation of situations (activities) in which students have the opportunity to experience and to freely apply, practice and develop various pervasive skills in a real-word context (reality) outside the normal classroom environment.

2.2.2 Defining pervasive skills

The formulation of a definition of pervasive skills for the study is set out in the following steps: Firstly, a motivation for the definition process is provided (see 2.2.1), followed by a discussion on the broad concept of pervasive skills (see 2.2.2.2). Hereafter, the various

pervasive skills are identified, classified and defined in the context of accounting education (see 2.2.2.3), its further classification as either personal or interpersonal skills is discussed (see 2.2.2.4), and, lastly, meaning is ascribed to each of the pervasive skills identified based on the actions needed to be performed to demonstrate or apply each pervasive skill (see 2.2.2.5).

2.2.2.1 Motivation for the definition process

According to Bello and Kostova (2012), researchers should pay much more attention to providing precise definitions for the constructs relating to their research because underdevelopment and ambiguity in definitions create serious problems such as incorrect formulation of theoretical arguments, increased risk of tautology and inadequate measurements. The specification of concepts, constructs or variables is an important element in describing a phenomenon at a higher level of abstraction (Thomas, Cuervo-Cazurra & Brannen, 2011). Consequently, it is imperative to clearly define the concept of pervasive skills and to ascribe a meaning to each of the required skills relevant to this study. This definition and understanding of the concept by the researcher has a direct impact on the design of the teaching intervention under review – seeing that the main learning objective to be achieved was the exposure to pervasive skills.

2.2.2.2 The general concept of pervasive skills

Pervasive skills are generally referred to in the literature as “soft skills” or “generic skills” (Boyce, Williams, Kelly & Yee, 2001:37; Brungardt, 2009; Strauss-Keevy, 2015). The label of “generic skills” appears to be problematic because its definition has evolved in the literature over time and lacks precision (Lucas, Cox, Croudace & Milford, 2004; Whitefield & Kloot, 2006). Other synonyms used in the literature include terms such as “transferable skills”, “professional skills”, “core skills”, “non-technical skills”, “graduate attributes”, “generic attributes” and “employability skills” (Ballantine & McCourt Larres, 2009:388; Clanchy & Ballard, 1995; De La Harpe, Radloff, & Wyber, 2000; Jones, 2010; Strauss-Keevy & Maré, 2014; Willcoxson, Wynder & Laing, 2010). These terms are typically considered and aimed at enhancing graduate work-readiness (Jackson, Sibson & Riebe, 2013:7).

Pervasive skills include the cognitive skills (see fourth domain under 2.3.4) and soft skills required of graduates in the application of their discipline-specific knowledge (Jackson & Chapman, 2012:95). Weber, Finely, Crawford and Riviera (2009:356) define “soft skills” as the interpersonal, people or behavioural skills needed to apply technical skills and knowledge in the workplace. Pervasive skills are not subject specific and could be developed

independently from a specific field of study (Barrie, 2004:262; Boyce *et al.*, 2001:37). The generic skills generally referred to in the literature include communication (verbal, listening and writing), interpersonal interaction, critical thinking, problem-solving and analytical skills (Barac & Du Plessis, 2014:57; Hartie, Kavanagh & Zraa, 2011; Hassall, Joyce, Montanto & Anes, 2005:391-392; Paisey & Paisey, 2010:89).

Based on the aforementioned discussion, it is clear that "pervasive skills" is a broad concept. In terms of the International Accounting Education Standards Board (IAESB) (2012: IES 3 revised, par. A3) there is no standard definition of generic (pervasive) skills because this term includes many elements or sub-categories. For purposes of this study, the broad concept of pervasive skills had to be narrowed down into more specific skills to be incorporated into the learning objective to be achieved in the design of the teaching intervention under review. The pervasive skills as required and described in an accounting education context are considered in the section to follow.

2.2.2.3 Defining pervasive skills within the context of accounting education

Professional accountancy bodies design competency frameworks to inform their future and existing members, their employers, as well as academic providers, of the knowledge, skills and competencies required for registration at and obtaining membership with such bodies. Competency frameworks enable academic educators to better prepare students to become well-grounded professionals and to inform employers on membership requirements of their employees at such bodies.

The SAICA Competency Framework (2014:24) describes in three categories the pervasive skills and qualities that all CAs are expected to bring to all tasks:

- *Ethical Behaviour and Professionalism*

  Protecting public interests, acting with honesty and integrity, exercising due care, being objective and independent, avoiding conflict of interest, protecting the confidentiality of information, enhancing the profession's reputation and adhering to professional conduct
- *Personal Attributes*

  Demonstrating self-management and leadership, taking initiative and showing competence, adding value in an innovative manner, managing change, treating others in a professional manner, understanding the national and international environment, being a life-long learner, being a team member and demonstrating time management.

- *Professional Skills*

  Critical thinking, problem-solving, effective communication, supervising and managing, understanding the impact of information technology and considering basic legal concepts.

Based on and drawn from the descriptions provided under the three categories of pervasive skills and qualities in terms of the SAICA Competency Framework (SAICA, 2014), 12 pervasive skills were identified that accounting students need to develop and which was considered by the author (as researcher and active participant in the repetition of the action research cycle (see figure 3.2)) to be suitable and compatible for successful incorporation within the design of the selected format of the teaching intervention. These skills comprise the following: ethical awareness and professionalism (under *Ethical Behaviour and Professionalism*)*;* leadership, influencing others, teamwork and time management (under *Personal Attributes*); and critical thinking, strategic thinking, problem-solving, communication (verbal), communication (listening) and communication (writing) (under *Professional Skills*).

In order to define the concept of pervasive skills in the wider context of accounting education, and not only in the context of CA(SA) education and training, the pervasive skills and competencies as classified and described by other local and international professional accountancy bodies (which provide accreditation for accountancy-related degree programmes at various South African higher education institutions) were also considered. The additional professional accountancy bodies considered included two local bodies, namely the South African Institute of Tax Professionals (SAIT) and the South African Institute of Professional Accountants (SAIPA); as well as three international professional bodies, namely the Chartered Institute of Management Accountants (CIMA), the Chartered Global Management Accountant (CGMA) and the Association of Chartered Certified Accountants (ACCA). The findings are summarised in table 2.1.

Table 2.1: Pervasive skills as classified and described by other professional accountancy bodies

Professional body	***Classification of pervasive skills***	***Description of each category of pervasive skills***
SAIT and SAIPA	Neither SAIT nor SAIPA has a publicly available competency framework detailing the pervasive skills and competencies required from current and prospective members	
CIMA and CGMA	*People skills*	The ability to influence and negotiate, as well as decision-making, communication, collaboration and partnering skills. Communication entails the ability to influence the decisions, actions and behaviours of decision-makers and others throughout an organisation and its stakeholders.
	Leadership skills	Team building, coaching and mentoring, driving performance, motivating and inspiring, and change management. Leadership is further defined on three levels: (i) peer leadership (involving leading peers in and out of the finance function); (ii) functional leadership (ensuring that the finance function delivers its objectives to the organisation); and (iii) strategic leadership (defining, formulating and overseeing the implementation of planned strategy) (CGMA, 2014a:3-4; CIMA, 2015).
ACCA	*Skills module*	Candidates' knowledge of the tax system is expanded by the required ability to apply tax knowledge to the issues commonly encountered by individuals and businesses. Candidates should have the ability to interpret and analyse information and communicate the outcomes in a manner appropriate to their intended audience (ACCA, 2015:5).

(**Source:** Author's compilation of sources mentioned above)

The competency frameworks of all the professional accountancy bodies inspected support both life-long learning and continuous professional development (ACCA, 2015; CGMA, 2014b; CIMA, 2015; SAICA, 2014).

2.2.2.4 Classifying pervasive skills as either personal or interpersonal skills

From the literature on soft skills development the various pervasive skills could further be classified within two major groups of skills, namely either personal skills or interpersonal skills (Birkett, 1993; Candy, Crebert & O'Leary, 1994; CPA Australia/ICAA, 2005; Foster & Bolt-Lee, 2002; Gammie, Gammie & Cargill, 2002; Hassall, Joyce, Ottewill, Arquero & Donoso, 2000; Tempone & Martin, 2003; Whitefield & Kloot, 2006).

Personal skills

Personal skills are described as communication skills, initiative, creativity, the capacity to solve problems (Stewart & Knowles, 2001) and the ability to work well with others, to organise and to motivate oneself (DfEE, 1997:34). In terms of the International Federation of Accountants' (IFAC) (2010) professional skills and sub-divisions, personal skills relate to the attitudes and behaviour of professional accountants. Developing these skills helps individual learning and personal improvement. These skills include self-management; initiative, influence and self-learning; the ability to select and assign priorities with restricted resources available and to organise work to meet tight deadlines; the ability to anticipate and adapt to change; the ability to consider the implications of professional values, ethics and attitudes in decision making; and professional scepticism (IFAC, IES3, 2010:47-50).

Interpersonal skills

Interpersonal skills are defined as the capacity to project oneself into the inner experience of another human being (Dean, 1984:130). The notion encapsulates skills that contribute towards creating a group dynamic. According to IFAC (2010), interpersonal skills enable a professional accountant to work with others for the common good of the organisation, receive and transmit information, form reasoned judgments and make decisions effectively. These components of interpersonal skills include the ability to work with others in a consultative process; withstand and resolve conflict; work in teams; interact with culturally and intellectually diverse people; negotiate acceptable solutions and agreements in professional situations; work effectively in a cross-cultural setting; present, discuss, report and defend views effectively through formal, informal, written and spoken communication; and listen and read effectively while maintaining sensitivity to cultural and language differences (IFAC, IES3, 2010:47-50).

Table 2.2 below provides a summary of the actions used to describe and classify the various pervasive skills as either personal or interpersonal skills. The summary is based on the consideration of several sources from the literature.

Table 2.2: Personal and interpersonal skills

Personal skills	***Interpersonal skills***
• Thinking and behaving ethically • Being flexible in new/different situations • Acting strategically • Thinking and acting independently • Being focused on outcomes • Tolerating ambiguity • Thinking creatively and innovatively • Managing oneself in situations of challenge • Managing oneself in situations of stress • Managing oneself in situations of conflict • Managing oneself in situations of time pressure • Managing oneself in situations of change	• Listening effectively • Presenting, discussing and defending views • Transferring and receiving knowledge • Negotiating with people from different backgrounds and value systems • Understanding group dynamics • Collaborating with colleagues • Communicating in written format • Being empathetic • Communicating orally • Being motivated

(**Sources:** Birkett, 1993; Candy *et al.*, 1994; CPA Australia/ICAA, 2005; Whitefield & Kloot, 2006)

Figure 2.1 below provides a summary of the pervasive skills identified from the descriptions in each category of pervasive skills required in terms of the SAICA Competency Framework. These skills are further classified into personal or interpersonal skills.

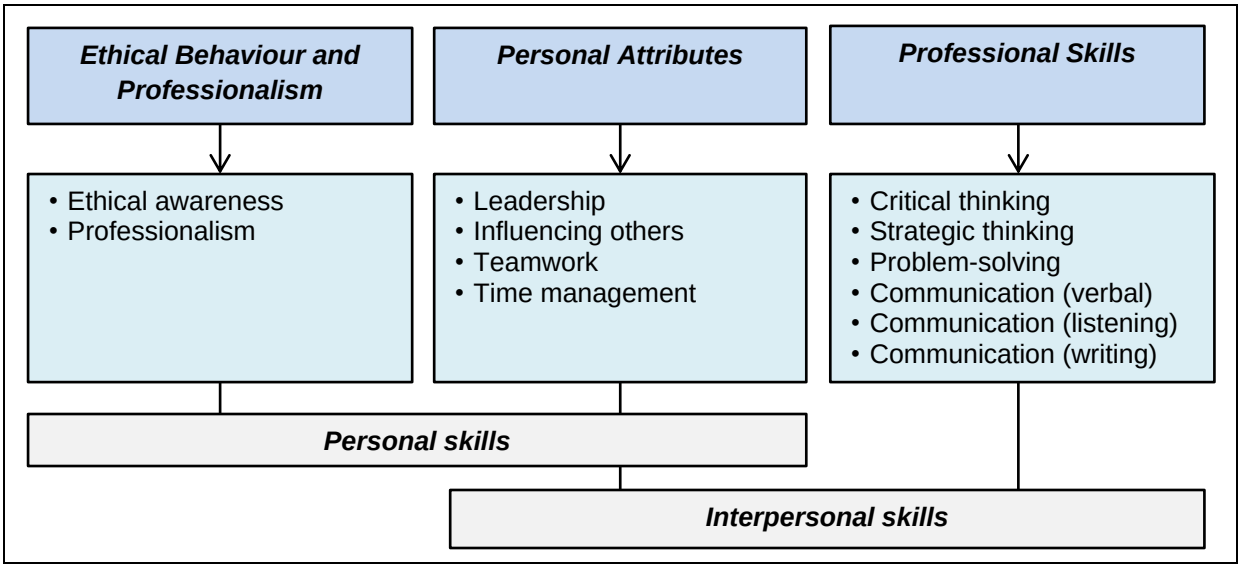

Figure 2.1: Classification and identification of the required pervasive skills

(**Source:** Author's compilation)

2.2.2.5 Ascribing a meaning to each of the required pervasive skills

Clanchy and Ballard (1995) claim that problems exist in the implementation of pervasive skills development because definitions of what constitute "generic skills, attributes and values" have not been adequately refined. Medlin, Graves and McGowan (2003) indicate that most lecturers lack the time to properly develop definitions of individual pervasive skills despite pressure for the development of pervasive skills coming from various stakeholders. In an Australian study, Whitefield and Kloot (2006) presented definitions to be used as a point of reference from which academics could design accounting curricula that encompass personal and interpersonal skills. From an inspection of university learning objectives and graduate outcomes it was found that statements referring to these skills were expressed vaguely and broadly. Even where terms such as "communication skills", "problem-solving skills" or "teamwork skills" were used, the components of each skill were rarely listed. Therefore, it seems that university educators have to rely on their own discretion in establishing a relationship between a specific teaching or assessment activity and a specified graduate attribute or pervasive skill (Willcoxson *et al*., 2010:67).

Different actions reflect the meaning attached to the pervasive skills as identified in the aforementioned discussion. In an attempt to define and describe the various pervasive skills, relevant literature in an accounting education context were inspected of which the findings are summarised in table 2.3.

Table 2.3: Defining specific pervasive skills from the literature

Pervasive skills	***Actions reflecting its meaning in the literature***
Communication (verbal)	Discussing with others to bring about a desired result (Hope, 1999: 35); speaking clearly and correctly; presenting ideas and thoughts in discussion format (Candy *et al*., 1994:293); conveying thoughts with clarity and confidence in an oral form (Shakir, 2009:310).
Communication (listening)	Listening; listening with empathy; listening with intent to understand (Thompson, Grandgenett & Grandgenett, 1999:131); not only hearing what is said, but interpreting what is really said (Hope, 1999:38).
Communication	Comprehending through reading and listening; writing clearly and correctly; presenting ideas in written format (Candy *et al*.,

(writing)	1994:293).
Problem-solving	Solving problems; making decisions (SAICA, 2014); expanding and improving thinking skills in order to provide ideas and alternative solutions (Shakir, 2009:311).
Teamwork	Working effectively as a team member; striving to add value in an innovative manner (SAICA, 2014); two or more individuals interacting with each other over time, sharing a common goal or purpose; members sharing unique actions and experiences that give rise to boundaries that may be physical, psychological, social, or some combination of these (Lawson & Shen, 1998:100); keeping oneself sufficiently inspired to convey to others (team player) (Hope, 1999:67); working and cooperating with people from various social and cultural backgrounds in order to achieve a common goal (Shakir, 2009:311).
Time management	Demonstrating time management; managing change (SAICA, 2014); controlling time allocation; controlling work pace (Senior, 1980); achieving set tasks within a given timeframe (Hope, 1994:72); managing commitments within available time (Kermis & Kermis, 2010:8).
Leadership	Demonstrating self-management and leadership; taking initiative; showing competence and recognising limits (SAICA, 2014); activating forces within or outside the individual that initiate, direct, and sustain action towards a goal or set of goals (Lawson & Shen, 1998:117); seeing difficulties and acting on them, making things happen and taking an independent stance where necessary (Stewart & Knowles, 2001:106); understanding and acting in the role of a leader and a group member and carrying out those roles interchangeably (Shakir, 2009:311).
Professionalism	Being objective and independent; enhancing the profession's reputation; adhering to professional conduct (SAICA, 2014).
Ethical awareness	Protecting public interests; acting with honesty and integrity; exercising due care; avoiding conflict of interest, protecting

	confidentiality of information (SAICA, 2014); being diplomatic and honest (Domeyer, 2000:34); practising sound ethics while maintaining a sense of responsibility towards society (Shakir, 2009:311).
Strategic thinking	Supervising and managing (SAICA, 2014); planning to achieve objectives and goals (Langfield-Smith, Thorne & Hilton, 1995:6); planning ahead and being prudent in taking risks (Candy *et al*., 1994:295); establishing appropriate courses of action, achieving goals, anticipating needs and setting priorities (Stewart & Knowles, 2001).
Critical thinking	Examining and interpreting information critically (SAICA, 2014); producing new ideas and approaches (Maltby, Gage & Berliner, 1995:643); identifying and analysing complex situations and making justifiable evaluations (Shakir, 2009:311).
Influencing others	Treating others in a professional manner (SAICA, 2014); showing willingness to negotiate and compromise (Candy *et al*., 1994: 295); activating hypothetical internal process to engage with and to direct behaviour in others (Maltby *et al*., 1995:649); being driven and determined to achieve results and showing perseverance to attain goals in difficult circumstances (Stewart & Knowles, 2001:106).

(**Source:** Author's compilation from sources mentioned above)

Consequently, the actions identified in the aforementioned discussion (see tables 2.1 and 2.2) indirectly represent the demonstration and application of the pervasive skills required in terms of the SAICA Competency Framework. These actions needed to be incorporated into the design of the overall teaching intervention and its relating activities under review in order to achieve the learning objective of exposing accounting students to the required pervasive skills identified in figure 2.1. Furthermore, these actions needed to be integrated into the design of the questionnaires (see chapter 3, section 3.2.6) to be used to evaluate the usefulness of the teaching intervention in exposing students to and encouraging them to apply the required pervasive skills.

2.2.3 The learner profile

The learner profile comprises elements such as the learner's characteristics, needs, learning styles and learning preferences. Studies have indicated that specific characteristics and special needs of generations affect the way in which they learn and suggested that, in order to be effective, teaching methods and strategies must be adapted to address the characteristics, needs, learning styles and learning preferences of students from specific generations (Wessels & Steenkamp, 2009:1039). The following aspects needed to be considered in the design of the teaching intervention:

2.2.3.1 Generation characteristics and needs

It is submitted that the current generation of higher education learners think and behave differently than those from previous generations. The current generation has been given different names, including "digital natives" (Prensky, 2001), "Millennials" (Howe & Strauss, 2000; Kultalahti & Viitala, 2014:569) and "Generation Y" (Kennedy, Krause, Gray, Judd, Bennett, Maton, Dalgarno & Bishop, 2006; McCrindle Research, 2006; Reilly, 2012; Wessels & Steenkamp, 2009). In their overview of generations, Lancaster and Stillman (2002) state that members of Generation Y were born between 1981 and 1999, while Wessels and Steenkamp (2009) indicate that they were born from 1982. It could, therefore, be concluded that Generation Y came into being during the last two decades of the twentieth century.

Students belonging to Generation Y were born into a world of information technology (Reilly, 2012:2). Wessel and Steenkamp (2009:1040) assert that, even in a developing country such as South Africa, students have been exposed to technology from an early age and could therefore be classified as belonging to Generation Y. These students are comfortable with technology (Lancaster & Stillman, 2002; Smith, 2010; Welsh & Brazina, 2010), they are socially active (Gursoy, Maier & Chi, 2008), and comfortable with change (Hart & Brossard, 2002). Thus, they prefer to multi-task quickly rather than focus on one thing at a time (Reilly, 2012:2). They are also results-oriented, and have an appetite for work and pressure (Shih & Allen, 2007). Moreover, they are eager to develop their skills and to take on new challenges (Wong, Gardiner, Lang & Coulon, 2008). Generation Y students are characterised as being confident, independent and individualistic, self-reliant and entrepreneurial (Martin, 2005). They are collaborative, team-oriented and are used to having structure in their lives as a result of the parenting they have received (Shih & Allen, 2007). They are, however, constantly seeking approval and in need of praise (Crumpacker & Crumpacker, 2007).

Wessels and Steenkamp (2009) have found that Generation Y students in South African economic and management sciences faculties prefer teamwork, structure, interactivity and image-rich environments. These authors furthermore suggest that a critical learning outcome approach should be followed in the design, delivery and assessment of modules to interact with these students in the classroom and adequately address their learning needs. Reilly (2012:5) argues that simulations of the real world, or virtual reality, engage and motivate Generation Y seeing that these types of simulations are visual and involve learning by doing. Opportunities for peer learning are also important for Generation Y students (Manuel, 2002:208).

2.2.3.2 Learning styles and learning preferences

The continued lack of pervasive skills found among accounting students could be ascribed to a combination of the use of non-effective traditional accounting education methods and the fact that accounting students' pre-existing learning preferences have not been adequately recognised (Boyce *et al.*, 2006:41). An effort should be made to ensure that the learning environments and technologies used are appropriate to address Generation Y students' preferred ways of learning in order to bring about effective higher-order learning (Wessels & Steenkamp, 2009).

The relevance of personality types in learning experiences has been the topic of investigations in earlier years. Booth and Winzar (1993) investigated the personality profile of accounting students and found that different personality types are associated with significant differences in how students prefer to learn, and the types of learning experiences under which they perform best. Boyce *et al.* (2001) suggest that the design variables underlying the teaching approach and method should be relevant to suit the learner profile and to accommodate various learning styles and learning preferences. Numerous research studies have investigated the learning styles and preferences of accounting students by applying Kolb's (1985) learning style paradigm (Brown & Burke, 1987; Carland, Carland & Dye, 1994; Collins & Milliron, 1987; Sharma, 1998) and established that a significant proportion of accounting students fall within the converger category. The learning style and preference of individuals in this category are characterised as follows: "Prefer to apply ideas practically, are focused to acquire knowledge on specific problems, tend to prefer working with things rather than people, and have narrow technical interests" (Baker, Simon & Bazeli, 1986:3).

Therefore, the teaching intervention should be designed and developed while taking the aforementioned elements into account and keeping in mind that students are different and have diverse needs in terms of their learning styles and learning preferences.

2.2.4 Teaching methodology: Paradigm, approach and methods

Teaching methodologies refer to methods of teaching and giving instruction to students (Leveson, 2004). New teaching methodologies need to be introduced into accounting education to enable accountancy students to acquire professional skills and to incorporate pervasive skills into the higher education accounting curriculum (Adler & Milne, 1997; Albrecht & Sack, 2000; Ballantine & McCourt Larres, 2009; Gammie *et al.*, 2002; Kermis & Kermis, 2010:5; Kern, 2002). To achieve this, the International Institute for Environment and Development (IIED) (2003) indicates that existing disciplinary courses need not be replaced with soft skills-oriented courses or that separate courses in soft skills development be introduced, but that soft skills need to be interwoven with existing courses and course modules instead. Schulz (2008:153) and Shakir (2009:312) also suggest that the most practical way of offering soft skills training to students is to embed it into the teaching of hard skills. Consequently, no or minimal changes to existing course structures and programme curriculums will be required, but any changes need to be reflected in the teaching methodology selected and applied by educators.

The election of teaching methodology should be driven by learning objectives (Bonner, 1999; Gagné & Medsker, 1996). As mentioned in 2.2.1, the learning objective of the teaching intervention developed in this thesis was to expose accounting students to pervasive skills development. Thus, the most appropriate teaching paradigm, teaching approach, method of instruction and learning method(s) (grouped together as “teaching methodological elements”) for this learning objective needed to be elected and applied. Figure 2.2 provides an overview of the teaching methodological elements.

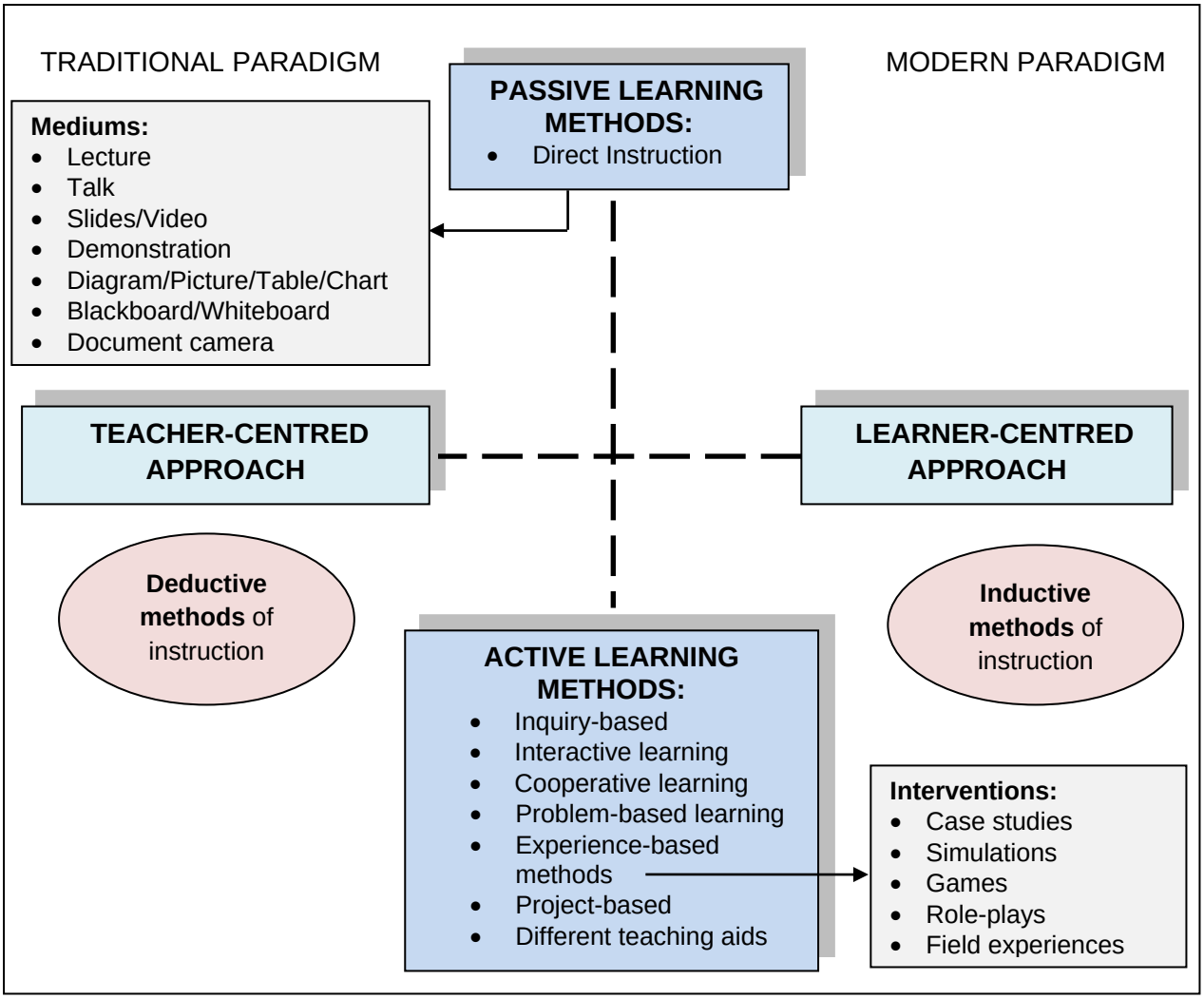

Figure 2.2: Teaching methodological elements: Paradigms, approaches and methods

(**Source:** Author's compilation based on various teaching methodological literature)

In the sections to follow (2.4.4.1 to 2.4.4.4) each of the teaching methodological elements in figure 2.2 is considered with regard to the design of the teaching intervention to expose accounting students to the development of pervasive skills.

2.2.4.1 Teaching paradigms

Teaching methodologies can be classified into two major paradigms, namely the traditional paradigm and the modern paradigm. According to Rogers and Freiberg (1994), the traditional paradigm is a teaching methodological environment where students are solely dependent on the educator for all possible solutions to problems, while under the modern paradigm the educator only acts as a facilitator who only provides guidance to students. Teaching methodologies applied in the traditional paradigm are recognised as being teacher controlled and deductive in nature (see 2.2.4.3), while teaching methodologies in the modern

paradigm are significantly more student controlled and inductive in nature (see 2.2.4.3) (Prince & Felder, 2006:123).

2.2.4.2 Teaching approach

Teaching methods could either be classified as being teacher-centred or as learner-centred depending on the teaching approach that is followed. The teacher-centred approach is where the educator is the sole supplier of knowledge and information, relying on traditional teaching strategies such as explicit teaching through lectures and educator-led demonstrations. In contrast, the learner-centred approach is a more modern teaching approach where methods aim to encourage students to actively participate throughout the learning process (Cornelius-White, 2007; Huba & Freed, 2000).

West and Saunders (2006) suggest a humanistic approach for accounting education where educators act as facilitators who assist learners in their learning process. A genuine learner-centred approach would involve learners' designing the curricula, including assessment tasks, and evaluating their own performance (Rogers & Freiberg, 1994). Teaching styles for soft skills development should be student-centred with students being expected to participate actively in the learning process, while the teacher adopts a facilitating role (Shakir, 2009:312).

2.2.4.3 Methods of instruction

Krumboltz and Yabroff (1965:223) highlight two main variables that differentiate deductive methods of instruction from inductive methods of instruction, namely (i) the amount of participation of the student; and (ii) the amount of information given to the student prior to and during problem-solving activities.

Deductive method

The nature of the deductive method of instruction pertains to a process which is informed by deductive logic. The deductive process starts with existing knowledge about a specific topic and then moves on to the unknown (Loseke, 2013:19; Sarantakos, 2005:760; Walliman, 2011:18). Subjects exposed to a deductive method of instruction play a passive role in the learning process and are engaged only by observing presentations made by the educator (Krumboltz & Yabroff, 1965:223).

Inductive method

Jones, Holland and Oldmeadow (2008:247) claim that the inductive method of instruction requires students to take initiative, ask questions and develop the answers for a given topic while the educator continues to participate as a facilitator, only stepping in to answer when doubts or factual information cannot be correctly resolved by students. Prince and Felder (2006:123) define inductive teaching as a process that begins with specifics instead of general principles. The basis for the inductive method is the intuitive theory which involves a system of related concepts, together with a set of causal laws, structural constraints or explanatory principles that guide inductive inference in a particular domain (Tenenbaum, Griffiths & Kemp, 2006). Subjects exposed to an inductive method of instruction tend to be more actively engaged by means of verbal and/or physical activities during the education process (Krumboltz & Yabroff, 1965:223).

Consequently, the inductive method of instruction is regarded to be more beneficial due to the fact that it imposes more responsibility on students for their own learning than the traditional deductive method of instruction does (Prince & Felder, 2006). Therefore, the teaching intervention to be developed in this thesis needed to incorporate inductive methods of instruction to create opportunities for students to be actively involved in the learning process and to solve problems themselves by applying various pervasive skills.

2.2.4.4 Teaching and learning methods

Teaching methods refer to the general principles, pedagogy and strategies used for classroom instruction in order for learning to take place (Anon., 2014). The way in which lecturers' teach, i.e. their teaching methods, will influence what students learn (Leveson, 2004).

Learning methods applied under the teacher-centred approach (see 2.2.4.1) are referred to as direct methods of instruction. These learning methods are grounded within passive teaching methods such as lecturing, talking, showing slides and videos, and giving demonstrations using diagrams, pictures, tables, charts or lists. Prince and Felder (2006) describe the process of the direct teaching-learning method as follows: The instructor (educator) introduces a topic and lectures on general principles; these principles are then used to derive a model; the application of the model is then illustrated, after which students need to practice the application by way of similar homework questions; finally, students are assessed on their ability to perform something similar in a test or an examination.

On the other hand, the learner-centred approach (see 2.2.4.2) encapsulates a wide range of active learning methods which include inquiry-based, interactive learning, cooperative learning, problem-based learning, experience-based methods (including interventions such as case studies, simulations, games, role-plays and filed experiences), project-based methods and methods using different teaching aids (Cherrington & Van Ments, 1994; Everly, 2013:48; Fouché, 2013:142; Hosal-Akman & Simga-Mugan, 2010:251).

Based on the aforementioned discussion, it is clear that various teaching and learning methods exist. The challenge, however, was to decide which methods would be relevant and effective for incorporation into the design of a teaching intervention to expose accounting students to pervasive skills development.

Several researchers highlight that current accounting courses make use of traditional methods that include problem-solving by the educator and normally come in the form of a lecture (De Villiers & Fouché, 2015; Hosal-Akman & Simga-Mugan, 2010:251; Siegel, Omer & Agrawal, 1997:217). However, in recent years, the development of pervasive skills as part of accounting education programmes has been advocated together with the incorporation of various pedagogies other than the traditional lecture format (Fortin & Legault, 2010:93; Shakir, 2009:312). As stated previously, Generation Y students require a dominant teaching pedagogy that provides them with interactive assignments and activities encouraging teamwork and collaborative learning experiences (Shih & Allen, 2007:98). In addition, teaching methods embedded with technology, multimedia, entertainment and excitement support Generation Y's learning and communication preferences (Fouché, 2013:146; Shih & Allen, 2007:98). Partridge and Hallam (2006) argue that teaching methods addressing the learning needs of Generation Y should include real-world activities and perspectives and should be customisable and flexible.

According to Bonner (1999), learning objectives *(*see 2.2.1*)* involving complex skills (such as pervasive skills development) require teaching methods that promote active learning on the part of students, while learning objectives involving simpler skills can be achieved with more passive teaching methods. Beylefeld (2005:1322) highlights that innovative forms of teaching are prerequisites if the learning objective is skills development. Various researchers have proposed that educators make more use of active learning methods to increase the creativity, innovation and analytical skills of students (Adler & Milne, 1997; Cherrington & Van Ments, 1994; De Villiers & Fouché, 2015; Fouché, 2013; Milne & McConnell, 2001; Tate & Grein, 2009; Van der Merwe, 2013b). Because learning objectives vary as to the

conditions necessary for their achievement, it might be necessary to not only elect one, but multiple learning methods (Bonner, 1999).

In light of the aim of accounting education, namely to integrate technical content with real-world experiences, the election of teaching methods must be in line with contextual learning theories (Rudman & Terblanche, 2011:72; Steenkamp & Rudman, 2007). Therefore, pervasive skills development in an accounting education context needs to be positioned within the learning theories of its underlying scientific disciplinal domains. These domains are discussed and considered under section 2.3.

2.2.5 Pedagogical approaches to develop pervasive skills in accounting education: Challenges, gaps and limitations

A desperate need to incorporate pervasive skills into higher education accounting curricula is evident from the literature (Adler & Milne, 1997; Ballantine & McCourt Larres, 2009; Gammie *et al.*, 2002; Kern, 2002). However, studies are not explicit on how to achieve the integration and practical implementation of these skills (De Villiers, 2010:11).

Both local and international accountancy educators have developed and implemented a number of pedagogies designed to equip students with relevant transferable skills with which to ease and facilitate their transition into the work place (Jackson *et al.*, 2013). These include cooperative learning (Ballantine & McCourt Larres, 2009; Clinton & Kohlmeyer, 2005; Hwang, Lui & Tong, 2008; Lindquist & Abraham, 1996), problem-based learning (Edmonds, Edmonds & Mulig, 2003; Milne & McConnell, 2001; Rosen, 2012), experience-based learning such as case studies and simulations (De Villiers & Fouché, 2015; Rudman & Kruger-Van Renen, 2014; Van der Merwe, 2013b), games (Fouché & Visser, 2008; Viviers & Louwrens, 2014), role-playing (Rudman & Terblanche, 2011), field trips (Webb, De Lange & O'Connell, 2009), and project-based methods (Stainbank, 2003, 2005 & 2009).

Barac and Du Plessis (2014) investigated the manner in which South African SAICA-accredited universities offer and teach pervasive skills. The study found that the presentation and integration of pervasive skills development into modules vary considerably among universities and that greater integration of pervasive skills into course majors should be considered.

Table 2.4 contains a summary of local and international studies pertaining to the teaching methods applied and researched within accounting education and how they contributed to

the development of pervasive skills and competencies of accounting students. Hereafter, challenges and limitations are identified and gaps highlighted from various research studies conducted in respect of pervasive skills development in the field of accounting education. These challenges, limitations and gaps were considered and resolved (as far as possible) for incorporation into the design of the teaching intervention in the current study.

Table 2.4: Teaching methods applied in accounting education to develop pervasive skills

Researchers	***Teaching method***	***Pervasive skills researched***	***Key findings***
Adler and Milne (1997)	Problem-based learning case study	Teamwork; communication (verbal)	Enhanced teamwork skills, desire for self-improvement, and oral communication skills.
Ballantine and McCourt Larres (2009)	Case study	Organisational; communication (verbal and writing)	Contributed to skills development, regardless of accounting work experience.
Barsky and Catanach (2005)	Simulation	Critical thinking; communication (verbal)	Improved critical thinking and oral communication skills.
Dale-Jones, Hancock and Willey (2013)	Intervention	Communication (writing)	Improved ability to apply assessment standards to grammatical, structural and presentation components of written communication.
Edmonds *et al.* (2003)	Problem-based learning	Critical thinking; communication; leadership	Helped in developing critical and creative thinking, decision-making, communication, and leadership skills.
Fouché and Visser (2008)	Board game	Communication (verbal); critical thinking; strategic thinking	Enhanced development of technical competencies and soft skills; broadened view of the role of the professional accountant.
Kern (2000; 2002)	Problem-based learning	Critical thinking; problem-solving	Developed critical thinking and problem-solving skills.
Maelah, Aman, Mohamed and Ramli (2012)	Field experiences (industrial training)	Time management; communication (oral); teamwork	Developed time management, oral communication and groupwork skills.

Sawyer, Tomlinson and Maples (2000)	Case study	Professionalism; Communication (writing); problem-solving	Developed professionalism and writing and problem-solving skills.
Stainbank (2003, 2005 & 2009)	Group projects	Management; teamwork; interpersonal skills	Developed management and interpersonal skills; contributed to career preparedness.
Soontiens, De la Harpe and Briguglio (2002)	Group project	Communication (verbal and writing)	Developed business management students' presentation and writing skills.
Van der Merwe (2013b)	Case study and business simulation	Teamwork; communication (verbal and writing)	Developed teamwork, research, communication, computer and presentation skills.
Weil, Oyelere, Yeoh and Firer (2001)	Case study	Critical thinking; problem-solving; strategic thinking	Developed problem-solving skills, helped to apply and integrate theory to the real world and distinguish facts from opinions.
Weil, Oyelere and Rainsbury (2004)	Case study	Critical thinking; problem-solving; strategic thinking	Helped with evaluating situations from several perspectives, considering alternative solutions, applying judgment, analysing and solving problems, identifying relevant information and integrating knowledge.

(**Source:** Author's compilation from sources mentioned above)

Identification of challenges, limitations and gaps from the literature

The development of soft skills among undergraduates remains a difficult task because it involves elements which are difficult to measure and vary greatly among individuals according to their character and background (Shakir, 2009:310). Whitefield and Kloot (2006) have found that higher-order and difficult skills such as thinking creatively and innovatively, dealing with conflict and challenges, adapting to change, and demonstrating empathy are not present in either the explicit or implicit curricula and need to be addressed. Fouché (2013) has established that teaching methodologies applied in accounting education are still too content driven, while Van Romburgh and Van der Merwe (2015) have concluded that South African universities do not equip first-year trainees sufficiently with the skills to be successful in practice.

From the review of teaching methods applied in accounting education (see table 2.4) it is evident that most of the studies applied only one teaching method and focused on a limited number or specifically identified pervasive skills. Clearly, a gap exists in the literature regarding the usefulness of single teaching interventions which target the wider range of pervasive skills through the use of various experiential learning methods.

Furthermore, the active learning methods seem to be developed and evaluated mainly within the subject-specific areas of financial accounting, auditing, managerial accounting and finance, and none in taxation. In a recent study, CA(SA) candidates indicated that management decision-making and control, auditing and assurance, and taxation had the lowest contribution to the development of their pervasive skills (Strauss-Keevy & Maré, 2014). It is, therefore, evident that more tax-related teaching interventions aimed at pervasive skills development should be created and their usefulness evaluated to address the identified research gap, namely a lack of teaching interventions aimed at exposing students to the broader spectrum of the required pervasive skills set.

Strauss-Keevy (2014) reports that SAICA-accredited academics are not aware of their responsibility to ensure that aspirant CA(SA) candidates have achieved all the competencies as set out in the SAICA Competency Framework. Strauss-Keevy (2015) has also evaluated collaborative learning exercises used by SAICA-accredited academics and whether accounting educators perceive these methods to be effective in transferring pervasive skills to accounting students. The empirical findings indicated that not all academics employ collaborative learning exercises in their academic programmes and not all consider this method effective in attaining SAICA's pervasive skills.

The literature reports on other multiple challenges that accounting educators are facing in their attempt to successfully incorporate pervasive skills development into course modules. These challenges include questions on and a lack of precise definition and contextualisation of the pervasive skills (Jones, 2010:12; Lucas *et al.,* 2004; Medlin *et al*., 2003); uncertainty in respect of the level of difficulty and complexity at which pervasive skills development should be incorporated into the accounting curricula (Jones, 2010:12); syllabus overload with limited space in the curriculum to accommodate additional skills (Schulz, 2008:153; Willcoxson *et al.*, 2010); large class sizes (Wessels & Steenkamp, 2009); limited contact time with students; other duties such as research; demanding technical content of their subject-specific disciplines; and adhering to professional accreditation requirements (Milner & Hill, 2008).

Another problem that accounting educators are faced with is a lack of assessment criteria and measurement instruments to determine whether their pervasive skills development interventions and strategies are actually effective and worth implementing. In addition, the planning and execution of pervasive skills development is time consuming. Knight and Page (2007) investigated competencies such as critical thinking, problem-solving, teamwork, ethical practice, creativity and project management in a number of areas, including accounting education, and acknowledged the difficulties in assessing these competencies.

Strauss-Keevy (2015) recommends that, in order to incorporate pervasive skills into higher education curricula, academics should create practical collaborative learning experiences that replicate real working environments in which students can actively participate in the learning process. Collaborative learning requires students to be placed in smaller groups and to work jointly on a task (Ballantine & McCourt Larres, 2009). The latter, however, is problematic due to the fact that classes in economic and management sciences courses in South Africa are typically large, in most instances more than 150 students per classroom (Wessels & Steenkamp, 2009). The ideal group size for effective pervasive skills development remains questionable and authors' opinions vary in this regard (Strauss-Keevy, 2015). For example, Sullivan (1996) suggests five team members to be most effective, Oakley, Felder, Brent and Elhajj (2004) prefer groups of four members, while others favour between three and six members in a group (Gillies, 2003; Miglietti, 2002). Furthermore, teaching intervention design elements such as group composition and self-selection (as opposed to assigned groups) and their impact on pervasive skills development remain controversial (Lejk, Wyvill & Farrow, 1999; Van der Laan Smith & Spindle, 2007). In addition, lecturers face major challenges in marrying the learning preferences of Generation Y students (see 2.2.3.1) with the demands of lecturing groups comprising large student numbers (Wessels & Steenkamp, 2009:1050).

Lastly, in the academic environment, elements such as personal development and related values, attitudes and soft skills are approached with scepticism and insecurity because lecturers at academic institutions see themselves as disciplinary experts rather than soft skills developers (IIED, 2003). Except for educators from faculties of educations who are continuously exposed to new teaching and learning techniques, a large number of academics and educators from other faculties (such as professionally qualified accountants and auditors from faculties of economic and management sciences) have limited training and knowledge on and exposure to innovative teaching and learning aspects.

In conclusion, it is evident that numerous challenges pertaining to pervasive skills development in the accounting education environment are prevalent and need to be addressed.

2.3 Positioning the development of pervasive skills in accounting education within the learning theories of its underlying scientific disciplinal domains

Theories of teaching are not concrete, coherent structures, but instead consist of ideas about teaching and how they are put into practice (Ramsden, 2003). Learning theories are concerned with the actual process of learning, not with the value of what is being learned (Siemens, 2005:3).

Jones (2010) argues that generic skills and attributes are part of the epistemology and culture of specific disciplines. They exist in the content knowledge of the disciplines. As a consequence, skills and attributes will be shaped by the discipline of which they are part. This means that they will not occur in identical form in each discipline. It is evident from the literature on pervasive skills in accounting that skills, conceptual knowledge and the professional context are integrated. For example, solving a problem may require the ability to identify information, analyse and interpret it using particular accounting concepts, to make recommendations or evaluations and to communicate the findings either orally or in writing in an appropriate format, all within an ethical framework.

Cheng, Henisz and Roth (2009) support the integration of multiple disciplinary perspectives into a coherent theoretical framework. However, according to Bello and Kostova (2012:541), the number of theoretical perspectives used should be limited to the disciplines most essential to the research question in order to ensure conceptual depth and rigor. Theoretical integration is beneficial in that it explores the complementary and interactive effects that different theories have on one another. This integrated theory approach also provides a more current and sophisticated theoretical framework because it is based on existing foundational literatures (Bello & Kostova, 2012:541).

The pervasive skills development of accounting students involves the education and training of personal and interpersonal skills (see 2.2.2.4) in individuals who are organisation and business-oriented. For this reason, four types of scientific disciplines are identified which underpin and are embedded within this area of accounting education, namely:

(i) Philosophy; (ii) Education; (iii) Organisation; and (iv) Psychology (see figure 2.3).

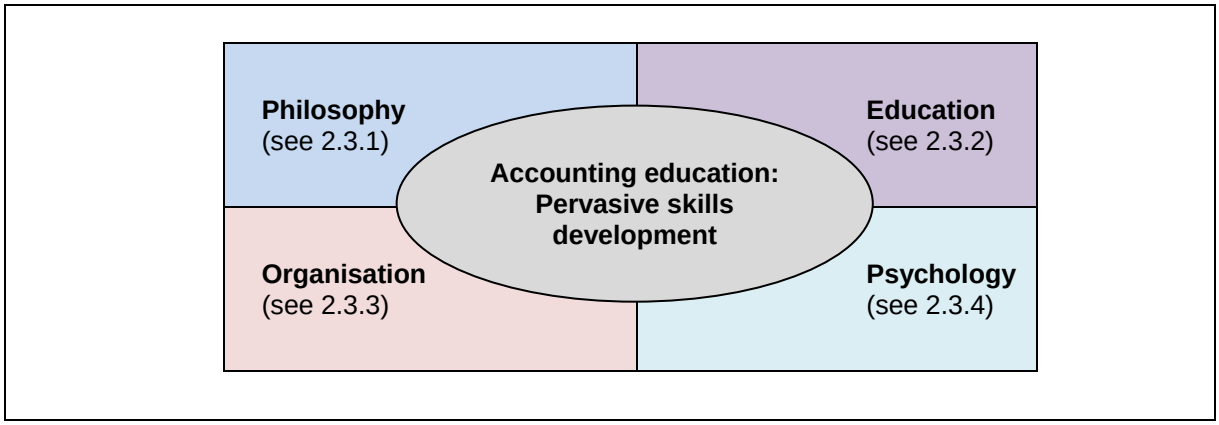

Figure 2.3: The four scientific disciplinal domains underpinning pervasive skills development in an accounting education context

(**Source:** Author's compilation)

Selecting appropriate learning theory from which to develop pervasive skills in accounting education will, therefore, require a combination of the learning theories falling under each of the four identified scientific disciplinal domains. A learning theory is an attempt to describe how people learn in order to establish and understand the inherently complex process of learning (Lepi, 2012). Gong and Tse (2009) recommend the combination of multiple theories to be applied simultaneously in accountancy research to enrich the researcher's understanding of practices from multiple perspectives. Each type of discipline, in turn, draws from the next one (e.g., psychology is the basis for much of the work in organisational behaviour). Such combined approaches provide opportunities for a rich theoretical investigation that matches the complexity of educational phenomena. However, a multi-disciplinary theoretical base could impose serious challenges for achieving conceptual clarity and rigor (Bello & Kostova, 2012:541).

The discussion to follow provides an overview on each of the four scientific disciplines underpinning pervasive skills development in an accounting education context. The learning theories related to each of the learning paradigms are also discussed.

2.3.1 First disciplinal domain: Philosophy

Philosophy is characterised by its critical, systematic approach and its reliance on rational argument (Honderich, 1995:666). From a philosophical perspective the education philosopher, Dewey (1938), believed that experiential learning theory should be applied in

teaching to promote the development of pervasive skills through increased student engagement. Experiential learning is a philosophy of education based on the theory of learning from actual experiences (Fouché, 2013; Kolb & Kolb, 2005:193) and encompasses a range of educational interventions such as case studies, games, role-plays, field experiences, group projects and simulations (Fouché, 2013; Cherrington & Van Ments, 1994) (also see 2.2.4.4). The aim of experiential learning is to avoid single-solution scenarios and to encourage learners to experiment from subject knowledge (Kreber, 2001). Experiential learning has been found to be more effective than traditional learning (Yan, 1999), because it produces more motivated learners (Burns & Gentry, 1998), instils greater sensitivity for detail necessary for effective decision-making and management skills (Babbar, 1994), and promotes life-long personal and professional development through self-learning and reflection (Hannon, McBride & Burns, 2004).

Experiential education is the process that occurs between an educator and a student which infuses direct experience with the learning environment and content. The “learning by doing” approach is an excellent example and extension of Dewey’s experiential learning theory and suggests that everything occurs in a social and engaging learning environment (Lepi, 2012). Learning is a process that includes knowledge, as facilitated and organised by the instructor, as well as students’ previous experiences and readiness. Mysliwiec (2005:5) indicates that educators have the responsibility to provide students with an environment in which they can learn by doing, including learn by making mistakes. Table 2.5 contains various propositions about what experiential learning does and does not entail.

Table 2.5: Propositions about experiential learning

Experiential learning is ...	***Experiential learning is not ...***
... about relearning (drawing out student's beliefs and ideas)	... about acquiring new facts
... about logical argumentation (conflict differences and disagreement)	... facilitated by a static environment
... about holistic thinking; believing; perceiving; behaving	... only about cognition
... about synergy between person and environment	... isolated from the environment
... about creating knowledge (constructivistic)	... about presenting fixed ideas to the learner

(***Source:*** Drake, 2011; Kolb & Kolb, 2005 - adjusted).

In his Experiential Learning Model (ELM), Kolb (1984) predicts learning styles. This model is often used to explain experiential learning in groups. The ELM describes learning in terms of processes rather than outcomes and regards learning to be taking place in five distinct stages. The ELM asserts that, in order to have actually learned something, one must go through a full cycle of the model. The cycle (see figure 2.4) comprises (i) turning one's actions (and their results) into experiences; (ii) completing reflection on these experiences (what can be learned here); (iii) developing and planning for new actions; (iv) deciding on a course of action; and (v) changing (if feasible) one's actions according to the solutions decided on. The hypothesised learning cycle can be entered at any stage, but must be followed in sequence.

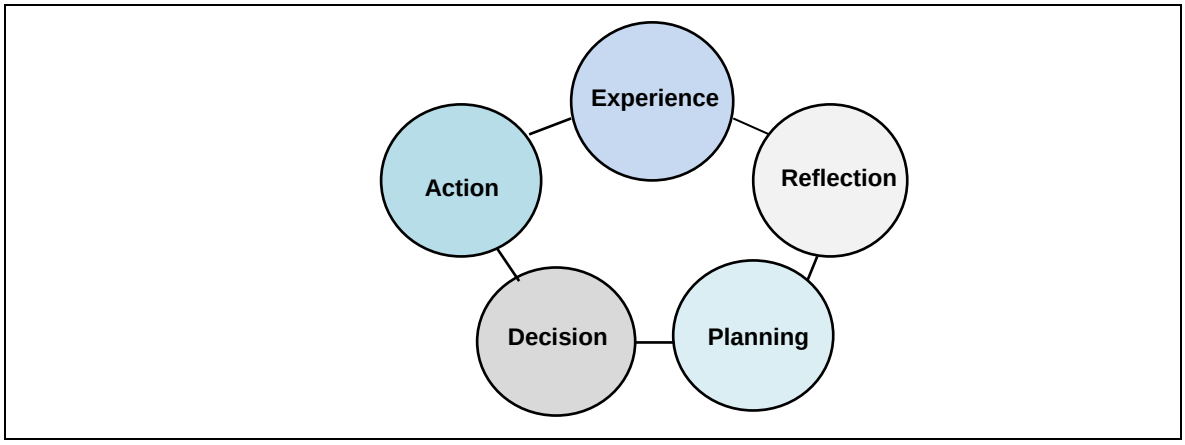

Figure 2.4: Kolb's learning cycle

(**Source**: Kolb, 1984 as illustrated by Drejer, 2000:212)

Experiential learning is fostered once instructors encourage their students to transform abstract events through strategies that bring about reflection or experimentation (Kolb, 1984:221; Kreber, 2001). The aim is to avoid using single-solution scenarios to encourage experimentation from subject knowledge. Visser, McChlery and Vreken (2006) established that the combination of conceptualisation and experimentation enhances the learning experience of accounting students.

2.3.2 Second disciplinal domain: Education

Education theory embraces a wide range of ever-evolving theories that underlie the philosophical question relating to "the nature of learning" (Van der Merwe, 2013a:52). In effect, learning refers to the changed state (emotionally, mentally and physiologically) brought about by educational experiences and interactions with content or other people (Siemens, 2005:2). Driscoll (2000:11) defines learning as:

> a persisting change in human performance or performance potential [which] must come about as a result of the learner's experience and interaction with the world.

This definition encompasses many of the attributes commonly associated with behaviourism, cognitivism, constructivism and humanism (Siemens, 2005:2). The meaning of these four concepts could be described as follows:

- ***Behaviourism***

Behaviourism is based on observable changes in behaviour (Mergel, 1998). Behaviourism focuses on new behavioural patterns being repeated until it becomes an automatic or natural behaviour (Schuman, 1996). Stevenson Smith (2004:5) describes behaviourism as the repetition process of desired actions resulting in a change in external behaviour which is the ultimate reward for good habits. The theory of behaviourism concentrates on the study of overt behaviours that can be observed and measured (Good & Brophy, 1990).

- ***Cognitivism***

Cognitivism is based on the thought process behind behaviour (Mergel, 1998). Changes in behaviour are observed and used as indicators as to what is happening inside the learner's mind (Schuman, 1996). Cognitive theorists view learning as involving the acquisition or reorganisation of the cognitive structures through which human beings process and store information (Good & Brophy, 1990:187).

- ***Constructivism***

Constructivism is based on the premise that each individual constructs his or her own personal perspective of the world, through individual experiences and schema (i.e. an internal knowledge structure) (Schuman, 1996). Constructivist teaching occurs when the learner is actively involved in a process of meaning and knowledge construction as opposed to receiving information in a passive manner (Van der Merwe, 2013a:53). Constructivism is conceptual growth coming from the negotiation of meaning, the sharing of multiple perspectives and the changing of internal representations through collaborative learning (Merrill, 1991).

- ***Humanism***

Humanism as learning theory refers to the belief that human beings have the innate curiosity and ability to learn and a willingness to engage in new experiences, and to learn from those experiences (West & Saunders, 2006:719). Humanism involves self-directed learning, which necessitates a motivational learning environment (Merriam, 2001; Van der Merwe, 2013a:53). Environments should be created in which students are motivated and willing to learn and are given the "freedom to learn" (Rogers & Freiberg, 1994).

Thus, from a behaviourist and cognitivist perspective, knowledge is viewed as being external to the learner and the learning process (Siemens, 2005:3). Constructivism focuses on preparing the learner to solve problems in ambiguous situations (Schuman, 1996), whereas

humanism focuses on learning driven personally from within (Merriam, 2001). Van der Merwe (2013a:53) indicates that the theory of constructivism appears to be very relevant in the context of accounting education, because the ability to learn independently is imperative for ultimate student success.

2.3.3 Third disciplinal domain: Organisation

Organisation theory draws upon the sciences, the humanities and the arts, and therefore encapsulates an intellectual challenge of interdisciplinary thinking stretched across the full array of human knowledge (Hatch & Cunliffe, 2013:3). Drejer (2000:214) indicates that organisational learning theory comprises a natural link between the human element of learning and competence. The term "competence" can be described as being able to function increasingly better in order to be classified as being competent. Within an organisational learning environment, competence could be regarded as the result of the individual's learning of the organisational systems and procedures by means of exposure to new technologies, new organisational forms, institutional knowledge and new corporate culture norms and values (Drejer, 2000:210). According to the combined models of Neergaard (1994) and Hatch and Cunliffe (2013:16), organisational learning theory is influenced by four different perspectives to learning within the organisational environment. These four perspectives are indicated in figure 2.5 and discussed thereafter:

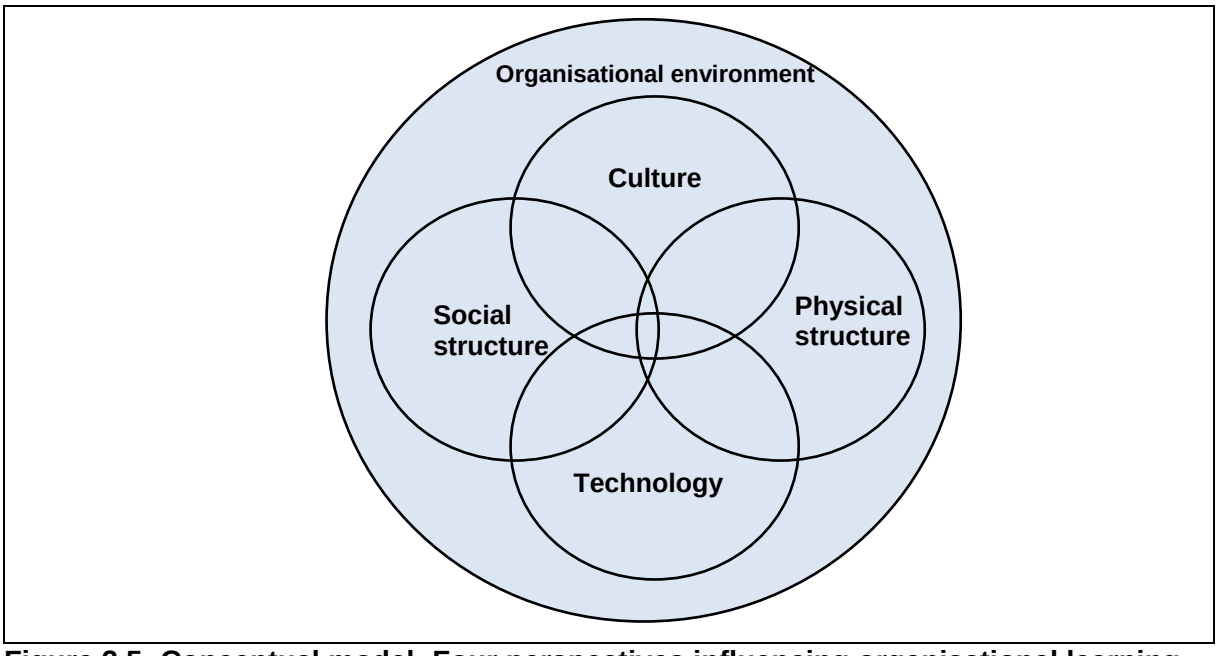

Figure 2.5: Conceptual model: Four perspectives influencing organisational learning

(**Source:** Hatch & Cunliffe, 2013 – adjusted)

(i) Individual behaviour perspective (Social structure)

This perspective relates to the informal learning process, based on personal unconscious social behaviour, of a single individual in an organisation. Thus, learning is based on how individuals react in a given situations and under specific circumstances, as well as their personal interaction with others in the organisation.

(ii) Decision support perspective (Technology)

This perspective relates to the formal learning process of a single individual in an organisation. It focuses on the individual's problem-solving and decision-making abilities that are influenced by information technology and institutionalised knowledge available in the organisation.

(iii) Management systems and organisational structure perspective (Physical structure)

This perspective concentrates on the process of collective learning where the learning of a single individual in the organisation is guided by formal management systems and organisational structures. This takes place by means of formal processes involving planning, control, operational and reward procedures.

(iv) Corporate culture perspective (Culture)

This perspective refers to how an organisation's corporate culture guides and shapes collective and individual learning of members in the organisation. Corporate culture is described as social and informal relations, collective habits, behavioural patterns and attitudes existing in an organisation.

Organisation theory contributes to understanding how people interact with one another and the environment in order for information and knowledge to be shared (Hatch & Cunliffe, 2013:4). According to Kolb (1984), knowledge is continuously being gained by both personal and environmental experiences. Consequently, learners must be able to reflect upon their personal experience, apply analytical skills to conceptualise the experience, and make decisions and solve problems to use the ideas gained from the experience. These actions are closely aligned with experiential learning (see 2.3.1). In an organisational context this means that the learner should be able to sense changes signalled from the ever-changing organisational environment and should be able to adapt to such changes.

2.3.4 Fourth disciplinal domain: Psychology

Educational psychology is a field within education theory that provides descriptive theories of how people learn (Van der Merwe, 2013a:53). Psychological learning is a process of both individual and social knowledge construction as learners engage with knowledge not only in their own epistemological context, but also in a social context (Jones, 2010). Aspects that distinguish human beings from other species, such as choice, will, freedom, values, emotion and goals, are central to humanistic psychology and humanistic approaches to learning (Leonard, 2002). Therefore, psychological learning theory applies various learning mechanisms at the cognitive, emotional and behavioural level (IIED, 2003).

Learning theory within the psychology domain is based on the belief that knowledge is constructed by the learner in some way (Mergel, 1998). Thus, constructivism (see 2.3.2) is again relevant, but now within a social constructivism paradigm where learning occurs through social engagement and participation. Each learner creates personal meaning where knowledge acts as the consensual domain.

The purpose of university teaching and learning is to attain a specific level of understanding or to master a skill at a specific level (Brabrand & Dahl, 2009:533). These levels are described and classified in various taxonomies (Biggs & Collis, 1982; Brabrand & Dahl, 2009; Gall, 1970; Whitefield & Kloot, 2006). The psychological learning theorist, Bloom (1956), classified skills (knowledge to be mastered) into cognitive and affective skills. Studies conducted by Birkett (1993) and Candy *et al.* (1994) indicate that pervasive skills could be categorised into cognitive and behavioural skills. Cognitive skills could further be classified into the sub-categories of technical, analytic and appreciative skills, while behavioural skills could further be sub-categorised into personal, interpersonal (see 2.2.2.4) and organisational skills (Birkett, 1993).

The revised Bloom's Taxonomy reclassifies the levels of learning to be achieved into higher-order skills, namely creating, evaluating and analysing; and lower-order skills, namely applying, understanding and remembering (Anderson, Krathwohl & Bloom, 2001). A description of and action verbs for each of the higher-order and lower-order skills in terms of the revised Bloom's Taxonomy are indicated in table 2.6.

Table 2.6: Descriptions of and action verbs for the higher- and lower-order skills in terms of the revised Bloom's Taxonomy

Cognitive level	***Descriptions and action verbs***
Higher-order skills	
Creating	Generating new ideas, products or ways of viewing things. Designing, constructing, planning, producing, inventing.
Evaluating	Justifying a decision or course of action. Checking, hypothesising, critiquing, experimenting and judging.
Analysing	Breaking down information into parts to explore understandings and relationships. Comparing, organising, deconstructing, interrogating and finding.
Lower-order skills	
Applying	Using information in another familiar situation. Implementing, carrying out, using and executing.
Understanding	Explaining ideas or concepts. Interpreting, summarising, paraphrasing, classifying and explaining.
Remembering	Recalling information. Recognising, listing, describing, retrieving, naming and finding.

(**Source**: Anderson *et al.*, 2001)

Whitefield and Kloot (2006) classify the skills to think creatively and innovatively; to handle conflict; to handle challenges; to adapt to change; and to have empathy with others, to be higher-order skills that are indicated to be more difficult to master. Boyce *et al.* (2001) indicate that higher-order pervasive skills such as analysis, problem-solving, critical thinking and communication could be seen as separate skills, although they are interconnected and interdependent in reality. For example, it would not be possible to think critically without

applying analytical skills, nor to solve problems without using elements of analysis or critical thinking, and also it would not be possible to do any of these without the ability to communicate the outcomes of one's reasoning (Boyce *et al.,* 2001).

Bloom's developments are based on the theory of "mastery learning". Mastery learning was originally developed by Morrison (1931) who defined the formula for the mastery of a skill (or knowledge) as "pre-test, teach, test the result, adapt procedure, teach and test again to the point of actual learning" (Saettler, 1990). With mastery learning students are helped to master each learning unit before proceeding to a more advanced learning task. Mastery learning assumes that all students can master the materials presented to them (Mergel, 1998). Saettler (1990) indicates that mastery learning is more effective for the lower-order levels of learning on Bloom's Taxonomy, and not appropriate for the higher-order levels of learning.

In conclusion, it is clear that the development of pervasive skills in accounting students (education) is inherently part of their individual humanistic character and personality (thus, psychological in nature) which will be affected by experiences (philosophy of learning) and external factors of the environment (organisational) in which they would be required to operate. As learning of higher-order level skills is dependent on mastering lower-order level skills, the psychomotor design of the teaching intervention in this thesis had to be guided by a taxonomy which includes skills on both the higher-order and lower-order cognitive levels in order to create and ensure a holistic learning experience.

2.4 Concluding on the key elements considered: Establishing a theoretical framework

Based on the consideration of the key elements discussed in this chapter, it is concluded that a theoretical framework to develop a teaching intervention aimed at exposing accounting students to pervasive skills should include the following in its design:

- The main learning objective, namely to develop pervasive skills, should be clearly stated and communicated;
- The actions to be performed in order to demonstrate the various pervasive skills should be clearly defined. These actions should drive and direct the design of activities that participants would be required to execute in the teaching intervention;
- Activities need to create opportunities that will encourage, motivate and support the demonstration of the broader spectrum of the required pervasive skills set;

- The teaching intervention should create a relaxed environment in which pervasive skills could be freely and naturally developed (without fake and pretentious actions) and should provide learners the opportunity to work with and to learn from their peers;
- The teaching intervention should incorporate technology, simulate reality, be interactive, creative, exciting, fun, innovative and stimulating to accommodate the learner profile and needs of the Generation Y student;
- The teaching intervention should accommodate different personalities and their preferred learning style;
- The teaching approach should be learner-centred;
- The method of instruction should be inductive in nature;
- The teaching intervention should incorporate a combination and a wide variety of active learning methods;
- Activities should combine the application of pervasive skills with a broad spectrum of technical content; and
- The overall teaching intervention should incorporate practical application and real-world experiences to make learning relevant, practical and interesting.

(*See Table 2.8, page 66, which indicates how the key elements of the theoretical framework as listed in the aforementioned section, is conceptually mapped against the design of the developed teaching intervention*).

Activities embedded in the overall teaching intervention should also be designed in such a manner that they will incorporate and reflect the relevant elements in the learning theories of the four scientific disciplines (see 2.3) that underlie pervasive skills development in accounting education.

In addition, to contribute to the current body of knowledge regarding teaching interventions aimed at exposing accounting students to pervasive skills development, the design of new teaching intervention should attempt to consider, address and overcome (as far as possible) the several challenges, gaps and limitations that are still prevalent in existing teaching interventions. These challenges, gaps and limitations were identified from recent literature. Below follows suggestions as to how to address these:

- Teaching interventions should be developed, implemented and evaluated through pervasive skills development as the main learning objective and not only as the by-product of a better understanding of technical concepts and content;

- Teaching interventions should be diverse as to how they allow different personality types to choose the nature of their involvement in the intervention. Having a choice will help students feel safe and comfortable throughout their participation and will support the natural development of pervasive skills;
- Teaching interventions should incorporate and target the exposure to both lower-order and higher-order cognitive skills;
- Teaching interventions should comprise a single intervention which encapsulates multiple active learning methods;
- Because time available to develop pervasive skills at higher education level is limited, teaching interventions should not be aimed at single or specific targeted pervasive skills, but should incorporate the broader spectrum of all 12 the required pervasive skills as identified in the SAICA Competency Framework (see figure 2.1) within a single intervention;
- More tax-related teaching interventions aimed at pervasive skills development should be developed, implemented and evaluated;
- Teaching interventions should raise awareness, stress the importance and put the development of pervasive skills within the context of higher education accounting curricula;
- Teaching interventions should incorporate pervasive skills development not only in subject-specific interventions, but also in interventions where subjects are integrated;
- Teaching interventions should be cleverly designed to accommodate large student numbers within single teaching interventions while still maintaining effective and controllable groups;
- Teaching interventions should incorporate methods of effective assessment within its design which will support pervasive skills development overall; and
- Teaching methods for pervasive skills should not be too time-consuming to develop and execute, but should still be effective.

2.5 Description of the design and development of the teaching intervention

Shakir (2009:312) suggests that educators be creative in designing their teaching modules to incorporate the relevant pervasive skills. Teachers need to experiment and encourage students to take an active role in class activities to maximise their participation. A meta-analysis study conducted by Durlak, Weissberg, Dymnicki, Taylor and Schellinger (2011) as part of a project by the Collaborative for Academic, Social and Emotional Learning (CASEL)

organisation found that the best practice criteria for the design and implementation of an effective programme aimed at soft skills development should adhere to the SAFE concept (Kyllonen, 2013:19). Thus, the design should be: Sequenced, Active, Focused and Explicit. The criteria of this concept refer to the following:

- Sequenced: involving a planned set of activities to be executed step by step;
- Active: requiring active learning activities, for example, role-plays, games;
- Focused: devoting sufficient time to developing social and emotional skills; and
- Explicit: targeting specific social and emotional skills.

Considering the SAFE concept, the teaching intervention was developed to combine a range of various activities which students needed to perform consecutively on a rotation basis (thus, step by step in a sequence). Each activity was carefully designed with technical content combined with a physical activity to be performed. Thus, each activity engaged the students actively and encouraged them to perform a task or to solve a problem by combining various pervasive skills and technical knowledge previously acquired during formal contact sessions (lectures). The overall design of the teaching intervention was mainly focused on the exposure to and the development of pervasive skills. Each activity was carefully designed and each overall design variable carefully selected in order to target specific pervasive skills. (See the discussion in 2.6, as well as annexures E and P, where the various activities are explained and the targeted pervasive skills explicitly indicated.)

The teaching intervention developed in this study was presented in two formats. In its first format, *The Amazing Tax Race*, it was presented to accountancy students of a single SAICA-accredited university (namely, the NWU). In its second format, *The Tax Amazing Race*, it was presented on a national basis (in two regions of South Africa: north and south) to students from various South African universities. The development of the teaching intervention in each of its two formats is described in the section to follow.

2.5.1 The Amazing Tax Race

The researcher established the concept of *The Amazing Tax Race* in 2011, and has since presented it to final-year undergraduate accounting students at a South African SAICA-accredited university over four consecutive years. The intervention is presented in the form of a race against time where student teams (10 teams of eight members) participate in tax-related activities hosted at 13 stations across the university campus. The design of the tax intervention is based on the principles of active learning theory (Ritzko & Robinson, 2006) where gamification is applied as a vehicle to promote active learning. Students need to

complete various activities in an active learning environment where game-based mechanics are used to engage students, motivate action, promote learning and solve problems (Kapp, 2012). Third-year students can choose, based on their personality type and preferred learning styles, the nature of their involvement in the teaching intervention either as a participant or as an acting member of a planning and organising committee. A set of rules for the race are distributed to participating teams a week before the race. However, participants do not know what activities they will be required to perform on the day of the race. The committee (28 students in this study) are responsible for developing tax-related activities for the different stations, keeping the application of pervasive skills in mind. Activities have to be presented at a committee meeting to obtain feedback from all members (thus, achieving peer assessment) and ultimate approval of technical correctness and practical feasibility form the researcher. Although the integration of tax knowledge in these activities is important, the overall focus remains on the exposure to and the development of pervasive skills.

Participating teams all start at one central point where an ice-breaker activity is hosted to obtain the first clue card leading each team to their first station. Hereafter teams rotate simultaneously between 13 stations (which are between 400 and 800 metres apart) which requires running. Clue cards comprise a combination of tax-related crossword puzzles, tax riddles incorporated with tax case law names, and tax calculations to be performed of which the answers indicate a specific campus building or room number. The clue indicating the next station can be obtained only after the successful completion of the tax-related activity at the previous station. To provide for faster-moving teams, each station has to be able to accommodate two teams simultaneously.

To decrypt clues and complete activities successfully, teams need to apply their tax knowledge by working together and communicating effectively. This requires strategic and critical thinking while acting in an ethical and professional manner, all under time constraints. The team reaching the finish line first are crowned the winners. In the current study, employer companies (accounting, auditing and advisory firms) were approached for sponsoring stations and assisting committee members in hosting the activities. Sponsorships entailed prizes for the top three teams, best team spirit, best team war cry, most creative team name, best team dress, and prizes for individuals demonstrating outstanding leadership qualities.

Participation in the teaching intervention or acting on the organising committee was completely voluntary. The teaching intervention was hosted as an extra-curricular activity

which did not impact the normal teaching–learning assessment of students. Participants were also informed that they did not need to study or academically prepare for the intervention.

Please refer to the summary of annexures as indicated below for examples of the rules, clue cards, team rotation schedule, photos of participating teams and the planning and organising committee, detailed descriptions on the activities hosted at the various stations and a 45-minutes video recording of the teaching intervention hosted in the format of *The Amazing Tax Race*:

- Rules provided to participants one week prior to the teaching intervention (see annexure A)
- Clue cards (see annexure B)
- Team rotation schedule (see annexure C)
- Pictures of participating teams and the planning and organising committee (see annexure D)
- Detailed descriptions of activities hosted at the various stations (see annexure E)
- Video recording (45 minutes) showing elements of the teaching intervention (see DVD provided with the examination copy of this thesis)

2.5.2 The Tax Amazing Race

The researcher approached the professional body for tax professionals in South Africa, namely SAIT, to submit the idea of presenting a tax-related teaching intervention to students attending its annual tax student conference hosted in two geographical regions (northern and southern) of South Africa. The aim of these conferences is to inform young and upcoming tax professionals about the career opportunities in tax and the SAIT Learnership Programme (comprising three components: knowledge, practical skills and workplace experience) and to provide opportunities to network with the country's top tax minds and employers (TaxStudents, 2015). Because pervasive skills development is regarded to be an important competency required by professional accountancy bodies (see 2.2.2.3) and industry, the teaching intervention aimed to provide tax students the opportunity to develop pervasive skills and to encourage them to apply these skills in an innovative, fun and authentic tax-related environment.

The tax-related teaching intervention originated from *The Amazing Tax Race* concept (see 2.5.1) which had been established by the researcher and hosted annually at a SAICA-

accredited university since 2011 to third-year accounting students. The researcher adjusted the teaching intervention's format to enable it to be presented nationally for participants from various universities. The researcher was responsible for the overall planning, structuring and execution of the adjusted version of the teaching intervention in this thesis, known as the national *Tax Amazing Race*, in conjunction with SAIT and various tax-related employers (including the big four South African accounting, auditing and advisory companies) which developed and presented the tax-related activities to participating teams. Although the integration of tax knowledge in these activities was important, the overall focus remained on the exposure to and development of pervasive skills and qualities. The first two national *Tax Amazing Races* were held in 2014. As part of the action research process (Creswell, 2012; Mills, 2011), the researcher recorded personal field notes on effective and less effective elements of the overall planning, structuring and execution of the intervention in order to make suitable adjustments for its repeat in 2015.

The teaching intervention constitutes a race against time where tax students compete against each other in a university team context by participating in various tax-related activities hosted at several stations in a theme park (located in either the northern or southern region of South Africa). The teaching intervention is unique in that it combines the application of technical tax knowledge with the development of pervasive skills and competencies through innovative tax-related games and activities incorporated with theme park rides.

Initially, participating teams each received a theme park map and a clue leading them, on a rotation basis, to the first station of the race where a tax-related game or activity had to be completed. Clue cards handed out at each leg of the race either comprised a tax-related crossword puzzle, a tax riddle or a tax calculation that needed to be performed. Answers to these revealed a specific point of interest or location on the map which, in turn, directed participants to the next station. In order to decipher clues and complete activities successfully, teams had to apply their tax knowledge by demonstrating teamwork, leadership and effective communication. This required strategic and critical thinking while acting ethically and professionally, all under time constraints.

The race in the northern region consisted of seven stations and five theme park rides, while the race in the southern region comprised six stations and four theme park rides that participating teams needed to visit and complete. Each station was manned by a specific employer company that presented a uniquely developed tax-related activity. Six of the seven tax-related activities presented in the northern region corresponded to and were repeated as

the six main tax-related activities presented in the southern region. Because a greater number of teams entered in the northern region, the northern region race included an extra tax-related activity and theme park ride because teams needed to move between the various legs on a rotation basis. Each race took between two and a half and three hours to complete.

Please refer to the summary of annexures below for examples of the clue cards, theme park maps, team rotation schedules and photos of the teaching intervention per region (north and south), detailed descriptions on the activities hosted at the various stations and a *YouTube* video clip providing a brief overview of the teaching intervention hosted on a national level in the format of *The Tax Amazing Race*:

- Rules read to participants immediately before the teaching intervention commenced (see annexure F)
- Clue cards for northern region (see annexure G)
- Theme park map for the northern region (see annexure H)
- Team rotation schedule for the northern region (see annexure I)
- Picture collage of the teaching intervention held in the northern region (see annexure J)
- Rules read to participants immediately before the teaching intervention commenced (see annexure K)
- Clue cards for southern region (see annexure L)
- Theme park map for the southern region (see annexure M)
- Team rotation schedule for the southern region (see annexure N)
- Picture collage of the teaching intervention held in the southern region (see annexure O)
- Detailed descriptions of activities hosted at the various stations (see annexure P)
- YouTube video clip (1.5 minutes) providing a brief overview of the teaching intervention held on a national level. Follow the internet link:

https://www.youtube.com/watch?v=onBo522Yr1M

Although the overall concept and design of the two formats of the teaching intervention are mainly the same, the researcher had to make some adjustments to the design and format of *The Amazing Tax Race* for it to be presented on a national level in the format of *The Tax Amazing Race*. The main differences between the two formats are summarised in table 2.7.

Table 2.7: Summary of main differences between the two formats of the teaching intervention

Variable	*The Amazing Tax Race*	*The Tax Amazing Race*
Location	Presented at a single SAICA-accredited university, namely the North-West University (Potchefstroom campus)	Presented nationally in two regions (north and south) as part of the formal programme of the National Tax Student Conferences hosted by SAIT
Number of instances hosted	Presented annually over four consecutive years (2011 to 2014)	Presented twice a year over a two-year period (2014 and 2015)
Timing when data collection occurred	4 September 2014 (Main survey) 15–18 September 2014 (Focus group interviews)	12 February 2014 and 14 February 2014 (Pre-test pilot survey) 6 March 2015 and 13 March 2015 (Main survey)
Profile of participants	Third-year accounting students enrolled for the BCom Chartered Accountancy and BCom Forensic Accountancy degree programmes at the North-West University (Potchefstroom campus). The CA training and education programme is accredited by SAICA	Tax students on different academic levels (second, third and honours year) from seven different universities enrolled for various accountancy-related degree programmes which are accredited by various local and international professional accountancy bodies, including ACCA, CGMA, CIMA, SAICA, SAIPA and SAIT
Number of participants when main data collections occurred	80 students (participants) 28 students (committee members)	218 students (118 participants in the northern region and 100 participants in the southern region)
Number of participating teams	10 teams	14 teams (northern region) 11 teams (southern region)
Design and implementation of tax-related activities	Third-year accounting students of the NWU (Potchefstroom campus) acting on the teaching intervention's planning and	Staff from SAIT (professional body) and other employer companies (including big four accounting, auditing and

	organising committee guided by the researcher	advisory firms) assisted and guided by the researcher
Presentation of tax-related activities	Third-year accounting students of the NWU (Potchefstroom campus) acting on the teaching intervention's planning and organising committee assisted by staff from employer companies (including big four accounting, auditing and advisory firms)	Staff from SAIT (professional body) and other employer companies (including big four accounting, auditing and advisory firms)
Total number of stations	13 (one ice-breaker activity and 12 activity stations)	*Northern region:* 12 (one ice-breaker activity, six activity stations, and five theme park rides) *Southern region:* 10 (one ice-breaker activity, five activity stations, and four theme park rides)
Number of activities	13	*Northern region:* 7 *Southern region:* 6
Number of rides	None	*Northern region:* 5 *Southern region:* 4

(**Source:** Author's compilation)

2.6 Mapping the design of the developed teaching intervention against the key elements of the theoretical framework

The heart of any research is its conceptual framework which is underpinned by the theoretical stance taken by the researcher (Bello & Kostova, 2012:539). Thus, in order to provide a conceptual framework for the overall design of the teaching intervention in this thesis, there are two steps in this chapter. The first step is to describe how the researcher incorporated each of the concluding key elements of the theoretical framework (as listed under 2.5) into the design of the teaching intervention (see table 2.8). The second step is to explain how the learning theory elements of the four scientific disciplinal domains underlying pervasive skills development in an accounting education context had been embedded into the design of the teaching intervention (see table 2.9).

Table 2.8: Conceptual framework: Mapping theoretical framework key elements against the design of the teaching intervention

Theoretical framework key element	***Description of how the key element was incorporated into the design of the teaching intervention***
The main learning objective, namely to develop pervasive skills, should be clearly stated and communicated.	The learning objective of the teaching intervention hosted in the format of *The Amazing Tax Race* was communicated to students in the following two ways: - Verbally, when the teaching intervention was introduced and marketed during a formal taxation lecture; and - In writing, where the learning objective (purpose and goal of the teaching intervention) was stated in the rules handed out to participants in hard copy one week before the intervention (see rule number 8, annexure A). The rules were also communicated electronically in writing. They were loaded onto the electronic Sakai system [Learning Management System]) of the specific third-year taxation module. Where the teaching intervention was hosted in the format of *The Tax Amazing Race* on a national level, the learning objective (purpose and goal) was communicated to students in the following two ways: - In writing, the learning objective was electronically published on the SAIT web page where tax students had to register for the SAIT National Student Conferences; and

	Follow the internet link: http://www.thesait.org.za/event/id/501126/Tax-Amazing-Race---Cape-Town.htm - Verbally, communicated to the students as part of the rules (see annexure F and annexure K) being read to participating teams during the SAIT National Student Conference before the intervention commenced.
The actions to be performed in order to demonstrate the various pervasive skills should be clearly defined. These actions should drive and direct the design of activities that participants would be required to execute in the teaching intervention.	Students acting on the planning and organising committee of the teaching intervention hosted in the format of *The Amazing Tax Race* were responsible for designing and developing the activities of the teaching intervention. For this reason, the meaning of the pervasive skills were communicated and explained to these students during a formal committee meeting. During this meeting, they were informed about their task of creating tax-related activities, while keeping the development of pervasive skills in mind. Where the teaching intervention was hosted nationally in the format of *The Tax Amazing Race,* employer companies (accounting, auditing and advisory firms and one professional body) were responsible for designing and developing the activities. The list and meaning of pervasive skills to be developed were formally communicated to these employers by SAIT via email.
Activities need to create opportunities that will encourage, motivate and support the demonstration of the broader spectrum of required pervasive skills.	The SAFE concept (see 2.5) was applied as best practice design criteria for soft skills development. Therefore, multiple sequenced activities were included in order to provide

	sufficient opportunities to students in which they could apply, demonstrate and practice the full spectrum of all 12 the required pervasive skills as identified from the SAICA Competency Framework (see figure 2.1).
The teaching intervention should create a relaxed environment in which pervasive skills could be freely and naturally developed (without fake and pretentious actions) and should provide learners the opportunity to work with and to learn from their peers.	The question whether students had to be assessed during participation in the teaching intervention was carefully considered. To ensure that an environment was created in which students could freely and naturally develop their pervasive skills, the researcher decided not to formally assess students during participation as this could result in faked actions (in order to earn marks). However, as a learning objective is defined as "...what needs to be achieved and assessed at the end of a course..." (see 2.2.1), some element of assessment had to be present. The element of assessment was attained in the design of the intervention as follows: *The Amazing Tax Race* - Peer assessment was achieved where committee members needed to evaluate and assess one another's developed and designed activities during a formal committee meeting (brainstorming session); and - Peer assessment was achieved where a participating team first needed to successfully complete a specific activity at a specific station, as assessed by the committee members manning that station, before the team could obtain their next

	clue leading them to their next station. *The Tax Amazing Race* - Informal assessment of each participating team occurred at every station as specific employer companies manning and presenting activities at specific stations had to assess the successful completion of each activity by each team before they could hand the team their next clue leading them to their next station.
The teaching interventions should incorporate technology, simulate reality and be interactive, creative, exciting, fun, innovative and stimulating to accommodate the learner profile and needs of the Generation Y student.	To encourage the skills of communication, strategy, influencing others, leadership, creative thinking and teamwork prior to the intervention, participating teams were given the following team-building tasks: To create a team name, work out a team war cry, choose a team song and decide on a unique team dress. To perform these tasks, teams were encouraged to use technology such as *WhatsApp* groups, *Facebook* messenger, emails and phone calls, which were all aimed at promoting written, verbal and listening communication skills. Other technology and multi-media incorporated were cell-phones and the printed media. In one activity cell-phones were required to decrypt a clue revealing a phone number to be dialled to find out what the next station was. Teams also needed to take photos with their cell-phones at specified locations (such as statues, buildings, etc.) to be shown at the finish line before check-in was possible. In the teaching intervention's format of *The Tax Amazing Race* on a national level *TaxTalk Student Magazine* was

	incorporated. Maps of the theme parks were printed in the magazine (in order for teams to orientate themselves) and certain clues were hidden in and between tax-related articles in the magazine. The teaching intervention took on the form of a race against time. This was done in order to simulate reality, because the students would also need to work under time pressure and meet client deadlines in practice. Time constraints were used to encourage the demonstration of time management and strategic thinking skills. The use of time constraints also aimed to create a sense of competitiveness, excitement and a feeling of healthy competition between the participating teams.
The teaching intervention should accommodate different personalities and how they prefer to learn.	To accommodate various personality types with different learning styles and learning preferences, the teaching intervention (in the form of *The Amazing Tax Race*) allowed students to choose their involvement either as participants or as acting members of the planning and organising committee. However, the intervention in the form of *The Tax Amazing Race* allowed for students to only act as participating team members. This was due to the fact that employer companies were responsible for the planning and presentation of activities for the teaching intervention hosted on a national level. This was one of the adjustments that had to be made to the design of *The Amazing Tax Race* format, as it made more sense from a logistical perspective.

The teaching approach should be learner-centred.	In the teaching intervention's format of *The Amazing Tax Race* students either participated as members of the planning and organising committee or as active team members. Students who participated as members of the planning and organising committee were required to design and develop tax-related activities with pervasive skills in mind. These activities were to be presented to participants (fellow students) at the various stations on the day of the intervention. The design and development of these activities created the opportunity for students to apply their creativity and forced them to "think outside the box". Designs had to be presented at a committee meeting (brainstorming session) for evaluation and feedback from committee members (thus, achieving peer assessment). The educator only provided guidance with regard to approving activities based on practical feasibility and technical correctness of activity content. Brainstorming sessions and mind mapping methods are well-known applications of creativity in the business world (Schulz, 2008:149). Students who acted as members of participating teams were also encouraged to think creatively and independently, and to find innovative approaches to problem-solving through executing the various activities which they needed to perform. As activities were hosted to participants by committee members at the various stations, peer assessment was again achieved.

	Thus, the educator only acted as main facilitator, while students were responsible for curricula design, the evaluation of the design, the assessment and evaluation of their peers (either as committee members or participating teams), and taking on the role of active participants throughout the learning process and being accountable for their own learning.
The teaching intervention's method of instruction should be inductive in nature.	The inductive method of instruction was followed in this intervention. Participating teams received specific instructions at each station relating to a specific task to be performed or problem to be resolved. Therefore, students were actively involved in the learning process and were verbally, mentally and physically responsible for their own learning. Committee members and/or staff from employer companies acted as facilitators and only stepped in to provide assistance where doubt relating to the original instructions occurred.
The teaching intervention should incorporate a combination and a wide variety of active learning methods.	The teaching intervention encapsulated numerous active learning methods and combinations thereof (see annexure E, and annexure P for detailed descriptions of activities). All activities were game-based using gamification as a vehicle to promote active learning. The use of game-based activities for educational purposes was aimed at achieving the following: (i) Encouraging students to combine their knowledge, to make decisions and to find solutions in each activity;

	(ii) Encouraging students to engage with other team members in order to discuss strategies and action steps to be taken; and (iii) Showing students and making them realise how the outcome of their decisions and actions affects the successful completion of each activity. Therefore, the integration of active learning methods with gamification attempted to encourage the application of leadership, communication, influencing others, critical thinking, strategic thinking, problem-solving and teamwork skills in students as students needed to interact through participation in game-based activities.
Activities should combine the application of pervasive skills with a broad spectrum of technical content.	Although the design of each activity mainly focused on pervasive skills development, each activity was still tax-related, which required committee members and participants to apply and incorporate technical content in the respective processes of design and participation. Different tax types, tax topics and tax case law were assigned to different committee members to develop the tax-related activities. In this way, the researcher ensured that a wide spectrum of the tax syllabus was covered in the activities. Although participating students were informed that they did not need to study or academically prepare for the teaching intervention, prior knowledge obtained from previous formal lectures and assignments was a prerequisite for participation in the teaching intervention.

The teaching intervention should incorporate practical application and real-world experiences to make learning relevant, practical and interesting.	Students were required to apply their tax knowledge practically in order to decrypt clues to successfully complete the various activities. Activities aimed to integrate technical tax knowledge and concepts in a creative and innovative manner by exposing participants to the various tax types at each station. The involvement of professional staff from employer companies in manning the stations and activities aimed to simulate an environment closer to reality in which students needed to operate in a professional and ethical manner.

Table 2.9: Conceptual framework: Learning theory elements of the four underlying scientific disciplinal domains embedded into the design of the teaching intervention

Underlying scientific disciplinal domain	***Description of how the learning theory elements were embedded into the design of the teaching intervention***
Philosophy • *Experiential learning*	The design of the teaching intervention was based on the philosophical theory that learning occurs through experiences. Tax-related activities were designed so that students could experience different types of taxes through practical application, creative thinking and innovative problem-solving. Thus, the teaching intervention followed a "learning by doing" approach where synergy occurs when individuals interact with their environment. Learning is non-traditional because it occurs in an interactive environment, outside the walls of the normal classroom environment, where students are confronted with creative, multiple-solution

	problems to be resolved through multiple experiences (various activities to be completed) and peer engagement.
Education • *Behaviourism* • *Cognitivism* • *Constructivism* • *Humanism*	While participating in the game-based activities, students were expected to show desirable behaviours (demonstrating and applying pervasive skills) based on emotional and cognitive reactions resulting from interaction with activity content, the environment, instructors (committee members and/or staff from employer companies) and peers (fellow team members). Through participation the student constructed (constructivism) new knowledge based on personal and collaborative interaction and experiences. This process also allowed for self-directed learning (humanism) which enabled the students to identify areas of personal development with regard to pervasive skills that could still be improved. The students were motivated to learn and to freely apply and develop pervasive skills because the learning environment was relaxed and allowed students to make mistakes without being penalised.
Organisation • *Social structure* • *Technology* • *Physical structure* • *Culture*	The teaching intervention aimed to create an organisational learning environment simulating the actual environment in which accounting students would be required to operate. By involving professional staff from actual employer companies (accounting, auditing and advisory firms and a professional body) students were allowed to experience each employer's organisational

	culture. Having to deal with actual professionals (individuals with authority) contributed to creating a learning environment in which students were encouraged to act and learn in a professional and ethical manner.
Psychology • *Social constructivism* • *Mastery learning*	The design of the teaching intervention aimed to combine pervasive skills and technical skills into multiple game-based activities. Basic knowledge of tax concepts and principles was a prerequisite for participation in the teaching intervention. Thus, the theory of mastery learning was employed where students first needed to master the technical content from formal lectures before the skill of applying that knowledge practically through experiences of social interaction (social constructivism) would be possible. Thus, the teaching intervention comprised a combination of both higher-order and lower-order cognitive skills, where the lower-order skills were to be mastered first before the higher-order skills could be developed.

2.7 Chapter summary

Accountancy courses and modules are typically associated with conventional rules and regulations. This could be ascribed to the fact that the content of these courses and modules are driven primarily by the set rules of accounting and auditing standards and regulations in terms of tax legislation. This, however, prevents accounting students' from thinking creatively and innovatively, it limits the practical application of knowledge and, in general, hampers the effective application, demonstration and development of pervasive skills.

This chapter reported on an extensive review of various literature pertaining to key elements in establishing a theoretical framework that will effectively guide the design of a teaching

intervention to expose accounting students to pervasive skills development. The theoretical framework suggested a learner-centred approach to teaching, employing multiple active learning methods to accommodate various learning styles and learning preferences. Furthermore, the teaching intervention should comprise numerous activities in which students are encouraged to demonstrate and apply the broader spectrum of the required pervasive skills set. Activities should be aimed at simulated real-world experiences where students can learn through practical engagement with the environment, technical content, peers and individuals with authority. The overall design should incorporate and reflect the learning theory elements of the four scientific disciplinal domains that underlie pervasive skills development in an accounting education context.

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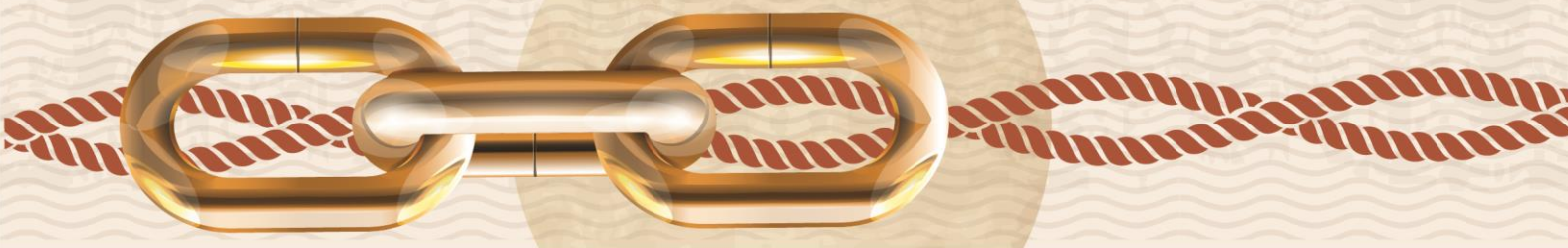
CHAPTER 3

METHODOLOGICAL DESIGN AND METHODS TO EVALUATE A TEACHING INTERVENTION IN THE ACCOUNTANCY AND EDUCATIONAL SCIENCES

"Reality, it seems, is not a flat plane, but has as many veils as an onion has skins"

- Herbet Spencer -



Chapter 3

Methodological design and methods to evaluate a teaching intervention in the Accountancy and Educational sciences

3.1 Introduction

Methodology is the researcher's approach to problem solving and inquiry strategy (Saunders, Lewis & Thornhill, 2009). Research questions could be answered and research objectives could be met by applying various research designs and methods which are underpinned by a vast number of research theories, ideas, frameworks and schools of thought (paradigms) (Burrell & Morgan, 1979; Coetsee, 2011:82; McChlery, 2011; Trochim & Donnelly, 2006:13-22; Van der Merwe, 2013:38). Thus, the selection of appropriate paradigm and theory is imperative as it will direct the research (Van der Merwe, 2013). Van der Walt (2008) suggests that, for it to really make an impact and to move the science forward, empirical research needs to be embedded (either explicitly or implicitly) within an existing research theory (or theories). However, theories and paradigms are continuously developing and changing as they are challenged and criticised over time (Trochim & Donnelly, 2006:18-20). The nature of the development of theory also differs within different research frameworks and/or paradigms (Coetsee, 2011:95). Gong and Tse (2009) argue that multiple theories can be applied jointly in accountancy research to enrich the researcher's understanding of phenomena from multiple perspectives. McChlery (2011) states that, in the field of accounting and education, like all other disciplines, particular paradigms tend to dominate. Accounting education and international business scholarship has made tremendous progress in the last few decades in establishing itself as a legitimate and respected area within the social sciences (Bello & Kostova, 2012).

The purpose of this chapter is to explore the methodological design and methods for application within the sciences of accountancy and education to evaluate and analyse the usefulness of a teaching intervention which was developed to expose accounting students to pervasive skills.

3.2 Exploring the methodological design and methods

Saunders *et al.* (2009:108) describe the overall research methodological process by means of the "research onion" (refer to figure 3.1). Each layer of the research onion represents an element in the methodological process that needs to be considered and "peeled away" in order to derive at the centre of the onion which represents the most appropriate research methods (data collection techniques and analysis procedures) to adequately and sufficiently answer the research question(s) and meet the research objectives at hand. The layers of the research onion are described below based on the consideration of various methodological literature. This is followed by a conclusion and a motivation after each layer on the methodological elements (design and methods) that were considered most appropriate for application in conducting research in this thesis.

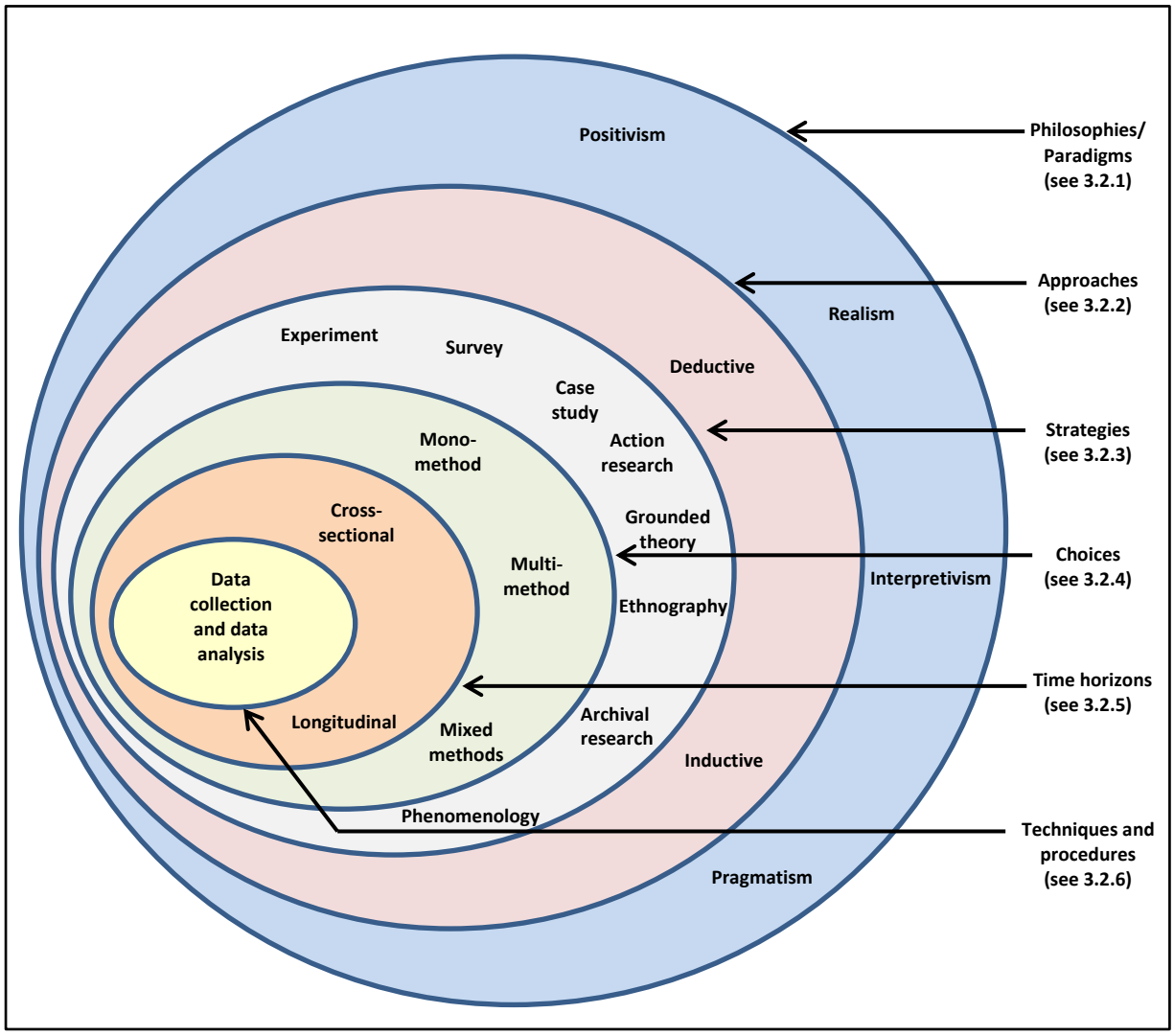


Figure 3.1: The research onion

(**Source**: Saunders *et al.*, 2009:108) – adjusted

Firstly, the researcher needs to demonstrate and articulate his personal assumptions, views, beliefs and values which will underline the research process as a whole (Grix, 2002:179). These elements are encapsulated in the ontology, epistemology and axiology of the researcher and comprise the following:

Ontology

Ontology describes the researcher's views of the world. Ontology constitutes the researcher's assumptions about the nature of being and of reality (Zuber-Skerritt, 2001). This reality could either be seen as external when viewed objectively from a realist perspective, or as being dependent on various facts and circumstances when viewed from a relativist perspective (De Villiers, 2015:31). Ontology is transformed into epistemology at the point where the researcher's views on knowledge are questioned (McKerchar, 2008).

Epistemology

Epistemology refers to the researcher's assumptions about the nature of knowledge and about knowing (Zuber-Skerritt, 2001). Ellery (2011) highlights the recent "ontological turn" in which the emphasis on the epistemological aspects of learning has been criticised (Barnett, 2004; Brown, 2009; Dall'Alba & Barnacle, 2007), and it has been suggested that higher education should rather focus on the embodiment of knowledge and knowing (Dall'Alba & Barnacle, 2007:681). For the latter to be achieved, Zeichner (2010:89) argues that new epistemology for teacher education is needed in order to create expanded learning opportunities that will better prepare and equip educators to be successful in enacting complex teaching practices, such as interventions aimed at pervasive skills development. Educators must find acceptable ways of "saying-doing-being-valuing-believing" which is described by Gee (1989:6) as *academic discourse*. Each academic discipline has its own *academic discourse* with its own epistemic values, norms and conventions which include the manner in which knowledge and skills are constructed, communicated and transmitted. These epistemic values, norms and conventions for each specific discipline (such as pervasive skills development in the accounting and educational sciences) are usually not well articulated by the experts who are already immersed within the field (Ellery, 2011:1079). For learners to obtain "epistemological access" (Morrow, 1993) to the values, norms and conventions of a specific discipline these need to be clearly communicated and made explicit through overt instruction (Jacobs, 2007) and by exposing learners to relevant and appropriate teaching methods and practices.

Axiology

Axiology is the study of the researcher's judgement, ethics and values. The researcher's personal values play an important role in all stages of the research process and have a significant impact on the credibility of the research results (Saunders *et al.*, 2009:116). Heron (1996) argues that the researcher should demonstrate axiological skill by being able to articulate his own values as a basis for making judgements about the research, specifically the way in which it is conducted.

Conclusion on and motivation for the ontological, epistemological and axiological view applied in this thesis

This thesis is based on the ontological assumption that everything in the social world is interconnected. Thus, a holistic interpretation of reality is adopted. Pervasive skills are inherently part of the individual's humanistic character and personality which are affected by external factors of the environment in which the individual operates. From an epistemological perspective, knowledge is viewed as being socially constructed. Based on this epistemology, theory may be generated from the reality of active learning environments where individuals are physically involved in and obtain "hands-on experience" throughout the learning process (Vulliamy, Levin & Stephens, 1990). Knowledge is created when people talk about and explore their personal learning experiences (Beylefeld, 2005:1324). In accordance with the axiological values of the researcher, the assumption is made that, in order to determine the usefulness of a teaching intervention to expose accounting students to pervasive skills (based on the collection of personal learning experiences), perceptions need to be reiterated and confirmed by using multiple perception-gathering techniques and obtaining the views from various role-players. This will contribute to the credibility of the overall research process and, ultimately, the research findings.

3.2.1 Research philosophies/paradigms

Guba and Lincoln (1994:105) indicate that the researcher needs to establish which paradigm is applicable to his own research before determining the most suitable research methods. They define a research paradigm as:

> The basic belief system or world view that guides the investigation, not only in choices of method but in ontologically and epistemologically fundamental ways.

The researcher needs to commit to a specific research philosophy because this will significantly impact the actions taken to conduct the research as well as guide the

researcher's understanding of his investigation (Johnson & Clark, 2006). A research philosophy contains important assumptions on how the researcher views the world. However, Saunders *et al.* (2009:108) indicate that a specific research question rarely falls neatly into one philosophical paradigm. Some of the most significant and frequently referred to philosophical paradigms which are considered in the context of this study include the following:

3.2.1.1 Positivism

Positivism is based on the ontological foundation that the world is viewed independently from knowledge (epistemology), thus objectively and apart from the researcher (McKerchar, 2008:7). Positivists seek the facts and causes of social phenomena apart from the subjective states of individuals (Bogdan & Taylor, 1984:1). In a positivist philosophical approach the assurance of validity is recognised when knowledge can be generalised and when the research is conducted within controlled conditions by means of rigorous methods of data collection, analysis and interpretation. The research design of a positivistic framework is usually characterised as being experimental in nature (Zuber-Skerritt, 2001).

3.2.1.2 Realism

The essence of *realism* is that the truth is discovered through what the senses show us of reality. *Realism* is based on the ontological view that objects exist independently of the human mind (Saunders *et al.*, 2009:129). The epistemology of *realism* is underlined by the fact that phenomena of knowledge are created through the senses of the researcher, namely sight, touch, smell, taste and hearing (Greener, 2008:16). From a critical realist's position knowledge of reality is a result of social conditioning and cannot be understood independently from the social actors involved in the knowledge derivation process (Dobson, 2002).

3.2.1.3 Interpretivism

The ontological position of *interpretivism* is that reality is viewed as an intersubjective or interpersonal construction of the truth; thus, making sense of the world through continuously interpreting, creating, defining, justifying and rationalising the daily actions of phenomena in the social sciences (Geele, 2010:499; Smith, 2006:196). From an epistemological perspective knowledge is created by focusing on the details of a situation and the reality behind these details, and deriving the subjective meanings which motivate these actions (Saunders *et al.*, 2009:119). Because it focuses on human aspects, *interpretive* research is

normally qualitative in nature and, thus, incorporates the perceptions and feelings of people (Parker, 2008:909). Data are, therefore, subjective and require validity within the design of the research process. Henning, Van Rensburg and Smit (2004:23) recommend that more than one research instrument be applied within the *interpretive* paradigm to create multiple perspectives on specific phenomena.

3.2.1.4 Pragmatism

According to Saunders *et al.* (2009:119), pragmatism is driven by the research question at hand and suggests an ontological view to be elected based on what will best enable the researcher to answer the research question. The epistemological position, too, is dependent upon the research question because knowledge could be provided by either or both observable phenomena and subjective meanings. Therefore, due to the fact that all research questions, methodologies, conceptual frameworks and fieldwork parameters are context specific, the *pragmatist* paradigm suggests a "right tool for the right job" approach (Patton, 2002). The interpretation of data within the *pragmatist* paradigm should be based on the integration of different perspectives with a strong focus on applied practical research (Saunders *et al.,* 2009:119).

Conclusion on and motivation for the research philosophies/paradigms applied in this thesis:

The accounting discipline is regarded to be a social activity (Baker & Bettner, 1997; Coetsee, 2010) and a social science (Van der Schyf, 2008; West, 2006:131) due to the fact that accounting treatment is determined by human intervention (Coetsee, 2011). Therefore, this thesis is positioned within the social sciences because it deals with the perceptions of individuals (accounting students, accounting educators and accounting employers) who act as different role-players in a teaching intervention aimed at exposing accounting students to pervasive skills as part of accounting education at tertiary level. These role-players have different characteristics, ideas and strategies which make their behaviour complex and not easy to predict.

A number of research frameworks/paradigms are deployed in the social sciences, of which the *positivistic* and *interpretivist* paradigms are highlighted by Henning *et al.* (2004) to be mainly applied within accounting research. Although McKerchar (2008:7) and Delport, De Vos, Fouché and Strydom (2013:6-10) mention a number of less distinct paradigms found on the continuum between *positivism* and *interpretivism*, including *critical realism*, *constructivism*, *post-positivism*, *feminism* and *post-modernism*, this thesis is positioned

between the two main competing research paradigms, namely (i) *positivism* (mainly quantitative in nature) and (ii) *interpretivism* (mainly qualitative and phenomenological in nature). The application of *positivistic* approaches to a social discipline, such as accounting, creates the notion that, in the social world of a changing discipline, certain practical truths can still be objectively verified (Armstrong, 2008:871). *Positivism* encompasses a technical reductionist approach in order to reduce phenomena to their simplest elements, while *interpretivism* is a more holistic approach in which learning and knowledge are created by viewing phenomena in their totality (Zuber-Skerritt, 2001). Table 3.1 contains a summary illustrating the characteristics of these two opposing philosophical paradigms.

Table 3.1: Comparison of the philosophical paradigms of *positivism* to *interpretivism*

	Positivism	***Interpretivism***
Premise	One truth	Social actors create truth
Theory	Develop and test theory	Develop theory
Main focus	Verification and measurability	Understanding the reasoning behind human activity
Nature	Quantitative/Objective	Qualitative/Objective
Research	Empirical/Statistical	Empirical/Theoretical

(**Source:** Coetsee, 2011:95)

In this thesis the borders of the paradigms of *positivism* and *interpretivism* are merged. According to Coetsee (2011:95), recent developments in research show a tendency to combine paradigms, provided that the research design is adequately explained. It is submitted that the integration of the *positivistic* and *interpretivist* paradigms is appropriate for the current study because the combination of total objectivity (within the *positivistic* framework) with the feelings of individuals (within the *interpretive* framework), which are more subjective in nature, contributes to the creation of different perspectives, adding to the rigour, credibility and trustworthiness of the research.

The combination of paradigms applied within this study is, furthermore, motivated by the fact that a phenomenological approach is followed (see 3.2.3.7). Research within the *positivistic*

paradigm focuses on describing and predicting underlying phenomena (Deegan & Underman, 2006:8), while research in the *interpretivist* paradigm goes a step further and assesses the reasoning behind the phenomena by incorporating human perceptions and feelings (Baker & Bettner, 1997:293; Wolk, Dodd & Rozycki, 2008:42).

Because there are two major ways of thinking about research philosophy, namely ontology and epistemology (Saunders *et al.*, 2009), the above methodological elements are described in table 3.2 to further motivate the combination of the philosophical paradigms, namely *positivism* and *interpretivism*, and to illustrate the relevancy of their application in the context of this thesis.

Table 3.2: Positivism and interpretivism: ontological, epistemological and methodological components

	Positivist paradigm	***Interpretivist paradigm***
Ontology (Nature of reality)	The world exists independently of our knowledge of it, i.e. it is an objective reality and apart from the researcher	The world does not exist independently of our knowledge of it, i.e. it is a subjective reality and not independent from the researcher
Epistemology (Relationship with researcher)	The researcher and what is being researched are independent from each other	The researcher and what is being researched interact
Methodology (Research process)	Deductive process that is quantitative in nature	Inductive process that is qualitative in nature

(**Source:** Bogdan & Taylor, 1984:1-5; Brynard & Hanekom, 2010:16; Burrell & Morgan, 1979:1-7; Delport *et al*., 2013:5-9; Greener, 2008:16-17; McKerchar, 2008:7-9; Smith, 2006:196, as summarised by De Villiers, 2015:36)

Therefore, based on the characteristics of the two paradigms discussed above, this research study combines *positivism* and *interpretivism* as a parallel convergent mixed-method research design to be followed (see 3.2.4.3) whereby both quantitative and qualitative research processes are applied (Creswell & Plano Clark, 2011; Johnson & Turner, 2003) in

order to answer the research question and to meet the research objectives as stated in chapter 1.

3.2.2 Research approaches

The next layer of the research onion is the *research approach* to be followed in the methodological design. Two research approaches, namely the deductive and inductive approach, are described below:

3.2.2.1 Deductive

Deductive research begins with theories and progresses to the application of those theories (Creswell & Plano Clark, 2011). Thus, in the *deductive* approach, the researcher develops a theory and a hypothesis after which he designs a research strategy in order to test the theory and hypothesis (Saunders *et al.*, 2009:124). *Deductive* reasoning is a theory-testing process which seeks to determine whether an established theory applies to specific instances (Hyde, 2000:83). As a result, the *deductive research* approach is also referred to as the *testing theory* approach.

3.2.2.2 Inductive

Under the *inductive* research approach the researcher collects data and then develops a theory based on the results of the data analysis (Saunders *et al.*, 2009:124). Thus, an *inductive* research approach aims at gathering contextualised data in the form of descriptions from which generalisations can be drawn (Merriam, 1988). In this approach data are *inductively* analysed to develop a model or theory about the underlying structure of experiences or processes (Thomas, 2006:238). Thus, the *inductive research* approach is also referred to as the *building theory* approach (Hyde, 2000:83).

Conclusion on and motivation for the research approach applied in this thesis:

The primary objective of this study was to evaluate a teaching intervention that could be incorporated as part of higher education curricula to effectively expose accounting students to the development of pervasive skills. The design of the teaching intervention was based on and incorporated various elements of the theoretical framework (see chapter 2) developed after the exploration, inspection and review of relevant literature pertaining to pervasive skills development (see chapter 2). This literature included teaching and learning approaches, methodologies and theories of the four disciplines underpinning pervasive skills development in an accounting education context. Van der Merwe (2013:47) indicates that a theoretical

framework is critical to any research design because existing theory applied in theoretical frameworks informs the research methodology. Therefore, because the theoretical framework and, ultimately, the design of the teaching intervention was based on existing teaching and learning theories, the research design of this thesis contained elements of a deductive research approach. However, the study majorly focused on an evaluation and analysis of a newly developed teaching intervention to expose accounting students to pervasive skills. This was achieved by collecting both quantitative and qualitative data for further evaluation and analysis. Therefore, although elements of a deductive research approach can be identified, the research was primarily based on an inductive research approach because the collection, evaluation and analysis of data enabled theory building.

The inductive research approach can be successfully aligned with the philosophical paradigm of *interpretivism*. Interpretivists are well-known for applying inductive reasoning, i.e. starting with specific observations, which are then repeated (see figure 3.2, spiral of the action research cycles) in order to draw general conclusions; thus, an approach of moving from the particular to the general (Brynard & Hanekom, 2010:16; De Villiers, 2015:35-36; Walliman, 2011:17). On the other hand, the underlying elements of the deductive approach are more closely aligned with *positivism* which is characterised as being more quantitative in nature (see table 3.2). Inductive reasoning falls under qualitative research methods because it is an approach aimed at understanding people, their actions and methods of reasoning. In this study the researcher needed to analyse individual perceptions, behaviour and actions in an attempt to evaluate the design variables of a teaching intervention which either contribute to or strain pervasive skills development. Consequently, a more prominent *inductive* research approach, underlined by some *deductive* elements, was applied in this study.

3.2.3 Research strategies

The election of a research strategy is a vital element in the methodological process. The research strategy needs to enable the researcher to answer particular research questions and to meet the attendant research objectives. The following seven strategies could be considered in the next layer of the research onion:

3.2.3.1 Experiment

An *experiment* research strategy is applied when the researcher wants to determine whether a change in one independent variable produces a change in another dependent variable (Hakim, 2000). In the classic *experiment* two groups are formed, exactly similar in all aspects relevant to the research, other than either being exposed to the planned intervention that is

researched, or not. Thus, the one group is classified as an experimental group, being exposed to the intervention, while the other group serves as a control group. A dependent variable is then measured before and after the manipulation of the independent variable for both the experimental and the control group. It is important that the members are assigned to each of the control and experimental group randomly; thus, both groups should constitute random samples. By making use of a control group, the researcher effectively removes the possible effects of alternative explanations for the planned intervention and, ultimately, achieves internal validity (Saunders *et al.*, 2009:143-144).

3.2.3.2 Survey

The *survey* strategy allows the researcher to collect quantitative data by means of questionnaires which could be analysed quantitatively using descriptive and inferential statistics (Forza, 2002). Although the questionnaire is the most popular medium used within the *survey* strategy, it should be noted that structured interviews, where standardised questions are asked to all interviewees, are also often associated with this type of strategy (Gable, 1994:2). The *survey* strategy is characterised as being deductive in nature and is usually associated with exploratory, confirmatory and descriptive research (Filippini, 1997; Malhotra & Grover, 1998; Pinsonneault & Kraemer, 1993). The *survey* strategy is beneficial in that it allows for the collection of large amounts of data from sizeable populations which are comparatively easy to explain and to understand (Rea & Parker, 1992). Data collected by means of the *survey* strategy could be applied to develop models based on the discovery of particular relationships existing between different variables (Saunders *et al.*, 2009:144-145).

3.2.3.3 Case study

A *case study* is defined in the literature as a strategy for conducting research which involves an empirical investigation of a particular contemporary phenomenon in its real-life context using multiple sources of evidence (Delport *et al.,* 2013:321; Robson, 2002:178). The application of the *case study* as research strategy is a common approach found in the social sciences and education (Rule & John, 2011:4) and is most often used in explanatory and exploratory research. Morris and Wood (1991) indicate that the *case study* strategy is of particular interest when the researcher wants to gain a rich understanding of the context of the research and the processes being enacted. A wide variety of data collection techniques such as interviews, observation and questionnaires are usually employed and combined in *case study* research (Saunders *et al.*, 2009:146). Consequently, the *case study* strategy is synonymous with a process in which the triangulation of multiple data sources is required.

Yin (2003) distinguishes between using the single case as opposed to multiple cases as research strategy. The single case is often used when the phenomenon of a critical, extreme or unique case needs to be observed and analysed. The use of multiple cases is rationalised when the need exists to establish whether the findings of the first case also apply to another case, which would enable the researcher to generalise the findings. Thus, Yin (2003) is of the opinion that the use of multiple cases is a more preferable research strategy than the use of a single case.

3.2.3.4 Action research

Action research is an on-going creative activity where the researcher is exposed to surprises along the way. *Action research* is described as a "wonderfully uncomfortable" place to be due to the fact that, once the researcher starts the journey, there is no way of knowing in advance where he will end up (Mills, 2011). The term "action" encapsulates three perspectives, namely that of the past, the present and the future. Thus, an event of the past affects the researcher's present insight, learning and knowledge bases which, in turn, enables the researcher to plan future actions (Zuber-Skerritt, 2001).

Action research is beneficial in that the knowledge it creates does not only have propositional value, but also practical value because it provides relevance to the context within which it occurs (Beylefeld, 2005:1321). Hopkins (1993) describes the use of *action research* in dealing with complex situations as follows:

> [action research] ... aims to feed practical judgement in concrete situations, and the validity of the "theories" or hypotheses it generates depends not so much on "scientific" tests of truth, as on their usefulness in helping people to act more intelligently and skilfully ... "Theories" are not validated independently and then applied to practice. They are validated through practice.

Beylefeld (2005) indicates that action research has scientific value when it constitutes a rigorous, deliberate process of thinking systematically about what one is doing and what one is learning in the process. Figure 3.2 illustrates the action research process as the repetition of various action research cycles. Within each cycle the researcher needs to plan, act, observe and reflect, after which the planning is revised for it to be repeated in a subsequent cycle. Subsequent cycles involve reflecting, taking into account previous evaluations,

planning further actions, and implementing these actions again to be re-evaluated through reflection (Saunders *et al.*, 2009:147).

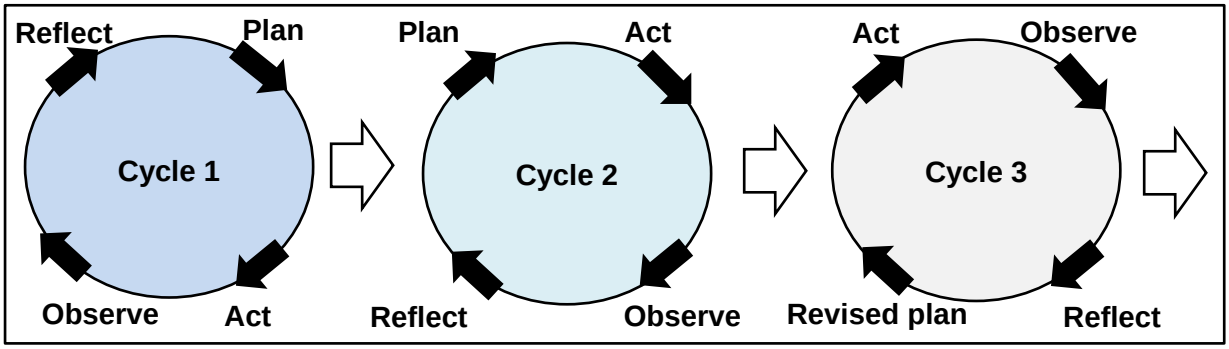


Figure 3.2: Spiral of action research cycles

(**Source**: Zuber-Skerritt, 2001:20) – adjusted

Therefore, the philosophical assumption underlying the *action research* process is that it consists of cycles of action to be taken and repeated whereby knowledge is created through action and concrete experience while the following takes place:

- reflecting on and in action;
- conceptualising, theorising and generalising the action/experience;
- testing these concepts in new situations; and, thus,
- engaging in a new cycle of gaining knowledge through new concrete experience, reflection, conceptualisation and testing (Zuber-Skerritt, 2001).

The *action research* process of inquiry is more closely aligned with qualitative approaches to research (Ary *et al.*, 2009) which could be classified as being subjective in nature. Therefore, to ensure the trustworthiness of the action research process, Mills (2000) suggests that it should be measured against Guba's (1981) criteria for trustworthiness which include credibility, transferability, dependability and confirmability. The latter will confirm the researcher's ability to take all the complexities of the context under investigation into account and to deal with unexpected patterns (Tesch, 1990).

3.2.3.5 Grounded theory

The research strategy of *grounded theory* reflects, as the name suggests, theory that is grounded in the words and actions of those individuals who are under study or under review (Glaser & Strauss, 1967). According to Goulding (2005:296), the richness of *grounded theory* as a methodology is largely influenced by sociology (an area of enquiry that is focused on society and the individual), interactionism (a paradigm which holds that

individuals engage in a world that requires reflexive interaction as averse to environmental response) and ethnography (see 3.2.3.6) (Goulding, 2005). *Grounded theory* is traditionally associated with sociological (Glaser & Strauss, 1967; Strauss & Corbin, 1990) and organisational studies (Hunt & Ropo, 1995; Parry, 1998).

The method of *grounded theory* is not necessarily driven by a review of existing literature prior to the research being conducted, but is instead consulted as part of the iterative, inductive and interactional process of data collection, simultaneous analysis and emergent interpretation (Goulding, 2005:296). Therefore, *grounded theory* data collection could commence without the initial development of a theoretical framework because theory is developed from collecting data by means of a series of observations (Saunders *et al.*, 2009:149). *Grounded theory* allows for a wide range of data to be collected of which the most common methods applied include in-depth interviews, observations, memos which describe situations, recordings of events and personal field notes. By analysing the collected data, core categories and themes of theory building emerge in the researcher's mind from his reading of transcripts, previous life experiences, own research and scholarship (Glaser & Strauss, 1967:253). The final stage of the theory development process is the construction of a core category which brings together all the concepts in order to offer an explanation on a specific phenomenon (Glaser & Strauss, 1967). These core concepts should be theoretically significant and measured against existing theories to illustrate their relevance and extent (Goulding, 2005). Glaser and Strauss (1967) highlight that the application of *grounded theory* as research strategy, where contrasting extant theory is constantly compared with field data, allows new theoretical contributions.

3.2.3.6 Ethnography

Ethnography is a research strategy aimed at looking beyond what is said by a group of individuals in order to understand and establish the shared system of meaning which is generally referred to as the "culture" of that group. *Ethnography* (*ethno* meaning "folk/group" and *graphy* meaning "description") entails either the full or partial description of a group to identify commonalities within the group, such as religion, social relationships or management style (Hammersley & Atkinson, 1995). Therefore, *ethnography* is embedded within cultural anthropology, which is focused on identifying original central concepts underpinned by the nature, construction and maintenance of a specific culture within a group (Goulding, 2005:298). In adopting an *ethnographic* strategy, the researcher investigates the phenomenon in the context in which it occurs. Therefore, *ethnography* does not require data

collection techniques that oversimplify the complexities of everyday life (Saunders *et al.*, 2009:150).

3.2.3.7 Archival research

The *archival research* strategy draws on administrative records and documents as the principal source of data. Bryman (1989) highlights that, although *archival* research has a historical connotation, the sources could include both recent and historical documents (Hakim, 2000). An *archival* research strategy constitutes an exploratory, descriptive and explanatory research process which allows research questions to be answered which focus on the past and change over time (Saunders *et al.*, 2009:150).

3.2.3.8 Phenomenology

In following a *phenomenological* research strategy the researcher attempts to describe the meaning behind the lived experiences of selected individuals (Creswell, 2007). Thus, phenomenology searches for the meanings that individuals bring to their experience of a given context by means of a general recount of and reflection on that experience (Healy & McCutcheon, 2010:558). The essential goal of phenomenology is to clarify and obtain an understanding of a range of immediate experiences (Spiegelberg, 1982) and not to seek explanations in terms of cause and effect (Akerlind, 2003; Ashworth & Lucas, 2000).

Phenomenologists believe that knowledge is socially constructed and created from within for a particular group in a specific given context. The researcher's role is to describe and explain the situation or case as truthfully as possible. The aim is not only to establish generalisable laws for multiple contexts, but to know, understand, improve or change a particular social situation or context for the benefit of the individuals who are also the "participants" in the inquiry and who are affected by the results and solutions (Zuber-Skerritt, 2001).

Ashworth and Lucas (2000) set out a series of guidelines of the design, conduct and reporting of phenomenological research and stress the importance of describing the research process itself and not just its outcomes. Reason and Rowan (1981:244) indicate that validity in a holistic phenomenological approach is more personal and interpersonal than methodological, and should be based on an interactive logic rather than on the "subjective" or "objective" truth.

Conclusion on and motivation for the research strategy applied in this thesis:

A combination of the *action research*, *phenomenology, survey* and *grounded theory* research strategies was deployed in this study to evaluate and analyse the ability of a newly developed teaching intervention to expose accounting students to pervasive skills.

An action research strategy was followed because the researcher was interested in evaluating an instance in action. The instance in action was represented by a newly developed teaching intervention in which accounting students were exposed to pervasive skills. The students volunteered to partake in the teaching intervention and to experience it first-hand. The appropriateness of this research strategy is further motivated by the fact that action research is regarded to be the best approach for teacher-researchers to solve practical problems (such as: *how to expose accounting students to pervasive skills*?) by choosing the focus of the research (Gay, Mills & Airasian, 2009) and determining the effectiveness of a specific teaching intervention in a particular setting (Drew, Hardman & Hosp, 2008:12). Also, action research allows interpretations to be made in context, instead of generalising facts from the literature.

As participation in the teaching intervention was voluntary, it was assumed that, in reality, some individuals would not be willing to participate in a research "experiment". A group of volunteers cannot be considered a representative study population. As students volunteered to either participate or to act on the planning and organising committee of the teaching intervention under review, the study population could not be classified as a random sample, but instead as an availability sample. Therefore, an *experiment* research strategy was not appropriate for this study because both the experimental and control group were required to constitute random samples for this strategy to be applied (see 3.2.3.1). The use of a control group was considered before the research commenced. However, due to the unique nature of the teaching intervention, it would have been challenging to collect data from and compare it to the perceptions of a group (comprising three different sets of role-players involved in the teaching intervention) who had never experienced a newly designed teaching intervention similar to the one under review. The data collected focused on measuring experiences (by using questionnaires and focus group interviews) to evaluate the ability of a teaching intervention to expose accounting students to pervasive skills. It would have been irrelevant to do the same measurements in a control group who was not exposed to the experience because they would not have been able to contribute to the data. Data commonly compared in a control group *experiment* typically consist of elements such as student performance, examination marks, etc. These were not part of the data set for the study under review. The study did not measure the actual benefit derived because students

voluntarily participated in the teaching intervention which was hosted as an extra-curricular activity and did not form part of their normal teaching–learning assessment.

Action research is generally described as being subjective in nature because observations, reflections and findings of the *action research* process could be largely influenced by the views, intent and knowledge of the researcher. Thus, in order to counteract subjectivity, the researcher implemented specific strategies and methods to add transparency to the *action research* process. These strategies and methods were measured against Guba's (1981) criteria for trustworthiness as suggested by Mills (2000) and indicated in table 3.3 below.

Table 3.3: Strategies and methods to reflect the criteria of trustworthiness in the action research process

Guba's (1981) criteria for trustworthiness	***Strategies and methods applied by the researcher***
Credibility	The perceptions on the teaching intervention were gathered from various role-players, namely accounting students, accounting educators and accounting employers (companies, firms and one professional body). Also, as an active participant in the research process, the researcher kept personal field notes in respect of the planning, organisation, execution of and reflection on the teaching intervention which was hosted annually over a period of four years in the form of *The Amazing Tax Race* (2011 to 2014) and twice per year over a two-year period (2014 and 2015) in the form of *The Tax Amazing Race* on a national level. These multiple perspectives contributed to the credibility of data.
Transferability	Quantitative data obtained from questionnaires were captured and analysed by means of SPSS (release 21.0.0, 2014) while data from open-ended questions were captured and summarised in similar categories using Microsoft Excel for further analysis. An independent qualified statistician reviewed all statistical findings after they were analysed to ensure the correctness of all statistical interpretations. Focus group interviews were both video and voice recorded to ensure voice clarity from which transcripts were compiled. Transcripts were analysed using the Computer-Assisted Qualitative Data Analysis Software (CAQDAS) tool,

	ATLAS.ti (version 7.1.4). Quotes in Afrikaans were meticulously translated into English and independently reviewed to ensure that accuracy and true meaning were achieved.
Dependability	Perceptions were gathered by using more than one data collection method, thus achieving triangulation of data. Questionnaires were administered and focus group interviews were conducted in order to compensate for possible weaknesses within a single data collection method.
Confirmability	To confirm the correct interpretation of qualitative data gathered from focus group interviews, the focus group facilitators used follow-up questions and requested interviewees to provide examples of theory-in-action application. These methods ensured a more detailed exploration of interviews and reduced the risk of misinterpretation by the researcher in cases where information had been gathered from interviewees telling only half the story (Kane, Sandretto & Heath, 2002). Furthermore, all findings and results were compared to similar studies from the literature, which further contributed to the confirmability of the overall analysis of both quantitative and qualitative data.

One of the key elements of this research study was to dig deep into individual experience. The research, therefore, needed to focus on exploring the teaching intervention as experienced and articulated by accounting students, educators and employers. Healy and McCutcheon (2010) suggest using a phenomenological strategy in exploratory research to consider the relationship between the teaching method and the teaching approach which highlights the potential of the case method to positively impact a specific educational strategy in accounting education. Although Saunders *et al*. (2009:116) indicate that the heritage of *interpretivism* is embedded within the intellectual tradition of *phenomenology*, there are "phenomenological" accounts which are free from any guiding philosophy and described in terms of content analysis, and even statistics and ethnographic descriptions which are based on snap-shot observations and limited participatory interaction (Goulding, 2002). Therefore, this study applied a phenomenological research strategy to gather perceptions from the various role-players to evaluate the teaching intervention's ability to expose accounting students to pervasive skills. The *survey* research strategy was, therefore, also applied in order to collect quantitative data by administering questionnaires and

analysing the responses by means of descriptive and inferential statistics. This was supplemented by qualitative data collected from focus group interviews. Elements of *grounded theory* were also employed in the form of conclusions drawn on the design variables of the teaching intervention based on the development of a theoretical framework for pervasive skills education and training. Furthermore, findings and conclusions were measured against existing theories to illustrate their relevance and the extent of the research.

3.2.4 Research choices

In the next layer of the research onion the researcher has the choice to elect either a mono-, multi- or mixed research method. These three research methods could be described as follows:

3.2.4.1 Mono-method

A *mono*-research method comprises the combination of either a single quantitative data collection technique, such as questionnaires, with quantitative data analysis procedures, or a single qualitative data collection technique, such as in-depth interviews, with qualitative data analysis procedures (Saunders *et al.*, 2009:152). Smith and Heshusius (1986) advocate the use of *mono-method* studies and contend that quantitative and qualitative approaches cannot and should not be mixed. However, coming from a highly influenced post-positivistic era, this statement is not supported. Onwuegbuzie and Leech (2005:375) indicate that researchers who apply the *mono-method* restrict themselves to either using a quantitative or a qualitative method of research.

3.2.4.2 Multi-method

Tashakkori and Teddlie (2003) describe the term *multi-method* as the combination of more than one data collection technique used with associated analysis techniques restricted to either a quantitative or qualitative world view. Thus, the researcher could either elect a *multi-method quantitative* or a *multi-method qualitative* option. The *multi-method quantitative* option would, for example, comprise the collection of quantitative data by means of questionnaires and structured observation analysis (thus, more than one quantitative data collection technique) which are then analysed by means of statistical (quantitative) procedures. On the other hand, a *multi-method qualitative option* would, for example, comprise the collection of qualitative data by conducting in-depth interviews and keeping field notes (diary accounts) (thus, more than one qualitative data collection technique) which

are then analysed by means of non-numerical (qualitative) procedures. Therefore, multi-methods are characterised by using more than one data collection technique and analysis procedures, but without mixing techniques and procedures that are quantitative and qualitative in nature (Saunders *et al.*, 2009:152).

3.2.4.3 Mixed methods

According to Johnson and Turner (2003) and Creswell and Plano Clark (2011), the modern notion of *mixed methods* and *multi-methodology* refer to the "parallel convergent mixed-method research design" which is an approach to professional research that combines the collection and analysis of both quantitative and qualitative data. The parallel convergent mixed method of research is motivated by the fact that quantitative and qualitative data are regarded as complementary data sources where it is possible to combine the richness of qualitative data with the rigour and increased credibility of quantitative findings. According to Onwuegbuzie and Leech (2004:779), qualitative data can be used to strengthen quantitative data research design, in general, and intervention research designs, such as experimental and quasi-experimental, in particular. In contrast with a mono- or multi-method research design, the significance, reliability and credibility of research results are believed to be enhanced when applying a mixed-method research design because this method allows for a more comprehensive coverage of various aspects of a specific research topic (Van der Merwe, 2013:47). Also, it contributes to creating new perspectives on the research topic as different outputs from different research methods are combined and contrasted with one another. The application of different methods could either be implemented sequentially or simultaneously; thus, it is a process where the one method informs the other, or where more than one method are applied at the same time.

Tashakkori and Teddlie (2003:703-718) suggest a triangulation design where interpretations of qualitative and quantitative results are informed by more than one theoretical perspective and where the researcher is sensitised to complementary or competing theories. Denzin (1978:291) defines "triangulation" as the combination of methodologies in the study of the same phenomenon. Jick (1979) indicates that the social sciences are characterised by the use of triangulation which could be traced back to Campbell and Fiske (1959) who introduced the concept of *multiple operationism*. This concept suggests using more than one method in the research process to ensure validity. The convergence between two methods enhances the belief that the results are valid and not only methodological artefacts (Bouchard, 1976:268).

Conclusion on and motivation for the research method applied in this thesis:

Overall a parallel convergent *mixed-method* research design was followed in this study in order to build on the synergy and strength that exist between quantitative and qualitative research (Creswell & Plano Clark, 2011; Johnson & Turner, 2003). The use of this method was motivated by the fact that it is advocated by many authors in the field of accounting and education research (Curran & Blackburn, 2001; De Villiers, 2015; Kavanagh & Drennan, 2008; McChlery, 2011; Modell, 2010; Van der Merwe, 2013). The application of both quantitative and qualitative research methods adds to the rigour of the overall research process because it enables the triangulation of data where conclusions can be drawn based on findings from the employment of multiple methods.

3.2.5 Time horizons

Research can either be conducted on a particular event (taking a "snapshot" in time) or of a series of events (series of "snapshots") taking place over a given period of time. Saunders *et al.* (2009:155) indicate that the selection of a time horizon in which the research is to be conducted is independent from and should not be influenced by the choice of the research strategy or the research method. Two time horizons in research are possible, namely cross-sectional and longitudinal, which are discussed below:

3.2.5.1 Cross-sectional

Research is *cross-sectional* when a particular phenomenon is studied at a particular time with the aim to describe the incidence of the phenomenon (Saunders *et al.*, 2009:155). Robson (2002) argues that *cross-sectional* studies are often associated with the *survey* research strategy but that qualitative methods, such as interviews, could also be conducted within a short time period. Thus, *cross-sectional* research focuses on the investigation and analysis of a specific event, action or experience taking place at a particular time or within a fairly short time period.

3.2.5.2 Longitudinal

Longitudinal research constitutes the observation of events or individuals over time (Saunders *et al.*, 2009:155). It enables the researcher to exercise a measure of control over the variables being studied without their being affected by the research process itself (Adams & Schvaneveldt, 1991). Thus, *longitudinal* research has the capacity to study change and development over an extended time period (Bouma & Atkinson, 1995:114).

Conclusion on and motivation for the time horizon of the research conducted in this thesis:

The time horizon of the research conducted in this study was mainly *cross-sectional* because the usefulness of a teaching intervention to expose accounting students to pervasive skills was evaluated based on a single event in time, namely *The Tax Amazing Race*, hosted on a single day and lasting between two and a half and three hours. Furthermore, the evaluation was conducted by employing a *survey* research strategy and focus group interviews held within two weeks after the teaching intervention; thus, within a reasonably short period of time.

Owing to the nature of the action research, the researcher was actively involved throughout the research process, especially when the teaching intervention was repeated in its format of *The Tax Amazing Race* over a consecutive four-year period. This entailed, amongst other things, keeping personal field notes on the planning and execution of and reflection on each action research cycle (see 3.2.3.4). For this reason, it could be argued that some longitudinal elements were also present in the time horizon of the research conducted in this study.

For the evaluation of the teaching intervention presented in the format of *The Tax Amazing Race* on a national basis, the intervention was repeated within a short period of time in two regions (north and south) of South Africa during both 2014 and 2015. The repetition of the intervention was not evaluated with regard to the development or the change in exposure to pervasive skills over time. Instead a comparison was drawn between the students' exposure to pervasive skills development in each region, and the findings were validated through the subsequent repetition of the teaching intervention in each region, as well as in aggregate, as this is in line with the repetitive nature of action research. Therefore, it could, once again, be concluded that the time horizon for the research conducted on a national level was mainly cross-sectional with some longitudinal elements motivated by the repetitive nature of the action research process.

3.2.6 Research techniques and procedures: Data collection and analysis

At the centre of the research onion the last layer to consider is the research techniques and procedures to collect and analyse data. Data analysis is described as the systematic search for meaning where data need to be organised and interrogated to identify patterns and themes, to discover relationships, to develop explanations, to make interpretations and to generate theories (Hatch, 2002).

3.2.6.1 Quantitative research

Mills (2011:4) describes *quantitative* research as the collection and analysis of numerical data to describe, explain, predict or control phenomena of interest. It requires control over contextual factors that may interfere with the data collection and the identification of a sample of participants large enough to provide statistically meaningful data (Mills, 2011:4). Therefore, the term *quantitative* is predominantly used to refer to any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data (Saunders *et al.*, 2009:151).

3.2.6.2 Qualitative research

Qualitative research is underpinned by a more descriptive and narrative approach to the collection of data. *Qualitative* research can inform theory and model development if conducted in a way that leads to insight into particular processes and practices in a specific setting, location, time, context, event, incident, activity and/or experience (Onwuegbuzie & Leech, 2004). Data collection methods applied in *qualitative* research could include focus group discussions, face-to-face interviews, live observations and video recording of interactions (Moll, Major & Hoque, 2006). *Qualitative* data analysis attempts to provide understanding of the way things are and to interpret the meaning of the research from the perspectives of the participants (Mills, 2011:4). Therefore, *qualitative* research is predominantly used to refer to any data collection technique (such as interviews) or data analysis procedure (such as theory building through emerging themes) that generates or use non-numerical data (Saunders *et al.*, 2009:151).

Conclusion on and motivation for the application of the research techniques and procedures applied in this thesis to collect and analyse data:

The data collection techniques and procedures used in this study were aimed at achieving insight, discovery and interpretation in context, instead of testing hypotheses. Because a *mixed-methods* research choice (see 3.2.4.3) was selected for this study, the research techniques and procedures comprised a combination of both *quantitative* and *qualitative* data collection methods and analysis procedures.

The motivation for applying *qualitative* research in addition to *quantitative research* in this study is the overemphasis of quantitative research use in the field of education, according to Downey and Kelly (1986:250). They suggest a more balanced approach in educational research by indicating that research in education cannot effectively be put into practice at classroom level unless it is also explored qualitatively to assess its actual value.

Furthermore, Goulding (2005) asserts that there is a need to also apply qualitative methodologies in their truest and most fundamental sense in order to gain valid insights, develop theory and aid effective decision making. Similarly, Nastasi and Schensul (2005) indicate that qualitative research techniques are essential for documenting the adaptations necessary for application of interventions to real-life contexts and for identifying core intervention components related to desired outcomes.

Quantitative data collection and analysis

The researcher used questionnaires as quantitative data collection tool to evaluate the teaching intervention in this study presented in the format of both *The Amazing Tax Race* and *The Tax Amazing Race*. A questionnaire was developed for each of the various role-players involved in the teaching intervention in both formats and comprised the following:

The Amazing Tax Race

- Questionnaire for accounting students who participated in the teaching intervention (see annexure Q);
- Questionnaire for accounting students who acted on the planning and organising committee of the teaching intervention (see annexure R);
- Questionnaire for accounting educators who observed the teaching intervention while student participation occurred (see annexure S); and
- Questionnaire for staff employer companies (accounting, auditing and advisory firms and a professional body) who assisted the committee members in manning the various stations of the teaching intervention and who observed student participation (see annexure T).

The Tax Amazing Race

- Questionnaire for tax students who participated in the teaching intervention hosted on a national level (see annexure U);

The questionnaires were mainly developed based on the design of a questionnaire used by Fouché and Visser (2008) to assess student perceptions of an accounting educational intervention. This design was extended to incorporate additional sources such as the SAICA Competency Framework (2014) and a review of relevant literature pertaining to questionnaire design (Oppenheim, 2000) and teaching interventions in accounting education aimed at pervasive skills development.

Questionnaires comprised both open-ended and Likert-type questions. Berk (2014) recommends an even-numbered scale to measure teaching effectiveness, such as that of pervasive skills development. Consequently, all Likert-type questions were applied on a four-scale rating. Questions covered various areas related to the research topic such as:

- demographic and profile information;
- level of awareness of pervasive skills development;
- perceived importance of pervasive skills development, both in general and before entering the formal workplace;
- application of pervasive skills within the teaching intervention;
- exposure to pervasive skills by teaching intervention;
- perceived benefits and constraints of the teaching intervention;
- level of exposure to pervasive skills development within tax and other undergraduate accounting-related modules; and
- personal meaning gained from overall experience and recommendations in respect of being part of the teaching intervention.

All quantitative data obtained from questionnaires were independently captured and analysed by the Statistical Consultation Services of the North-West University (NWU) (Potchefstroom campus) by using the software package SPSS (release 21.0.0, 2014). Statistical analysis included: (i) descriptive statistics; (ii) *t*-tests; (iii) analysis of variance testing (ANOVAs); and (iv) factor analysis. Data from open-ended questions were captured and summarised in similar categories using Microsoft Excel for further analysis. Themes emerged from the analysis and theory building was enabled by the identification and conceptualisation of the relationships between data (Friese, 2012; Hatch, 2002).

Qualitative data collection and analysis

Qualitative data were collected by means of conducting semi-structured (Flick, 2006) focus group interviews with accounting students and accounting educators. An interview was scheduled with each of the participation teams in *The Amazing Tax Race* as well as with educators who observed student participation in *The Amazing Tax Race*. Field (2000) highlights that focus group interviews have proven to be the richest source of information and are recognised as highly effective for studying education and training (such as pervasive skills development). According to Saunders *et al.* (2009:146), the collection of qualitative data by using semi-structured group interviews is a valuable way of triangulating quantitative data collected by other means such as questionnaires.

The researcher acted as focus group facilitator for all interviews conducted with students. Owing to the fact that the researcher had not been lecturing the students, total anonymity and independence between the researcher and the students had been maintained. However, the researcher was well known by the educators to be interviewed. Consequently, an independent focus group facilitator conducted interviews with the accounting educators to ensure that educators could freely and independently express their opinions.

Both the focus group facilitators introduced a number of pre-determined discussion points to ensure the continuous flow of relevant conversation. A hard copy outlining these discussion points was provided to interviewees at the start of each focus group interview (see annexure V and annexure W). To avoid the possibility of prepared answers, neither the students nor the educators had access to these discussion outlines in advance so that a unique conversation was ensured for each of the focus group interviews.

All interviews were voice and video recorded with permission of the interviewees after confidentiality had been assured. Interviews lasted between 50 to 60 minutes each. Furthermore, all interviews were conducted in the same boardroom on the Potchefstroom campus of the NWU, thus, under the same conditions. Participation in the interviews was voluntary and, to ensure complete independence, no incentive was provided for participation.

All voice recorded interviews were transcribed and analysed using the CAQDAS tool, ATLAS.ti (version 7.1.4, 2014). Smit (2005) and Bazeley (2006) indicate that the use of CAQDAS, such as ATLAS.ti, contributes to more rigorous, consistent and thorough qualitative data analysis.

The data were analysed using a deductive coding approach (Elo & Kyngäs, 2008; Saldaňa, 2013). Quotes in Afrikaans were meticulously translated into English and were reviewed by an independent person as a measure to ensure that the original meaning was retained. From the analysis, themes emerged and theory building was enabled (Friese, 2012) by identifying and conceptualising the relationships between coded data.

It should, however, be stressed that the process of carefully considering the layers of the research onion in order to determine the most appropriate methodological design and methods for the study must be supplemented with the continuous consideration and

awareness of the *ethical* aspects underlying the research process. These *ethical* considerations are dealt with in the section to follow.

3.3 Ethical considerations

The main *ethical* issue to be considered in every research design is that the research subjects (the study population) should never be exposed to embarrassment, harm or any other material disadvantage (Saunders *et al.*, 2009:160). The researcher must ensure that the research method is fair towards all research participants and the researcher should not be biased with regard to the analysis of research findings and results (Burrell & Morgan, 1979:1-9).

Data were collected from various role-players involved in the teaching intervention which was hosted in different formats, at different locations, on different dates, and at the premises and during different events of different overseeing institutions. Table 3.4 provides a summary of the aforementioned:

Table 3.4: Data collected from hosting the teaching intervention in different formats

Format	***Date***	***Location***	***Overseeing institution***
The Amazing Tax Race	4 September 2014 (survey) 15-18 September 2014 (focus group interviews)	NWU, Potchefstroom campus	NWU
The Tax Amazing Race	14 February 2014 (pre-test pilot survey)	Gold Reef City Theme Park, Johannesburg	SAIT
	6 March 2015 (main survey)		
The Tax Amazing Race	12 February 2014 (pre-test pilot survey)	Ratanga Junction, Cape Town	SAIT
	13 March 2015 (main survey)		

Consequently, applications for ethical clearance were submitted to and obtained from the following overseeing institutions:

- The Ethics Committee of the Faculty of Economic and Management Sciences at the NWU (Potchefstroom campus) (ethical clearance reference number: *NWU-00079-14-S4*) to conduct research on third-year (undergraduate) accounting students registered at the Potchefstroom campus of the NWU during 2014; and
- The South African Institute of Tax Professionals (SAIT) to conduct research on the tax students who attended its annual national Tax Student Conferences and participated in *The Tax Amazing Race* presented as part of the formal programme at each of these conferences hosted during 2014 (see annexure X) and 2015 (see annexure Y).

In addition, the researcher implemented the following to ensure that all research activities were conducted ethically, in a manner which reflects sound objectivity and integrity (Mouton, 2009:240) and which can be considered morally acceptable (Brynard & Hanekom, 2010:84):

- The objective of the research was clearly communicated to all involved role-players by means of oral and written communication;
- All respondents were given the opportunity to choose the type of involvement in the teaching intervention and in the study, either as participating student, student member acting on the planning an organising committee, observing educator, or staff member of an employer company assisting in manning and sponsoring a specific station or being interviewed as part of the focus group interviews;
- The privacy of all respondents was respected and no student, educator or employer company staff member was specifically identified in the results. All findings were reported as aggregated results;
- The confidentiality of the information provided by all respondents and interviewees were maintained at all times, and all role-players were assured, by means of oral and written discussion, that the information provided by them would be kept confidential;
- Care was taken to not compromise the integrity of the data by any omission or error while collecting, processing and interpreting the data. All the data gathered were included in the data analysis. As discussed earlier, the quantitative data analysis was independently performed by the Statistical Consultation Services of the NWU (Potchefstroom campus) by using the software package SPSS (release 21.0.0, 2014). The researcher also used the software package ATLAS.ti (version 7.1.4, 2014) to content analyse the qualitative data, which further assisted in ensuring the accuracy of the results and the processing of the qualitative data. Furthermore, interpretation of the quantitative results was verified by the Statistical Consultation Services of the NWU (Potchefstroom campus).

- The well-being of all respondents and interviewees were set as the number one priority when collecting, processing and interpreting the data so as to ensure that no respondents were disadvantaged in any way.

3.4 Application of specific methodology per chapter/article

Specific methodology, as discussed and applied per chapter/article in this thesis, to answer the research question and to meet the research objectives as stated in chapter 1 is highlighted in the section to follow:

Chapter 4 (Article 1): Taking stock of South African accounting students' pervasive skills development: Are we making progress?

A critical-*interpretive* investigation was conducted to *inductively* uncover the true perceived value, the perceived level of importance and the expectations of different role-players in the accounting education environment in respect of the exposure to and development of pervasive skills at higher education level. A *parallel convergent mixed-methods* research design was applied to *quantitatively* and *qualitatively* take stock of various aspects (phenomena) relating to pervasive skills development by means of questionnaires (thus, a *survey* strategy) and focus group interviews. Some elements of a *grounded theory* research strategy were also employed as findings were *deductively* compared to those of similar international studies from the literature. Although the time horizon of the research was mainly *cross-sectional*, some *longitudinal* elements were also present as respondents were required to reflect upon their exposure to the various pervasive skills during their undergraduate studies (from the first to the third year).

Chapter 5 (Article 2): Developing pervasive skills: Usefulness of a tax intervention

Action research, following a *phenomenological* approach, was applied as research strategy to determine the usefulness of a newly developed and innovative teaching intervention presented in the format of *The Amazing Tax Race* to develop and expose accounting students to pervasive skills. A *parallel convergent mixed-method* research design was followed within a combined *positivistic* and *interpretive* research framework to *inductively* collect both *quantitative* and *qualitative* data. This was supplemented by the personal field notes and observations of the researcher as an active participant in the *action research* process. The time horizon of the research was *cross-sectional* because a particular phenomenon, namely the teaching intervention, was evaluated and analysed at a particular time, namely a single intervention hosted to students of a single university on a specific date taking between two and half and three hours to complete and evaluated by means of

questionnaires (thus, a *survey* strategy) and focus group interviews conducted within two weeks after the intervention was hosted.

Chapter 6 (Article 3): Nationally hosted tax intervention: South African students' perceptions of its usefulness to develop pervasive skills

Action research following a *phenomenological* approach was applied as research strategy to determine the usefulness of the teaching intervention presented on a national level in its format of *The Tax Amazing Race* with the aim to develop and expose tax students to pervasive skills. A *mono-method* was elected and applied within a combined *positivistic* and *interpretive* research framework to *inductively* collect *quantitative* data by means of questionnaires (thus, a pure *survey* strategy). The time horizon of the research was *cross-sectional* as a particular phenomenon, namely the teaching intervention, was evaluated and analysed at a particular time, namely a single intervention hosted to tax students from multiple universities on a specific date within a specific region of South Africa, taking between two and half and three hours to complete.

Chapter 7 (Article 4): Qualitative evaluation of the design variables of a teaching intervention developed to expose accounting students to pervasive skills

The primary objective of this chapter/article was to evaluate the design variables of the teaching intervention developed to expose accounting students to pervasive skills. A *mono-method* was applied within an *interpretive* paradigm to *qualitatively* evaluate and analyse the teaching intervention's design variables. The evaluation was based on an *inductive* analysis of focus group transcripts gathered from interviews conducted with accounting students who participated in the teaching intervention hosted at a single university in the format of *The Amazing Tax Race*. The time horizon of the research was *cross-sectional* as a particular phenomenon, namely the teaching intervention, was evaluated and analysed at a particular time (a single intervention hosted on a specific date taking between two and half and three hours to complete and evaluated by means of focus group interviews conducted within two weeks after the intervention was hosted. Some elements of a *grounded theory* research strategy were also employed seeing that findings were *deductively* compared to the findings of similar studies from the literature which had also evaluated teaching interventions aimed at pervasive skills development in an accounting educational context.

Table 3.5 contains a summary of the specific methodology applied per chapter/article in this thesis as discussed above:

Table 3.5: Summary of specific methodology applied per chapter/article

Methodological research element:	***Chapter 4 (Article 1)***	***Chapter 5 (Article 2)***	***Chapter 6 (Article 3)***	***Chapter 7 (Article 4)***
Philosophy/ paradigm	Interpretivism	Positivism and interpretivism	Positivism and interpretivism	Interpretivism
Approach	Inductive with deductive elements	Inductive	Inductive	Inductive with deductive elements
Strategy	Survey, phenomenology and grounded theory	Action research, survey and phenomenology	Action research, survey and phenomenology	Phenomenology and grounded theory
Choice	Mixed methods	Mixed methods	Mono-method	Mono-method
Time horizon	Cross-sectional with some longitudinal elements	Cross-sectional	Cross-sectional	Cross-sectional
Techniques and procedures: data collection and analysis	*Quantitative:* Questionnaires and statistical analysis applying descriptive statistics, *t*-tests and ANOVAs *Qualitative:* Focus group interviews and transcript analysis applying ATLAS.ti	*Quantitative:* Questionnaires and statistical analysis applying descriptive statistics, *t*-tests and ANOVAs *Qualitative:* Focus group interviews and transcript analysis applying ATLAS.ti	*Quantitative:* Questionnaires and statistical analysis applying factor analysis, *t*-tests and frequency distributions	*Qualitative:* Focus group interviews and transcript analysis applying ATLAS.ti

3.5 Chapter summary

In conclusion, the overall methodological design and methods applied in this thesis are positioned within the *sociological* paradigm. The study pertains to both the fields of accountancy and educational sciences where the researcher needs to describe and predict underlying phenomena as well as determine the reasoning behind the phenomena based on human experiences. Therefore, a combined philosophical framework of *positivism* (see 3.2.1.1) and *interpretivism* (see 3.2.1.3) was chosen for the study.

The action researcher takes a holistic view of a phenomenon based on the *epistemological* decision to include all the evidence drawn from a *parallel-convergent mixed-method* research design in which various data collection methods and techniques are employed to gather information (see 3.2.4.3). Structured questionnaires (the *survey* strategy) rendering *quantitative* data were supplemented by methods typically considered *qualitative* in nature, which included focus group interviews conducted with different role-players (accounting students and accounting educators). This was supplemented by the researcher's personal experiences and field notes from active and passive observations in the *action research* cycle which included planning, action and reflection with regard to the teaching intervention (see figure 3.2). The teaching intervention in its form of *The Amazing Tax Race* was repeated four times (presented annually from 2011 to 2014), and the teaching intervention in its form of *The Tax Amazing Race* was also repeated four times (annually hosted in two regions, north and south, of South Africa during both 2014 and 2015).

Based on the aforementioned, the time horizon of the research was mainly *cross-sectional*, with some underlying *longitudinal* elements (see 3.2.5). These repeating cycles enabled the researcher to sufficiently and adequately observe and modify the teaching intervention, which is a crucial aspect underlying the *action research* process. Furthermore, findings were grounded by triangulating them with the evidence gathered from the literature. The *grounded theory* strategy (see 3.2.3.5) enabled the action researcher to *inductively* develop knowledge (see 3.2.2.2) from raw data which were systematically obtained (role-players were first surveyed after which they were interviewed).

Owing to the fact that this thesis has a combined *positivistic* and *interpretive* philosophical underpinning, there was a risk of the research questions and findings being influenced by the researcher's own tacit knowledge. To ensure credibility and rigour of the research, specifically with regard to *qualitative* data analysis, the researcher continuously organised all material and data in a plausible framework by searching for logical patterns in the results with the aid of recognised CAQDAS, i.e. ATLAS.ti (version 7.1.4, 2014). *Quantitative* data were captured and analysed by means of SPSS (release 21.0.0, 2014). To ensure the correct interpretation and reporting of all statistical data analysis, all statistical findings and conclusions were reviewed and discussed with an independent qualified statistician after the results had been compiled and formulated. Both these data analysis procedures *inductively* contributed to the research findings and conclusions. The researcher also implemented specific measures to ensure that the research was conducted in an *ethical* manner (see 3.3).

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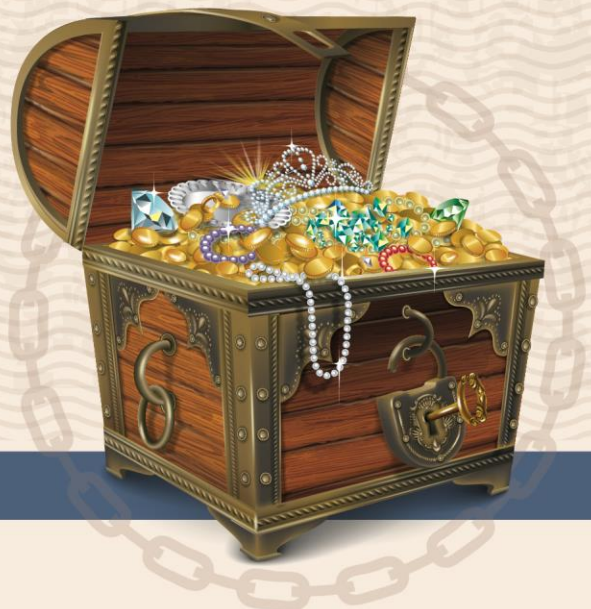
CHAPTER 4

TAKING STOCK OF SOUTH AFRICAN ACCOUNTING STUDENTS' PERVASIVE SKILLS DEVELOPMENT: ARE WE MAKING PROGRESS?



Chapter 4 (Article 1)

Taking stock of South African accounting students' pervasive skills development: Are we making progress?

The reader is requested to take note of the following:

- The article has been **accepted for publication** in the *South African Journal of Higher Education,* an accredited academic journal.
- The confirmation of acceptance for publication of the article is included in **annexure A1**.
- The article was written in line with the journal's submission guidelines, which are included in **annexure A2**.

Abstract

This study used a mixed-methods research design to take stock of the perceived level of awareness and perceived importance of pervasive skills development from three role-players in the South African accounting higher education environment, i.e. students, educators and employers. An investigation was launched into accounting students' level of exposure to SAICA's required pervasive skills set during their undergraduate studies. The results showed that students are aware of and perceive pervasive skills development as an important aspect of their higher education curricula. However, lacking emphasis was found in the development of *leadership* skills. Although educators are aware of their pervasive skills development responsibilities, its active incorporation into course modules is in need of improvement. Accounting employers want to be involved in pervasive skills development, especially in respect of *team work* and *communication* skills. Recommendations are made to enhance accounting education pedagogy in terms of pervasive skills development.

Keywords:

Accounting education; accounting students; Competency Framework; pervasive skills; South African Institute of Chartered Accountants (SAICA); skills development; South Africa

4.1 Introduction

To obtain Chartered Accountant South Africa (CA(SA)) status at the South African Institute of Chartered Accountants (SAICA), candidates need to graduate from a SAICA-accredited university and complete a training contract with a SAICA-approved training-officer employer company. Therefore, SAICA-accredited universities and employer companies are directly involved in and responsible for the education and training of accounting students within the South African accounting education environment. The higher education curricula of prospective CA(SA) candidates need to adhere to the requirements and outcomes set by both the National Qualification Framework (NQF) of the South African Qualifications Authority (SAQA) as well as the skills and competencies required in terms of the Competency Framework set by SAICA, the professional body responsible for regulating the CA(SA) profession in South Africa.

In addition, employers seeking to appoint CA(SA) candidates also demand specific skills and competencies from these candidates on entering the formal workplace (Kavanagh and Drennan 2008; Robles 2012). Accounting education in South Africa, following the trend of other professional accounting bodies worldwide, is experiencing a change in nature due to the evolving aspects relating to accountability for graduate readiness (Boritz and Carnaghan 2003; Bui and Porter 2010; Steenkamp 2012, 482; Strauss-Keevy 2014, 419). Apart from technical knowledge, accounting graduates should be exposed to opportunities to develop pervasive skills (also referred to in the literature as 'generic' or 'soft' skills) to demonstrate graduate attributes such as communication, problem-solving, self-management, and technological skills, in the period prior to entering employment (Kavanagh et al. 2010).

SAICA's Competency Framework identifies pervasive skills in three categories, namely (i) Ethical Behaviour and Professionalism, (ii) Personal Attributes, and (iii) Professional Skills (SAICA 2014). Drawn from the descriptions indicated under each category, the pervasive skills set required by SAICA comprises 12 pervasive skills, namely: communication (verbal); communication (listening); communication (writing); problem-solving; team work; time management; leadership; professionalism; ethical awareness; strategic thinking; critical thinking and influencing others. These skills are also mentioned in the level descriptors of the SA National Qualifications Framework, for example: problem-solving; ethics and professional practice; producing and communicating information; and accountability (SAQA 2012, 10).

4.2 Pervasive skills development within the South African accounting education environment

Internationally, the need and importance of pervasive skills development in accounting graduates has been voiced by various stakeholders including professional accounting bodies (Chartered Accountants of Canada 2007; IFAC 2010; CIMA 2014), accounting and business-related employer companies (Kavanagh and Drennan 2008; Milner and Hill 2008; Confederation of British Industry (CBI) 2011; Jackson and Chapman 2012; Robles 2012), academics (Gammie, Gammie and Cargill 2002; Kermis and Kermis 2010; Paisey and Paisey 2010), as well as accounting students (Stivers and Onifade 2013; Ramlall and Ramlall 2014). Accounting bodies accordingly began qualifying candidates for the profession through a competency-based approach (Boritz and Carnaghan 2003). This was adopted by the International Federation of Accountants (IFAC) in its International Education Standard for Professional Skills (IES 3) and took effect on 1 January 2005 (IFAC 2003). In the South African context, SAICA also responded to this call for a change in approach, which introduced proposed changes to its Competency Framework during 2010, indicated to be incorporated by 2013 (SAICA 2010). Since this, a review of relevant literature pertaining to the progress made in respect of pervasive skills development within the South African accounting education context includes the following:

Barac (2009) investigated and found that South African training officers highly value the generic skills requirements for entry-level trainee accountants. Steenkamp (2012) evaluated accounting students' perceptions when SAICA's training programme changed from a knowledge-based to a competency-based approach in 2010. Although students were positive about the renewed focus on pervasive skills, many felt that changes were communicated to them too late and were concerned of its impact on their assessment. De Villiers (2010) investigated methods of integrating pervasive skills with technical content taught to accounting students. These methods were found to be problematic due to different expectations on pervasive skills development from different stakeholders. Stainbank (2009) and Van der Merwe (2013) used a group project and business simulation case study to develop team work and professional skills in accounting students. Although students indicated that these methods successfully developed their '*personal*' and '*professional skills*', limitations in respect of time allowed for completion negatively impacted students' experience and impaired their level of learning. Fouché (2013) surveyed accounting students at a South African SAICA-accredited university and found that teaching methodologies applied were still too content-driven and did not sufficiently develop the professional skills required by the profession. Shuttleworth et al. (2013) determined an open distance learning

(ODL) institution's ability to successfully develop pervasive skills in management accounting students to enter the workplace with confidence. The findings indicated that ODL education generally meets and even exceeds students' expectations regarding the enhancement of their employability skills, but that means of social interaction opportunities, face-to-face contact with peers and educators, and networking opportunities need to be found to better develop pervasive skills. Barac and Du Plessis (2014) investigated manners in which South African SAICA-accredited universities offer and teach pervasive skills, and whether these universities perceive it to be their responsibility. The study found that although pervasive skills development is largely indicated as a learning outcome at these accredited institutions, its presentation and integration into modules varies considerably and that greater integration of pervasive skills into course majors should be considered. Some pervasive skills were also indicated to be best achieved in practice rather than at the higher education level. Van Romburgh and Van der Merwe (2015) reported that South African universities do not sufficiently equip first-year trainees with the professional skills to be successful in practice. Strauss-Keevy (2014) reports that SAICA-accredited university academics are not aware of their responsibility to ensure that aspirant CA(SA) candidates have achieved all the competencies as required by SAICA's Competency Framework. Strauss-Keevy (2015) also evaluated the collaborative learning exercises used by SAICA-accredited academics to transfer pervasive skills to accounting students and found that not all these methods are regarded to be effective.

It is evident that numerous challenges still need to be addressed in terms of pervasive skills development within the South African accounting education environment. Although the pervasive skills development expectations of employers, professional bodies and academic providers have been widely advocated, a gap is highlighted on limited research performed in respect of South African accounting students' view and perceived importance of their pervasive skills development at the higher education level. Taking stock of the progress made on pervasive skills development within accounting education up to date, based on the combined perceptions of three role-players in the accounting education environment, could inform action to be taken to address possible mismatches in the ongoing discussion of enhancing pervasive skills development at the higher education level in the South African context.

4.3 Research objective and contribution

The primary objective of this research paper was to take stock of and to evaluate, from three different perspectives (students, educators and employers), the current stance of pervasive

skills development at the higher education level of accounting students at a South African SAICA-accredited university (hereafter referred to as 'University X'). The process of taking stock aimed to answer three main research questions:

- How aware are each of the three role-players operating within the accounting education environment of pervasive skills development at the higher education level, and do they perceive this to be of importance?
- Do South African accounting students perceive themselves competent, based on self-assessment and reflection upon the level of their exposure to the development of pervasive skills within undergraduate accounting degree modules, to possess the pervasive skills at the end of their third year of studies as required by SAICA's Competency Framework?
- What do employers perceive their role and responsibilities to be in terms of pervasive skills development of accounting students at the higher education level?

This study is unique in that it is the first of its kind in a South African context where perceptions about the level of awareness, importance of, exposure to, and perceived role to play in respect of pervasive skills development are compared between three role-players in the accounting education environment. The paper aims to take stock of recent pervasive skills development within the South African accounting education context to determine what progress has been made to date and to identify possible gaps that still need to be addressed. The findings on the progress made would not only benefit accounting education in general, but will also inform all relevant role-players within the South African accounting education environment in terms of where it is lacking and what actions are to be taken to enhance accounting pedagogy of pervasive skills development at the higher education level.

The remainder of this paper is structured as follows: First, the research design and methods applied to take stock of pervasive skills development are described. This is followed by a report on and a discussion of the empirical research findings. Finally, a summary of the key findings and conclusions is provided, together with recommendations on action to be taken as well as suggestions for further research.

4.4 Research design and method

This research paper reports on a part of a larger research project involving the evaluation of the usefulness of a tax-related intervention hosted at University X to expose accounting students to pervasive skills. All three role-players relevant to this study also formed part of

the above-mentioned research project which was hosted close to the end of the accounting students' third year of study (the end of 2014).

4.4.1 Overall research design and method

In an attempt to answer the three mentioned research questions, a parallel convergent mixed-methods research design was applied. Creswell and Plano Clark (2011) suggest the combination of both quantitative and qualitative approaches in the collection and analysis of data as the results will reflect the synergy and strengths inherent to both these research methods.

4.4.2 Data collection and ethical considerations

Quantitative data were collected by means of a questionnaire distributed to each of the role-players (accounting students, employers and educators), while qualitative data were collected through focus group interviews held with accounting students and accounting educators. Participation in the research was voluntary and results are reported anonymously. Ethical clearance was obtained from University X where the research was conducted.

4.4.3 Collection of quantitative data

All three questionnaires comprised Likert-type rating scales as well as open-ended questions. Berk (2014) recommends an even-numbered scale to measure teaching effectiveness such as pervasive skills development. Questions pertaining to this research paper covered the following areas: respondent profile information; perceived awareness and perceived level of importance of pervasive skills development at the higher education level; specific pervasive skills perceived to be developed by accounting students before entering the formal workplace; students' perceived level of exposure to pervasive skills development within undergraduate accounting modules; and employers' perceived role to play regarding pervasive skills development at the higher education level. Each of the three questionnaires was reviewed in advance by one independent statistical consultant and three independent accounting education researchers to ensure its validity, completeness and unbiased nature. The quantitative data from the questionnaire were captured and analysed by means of SPSS, while data derived from open-ended questions were captured and summarised in similar categories using Microsoft Excel for further analysis.

4.4.4 Collection of qualitative data

One focus group interview was held with accounting educators (comprising 10 interviewees), while ten interviews were scheduled with accounting students (comprising between six and ten interviewees per interview). According to Field (2000), qualitative data collected through focus group interviews has proven to be the richest source of information and is highly recognised as an effective method to research education and training. The author acted as focus group facilitator for interviews conducted with students as the author did not lecture these specific students, thus ensuring complete independence and anonymity. As the author was well known by the educators to be interviewed, an independent focus group facilitator was used to conduct interviews with the accounting educators to ensure that educators could freely and independently express their opinions. All interviews were conducted at University X and lasted between 50 and 60 minutes each. After eight of the ten interviews scheduled with students were completed, the researcher decided to cease further interviewing as data saturation had been achieved (Davies 2007). The interviews were voice-recorded (with permission of the interviewees) and transcribed for further analysis with Atlas.ti. A deductive coding approach (Saldaňa 2013) was applied where emerging themes enabled theory building (Friese 2012). Quotes extracted in Afrikaans were meticulously translated into English and independently reviewed to ensure the accuracy of the translations and that the intended meaning had been retained.

4.5 Empirical research findings

4.5.1 Study population profile

The study population comprised the following: (i) third-year accounting students from University X, (ii) accounting educators on different academic levels involved in the CA training programme at University X, and (iii) staff of employer companies (training-officers) employed on different levels. The sample population consisted of 108 third-year accounting students, 10 accounting educators and 30 staff members representing seven different employer companies. As participation was voluntary, the study population is considered to be an availability sample, rather than a random sample. From the total study population, 95 completed questionnaires were received from students (response rate of 87.9%), 10 completed questionnaires were received from educators (response rate of 100%), and 23 completed questionnaires were received from employer company staff (response rate of 76.7%). The profile of the study population is summarised in table 4.1.

Table 4.1: Study population profile

Variable	Overall number of respondents N = 128	Students (%) N = 95	Employers (%) N = 23	Educators (%) N = 10
Gender:				
Male	44	32.6	30.4	60.0
Female	84	67.4	69.6	40.0
Academic/Job level:				
End of third year	95	100.0	-	-
Trainee Accountant	8	-	34.8	-
Consultant	7	-	30.4	-
Recruitment Officer	3	-	13.0	-
Human Resource Manager	3	-	13.0	-
Manager	2	-	8.8	-
Associate Professor	2	-	-	20.0
Senior Lecturer	7	-	-	70.0
Senior Teaching Advisor	1	-	-	10.0

4.5.2 Perceived level of the importance and awareness of pervasive skills development at the higher education level

4.5.2.1 Students

Students were asked to firstly indicate the extent to which they thought pervasive skills development should form part of the requirements of SAICA's Competency Framework, and secondly, whether this development should be incorporated as part of the undergraduate curriculum at university level. The mean score of the first question was 3.32 (see table 4.2), being closer to 3 (representing '*quite a bit*') than 4 (representing '*a great deal*'). A mean score closer to 4 was expected from students studying towards obtaining the CA(SA) qualification at a SAICA-accredited university who are supposed to be fully informed about the skills and competencies required of them. The second question's mean score was 3.55, which was closer to 4 (representing '*strongly agree*') indicating that students, although not

strongly aware of it being required in terms of SAICA's Competency Framework, do value the development of pervasive skills as an important aspect of their undergraduate curriculum.

Table 4.2: Students' perceived level of importance of pervasive skills development at the higher education level

	Students (N = 95)	
Variable	**Mean (1 – 4)**	**Std. dev.**
To what extent do you think that the development of pervasive skills should form part of the requirements of SAICA's Competency Framework?	3.32	0.71
The development of pervasive skills should form part of my CA(SA) undergraduate curriculum at university level.	3.55	0.56

In addition, students were also asked during the focus group interviews if they were aware of the fact that in terms of SAICA's Competency Framework, they were required to be exposed to the development of pervasive skills during their studies (from the first to the third year), and together with this, were asked how aware they were of pervasive skills development during this period. Noteworthy responses in respect of the aforementioned two issues included the following:

Many lecturers will tell you about it a lot, but you do not really worry about it. You are just like, yes, it's okay, I shall worry about it tomorrow.

One might have heard something small about it here and there, but we never really realised the weight that it carries and how important it actually is.

I think subconsciously you are continuously aware of it because all the lecturers are mentioning it the whole time, but you do not know how everything will come together?

Furthermore, to determine the perceived level of importance of pervasive skills development, students were required to provide reasons (by means of an open-ended question in the questionnaire) for why they perceived the development of pervasive skills at the higher education level to be an important aspect of their undergraduate accounting curricula. Only themes identified from three or more similar responses are reported and indicated in table 4.3.

Table 4.3: Students' perceptions of reasons why pervasive skills development should form part of accounting curricula at the higher education level

	Students	
Reason themes	**Frequency (N = 95)**	**%[#]**
It is required by practice and prepares us for the workplace	27	28.4
It provides me with an opportunity to develop and practice pervasive skills in a safe environment before I enter the workplace	17	17.9
Getting used to working in teams and with other people	11	11.6
I need to develop communication skills as it is crucial in the workplace	5	5.3
Combining pervasive skills with technical skills makes concepts more practical and easier to understand	5	5.3
It contributes in shaping me into a more holistically developed and well-rounded student, making me unique and setting me apart from other graduates	4	4.2
To prepare me for how to cope with different people in different situations	3	3.2
It builds self-esteem and self-confidence	3	3.2
Incorporation of pervasive skills in the curricula provides a fresh and new way of learning and makes me think about concepts differently	3	3.2

[#]*Number of instances mentioned (frequency) divided by the number of completed questionnaires*

Thus, developing pervasive skills at the higher education level is perceived to be beneficial in that it provides a safe environment in which students are allowed to freely develop their soft skills and have the opportunity to make and learn from their mistakes without it having negative consequences for employers and clients, as it could in practice. The following is a noteworthy comment obtained from a student during a focus group interview in support of the above-mentioned finding:

> *The more exposure you can get to it before you enter practice, the better you will be equipped to handle situations. I mean, in practice itself it is your job that is on the line, it's not a safe environment like at the university where someone will necessarily have patience with you.*

Therefore, although accounting students seem to be aware of pervasive skills development and perceive it to be important, they are not properly informed about the role it plays and how it is incorporated within their undergraduate accounting curriculum.

4.5.2.2 Educators

To establish accounting educators' awareness and perceived level of importance of the development of pervasive skills, the educators' questionnaire required them to indicate the extent to which they are familiar with the content of SAICA's Competency Framework. Based on the results, a mean score of 3.8 (being very close to 4, representing 'a great deal') and a standard deviation of 0.42 were reported. Thus, it is evident that educators are very aware of the content of SAICA's Competency Framework. The SAICA Competency Framework (2014, 17) indicates that providers of the academic programme are expected to address all the qualities and skills (which includes pervasive skills) that, in their opinion, are suitable for inclusion in the academic programme. Considering the latter, educators were provided with a list of the 12 pervasive skills required in terms of SAICA's Competency Framework (as indicated in the introduction of this paper) during their focus group interview after which the following question was posed to them:

- Which of the 12 pervasive skills, in your opinion, is the responsibility of educators to develop in accounting students at the higher education level?

Educators indicated that they perceived the development of the following skills to be their responsibility: *ethical awareness; time management*; *critical thinking; problem-solving*; *communication (writing) and strategic thinking*. In addition, educators stressed that in respect of '*ethical awareness*' they could only alert students on the importance of applying this skill, and could not teach students what is perceived to be ethical and what is not.

In addition, three Likert-type questions with a four-point rating scale (where: 1 = '*not at all*', 2 = '*very little*', 3 = '*quite a bit*', 4 = '*a great deal*') were included in the educators' questionnaire to determine their level of awareness of pervasive skills development while performing their academic duties. The results are summarised in table 4.4. Despite the fact that educators indicated that they are very familiar with the content of SAICA's Competency Framework, which includes their responsibility to incorporate pervasive skills as part of the academic programme, the mean scores for their level of awareness and sensitivity to incorporating pervasive skills while preparing for lectures and setting tests and examinations were reported as 2.6 and 2.3 respectively (being close to '*very little*'). The level of awareness was much higher while setting assignments/group projects/interventions, with a mean score of 3.1 (representing '*quite a bit*').

Table 4.4: Educators' awareness of pervasive skills development while performing their academic duties

To what extent are you aware of/sensitive to incorporating pervasive skills when...	Educators (N = 10) Mean (1 – 4)	Std. Dev.
... planning and preparing for your lectures?	2.60	0.70
... setting tests and examinations?	2.30	0.95
... setting assignments/group projects/interventions?	3.10	0.74

Furthermore, SAICA's Competency Framework (2014, 17) states that providers of the academic programme will be required to explain how the pervasive skills are addressed and must provide full motivation for excluding any from the academic programme, as part of the ongoing accreditation and monitoring of providers. From the literature multiple challenges are reported that accounting educators face in successfully incorporating pervasive skills development into course modules. These include: syllabus overloads with limited space in the curriculum to accommodate additional skills (Willcoxson, Wynder and Laing 2010); large class sizes (Wessels and Steenkamp 2009); limited contact time with students; considering that accounting educators also have other duties such as research (Milner and Hill 2008).

Therefore, although educators are well aware of their responsibility regarding students' pervasive skills development, its active incorporation into course modules seems to be lacking. Also, educators do not perceive the development of all the required skills to be their responsibility.

4.5.2.3 Employers

Two questions were posed relating to employers' perceptions of the level of importance of pervasive skills development at the higher education level. Both these questions were applied on a four-point Likert-type scale, where 1 = '*not at all*', 2 = '*very little*', 3 = '*quite a bit'* and 4 = '*a great deal*'. The mean scores of both the questions (see table 4.5) were close to 4 (representing '*A great deal*'), indicating that employers perceive the development of pervasive skills in accounting students at the higher education level to be very important.

Table 4.5: Employers' perceptions of pervasive skills development at the higher education level

	Employers (N = 23)	
Variable	**Mean (1 – 4)**	**Std. Dev.**
The development of pervasive skills at University/Higher Education level is important	3.96	0.209
The need to appoint new employees (trainees) who have already been exposed to the necessary pervasive skills is becoming more important to our firm/company	3.61	0.583

Employers were also required to provide reasons (by means of an open-ended question) for why they perceived the development of pervasive skills to take place at the higher education level. Only themes identified from two or more similar responses are reported and are indicated in table 4.6.

Table 4.6: Employers' perceptions of reasons why pervasive skills development should form part of accounting curricula at the higher education level

	Employers	
Reason themes	**Frequency (N = 23)**	**%[#]**
Students should learn how to work in teams and with different people before they enter the workplace	8	34.7
Students should learn the skill of how to communicate effectively	5	21.7
To prepare the student for the workplace, where pervasive skills play an important role	3	13.0
Employing staff with good pervasive skills is what makes business work	2	8.7

[#]*Number of instances mentioned (frequency) divided by the number of completed questionnaires*

Noteworthy individual responses received from employers on the open-ended questions in respect of reasons why students need to develop pervasive skills at the higher education level, include the following:

Team work:

As a professional you work with people, not merely pen and paper.

You will need to learn to work in a team as this is how it is mostly in a firm.

You may be good technically, but if you cannot work together you won't be able to work in a corporate environment.

Communication (verbal, listening and writing):

Majority of time gets spent on communicating, managing client expectations and team members.

Communication is very important and will be attained through enquiries with clients.

Work readiness:

To assist students to integrate smoothly into the work environment.

It plays a crucial role in your workplace one day and how you handle situations.

Unique, employable candidates:

Soft skills are what most companies are looking for in order to develop their companies.

Time management, communication and team work makes business work, without proper development business loses out.

It is therefore clear that employers perceive pervasive skills development to be a crucial aspect of higher education accounting curricula in order to properly prepare students for the formal workplace. However, employers perceive the development of some skills at university level, such as *team work* and *communication*, to be more important than others.

4.5.2.4 Perceived level of importance of exposure to the development of specific pervasive skills before entering the workplace

All three role-players were required to rate on a scale of 1 to 10 (where 1 represents '*not at all important*' and 10 represents '*extremely important*'), how important they perceive exposure to the development of each of the 12 required pervasive skills to be before the accounting student enters the formal workplace. From the fairly high mean scores indicated in table 4.7, it is evident that all three role-players perceived all 12 the pervasive skills to be very important as the lowest mean score rating between all three role-players for all the skills was reported as 7.3 (see '*leadership*' ranked by educators).

All three the role-players rated '*ethical awareness*' and '*communication (listening)*' as part of the top four pervasive skills that should be developed before the formal workplace is entered. Other pervasive skills appearing on at least two of the role-players' list of top four ranked pervasive skills were '*time management*', '*problem-solving*' and '*communication (verbal)*'. Despite the fact that all 12 the required pervasive skills were ranked as fairly important to be developed before entering the formal workplace, it was the skills of

'*leadership*' and *influencing others*' that appeared amongst the bottom three skills ranked by all three role-players, where mean scores of 8.32 (students), 7.30 (educators) and 7.74 (employers) were reported for '*leadership*', and mean scores of 8.11 (students), 8.1 (educators) and 7.57 (employers) were reported for '*influencing others*'. These findings correspond to those of research conducted by Jackson, Sibson and Riebe (2013, 14), as well as Lang (2009), who also reported consistently lower mean scores for the skill of '*influencing others*', while Ramlall and Ramlall (2014) also identified a lack of leadership skills in accounting students. As there is a prevailing need for future managers and leaders who can negotiate and influence in an effective yet sensitive manner (Fisher 2011), new and innovative ways to teach leadership skills (such social intelligence, influencing others and conflict resolution) should be developed, evaluated and applied.

From the analysis of variance (ANOVA) test performed (see table 4.7), statistically significant differences were noted for pervasive skills with *p*-values smaller than 0.05 (Pallant 2007, 250), including: *problem-solving* (*p*=0.00); *leadership*, *professionalism* and *strategic thinking* (all with a *p*=0.03); and *time management* (*p*=0.04). Effect sizes (*d*-values) ranging from 0.5 to 0.7 indicate a medium to large practical effect (Ellis and Steyn 2003, 3) between skills that students perceive they should be exposed to before entering the workplace as opposed to this perception by educators. The significant *d*-values for the skills of *leadership*, *professionalism*, *strategic thinking*, *communication (verbal)* and *team work* were all perceived more important by students than by educators to be developed before entering the workplace. The only skill with a significant *d*-value which was perceived more important by educators than by students was *communication (writing)*.

The skills of: *problem-solving*, *time management* and *communication (listening)* resulted in significant *d*-values of 0.63, 0.40 and 0.41 respectively (all representing a medium to large effect in practice) when compared between students and employers. Based on the higher mean scores for each of the latter skills as ranked by students, it is evident that students perceive their exposure to these skills before entering the workplace as more important than employers do. A study conducted by Jackling and De Lange (2009) amongst accounting graduates and employers in Australia indicated that the greatest areas of skills divergence from the employers' perspective, were those of team skills, leadership, verbal communication and the interpersonal skills of graduates.

In comparing skills with significant *d*-values (all reflecting a medium to large effect in practice) between educators and employers, it was the educators who perceive students' exposure before entering the workplace to: *problem-solving*, *time-management*,

communication (writing) and *critical thinking*, to be more important than employers do. However, employers perceive the skills of *strategic thinking*, *communication (verbal)* and *team work* to be developed before entering the workplace as more important than the educators do. These findings correspond to those of the study conducted by Wiseman (2013), where 93 per cent of American employers reported that a capacity to think critically, communicate clearly and solve complex problems was more important than an undergraduate major.

Table 4.7: ANOVA on perceived importance of exposure to specific pervasive skills before entering the workplace

	Students (N = 95)		Educators (N = 10)		Employers (N = 23)			
Pervasive skills	**Mean (1 – 10)**	**Std. Dev.**	**Mean (1 – 10)**	**Std. Dev.**	**Mean (1 - 10)**	**Std. Dev.**	**F**	***p*-value***
Problem-solving	9.18	1.01	9.20	1.23	8.22	1.54	6.78	0.00
Leadership	8.32	1.26	7.30	1.42	7.74	1.74	3.67	0.03
Professionalism	9.38	1.16	8.40	1.51	8.83	1.83	3.60	0.03
Strategic thinking	8.79	1.18	7.70	1.64	8.43	1.34	3.81	0.03
Time management	9.38	0.96	9.40	0.70	8.74	1.60	3.30	0.04
Communication (verbal)	9.38	0.90	8.70	0.95	9.22	0.90	2.65	0.07
Communication (listening)	9.32	1.02	9.10	0.74	8.87	1.10	1.85	0.16
Team work	9.01	1.19	8.30	1.34	9.00	1.00	1.69	0.19
Influencing others	8.11	1.41	8.10	1.29	7.57	2.04	1.17	0.31
Communication (writing)	8.39	1.81	9.20	1.03	8.48	1.28	1.06	0.35
Critical thinking	9.00	1.19	9.40	0.84	8.77	1.27	0.97	0.38
Ethical awareness	9.26	1.11	9.50	0.97	9.18	1.33	0.27	0.77

	Effect-sizes (d-values)^		
Pervasive skills	**Students and Educators**	**Students and Employers**	**Educators and Employers**
Problem-solving	0.02	0.63	0.64
Leadership	0.72	0.33	0.25
Professionalism	0.65	0.30	0.23
Strategic thinking	0.67	0.26	0.45
Time management	0.02	0.40	0.41
Communication (verbal)	0.72	0.18	0.55
Communication (listening)	0.21	0.41	0.21
Team work	0.53	0.01	0.52

Influencing others	0.00	0.26	0.26
Communication (writing)	0.45	0.05	0.57
Critical thinking	0.34	0.18	0.49
Ethical awareness	0.21	0.06	0.24

**p-value: <0.05, indicates a significant result, assuming a random sample*
^d-value: Small effect: d=0.2; medium effect: d=0.5; large effect: d=0.8

4.5.3 Students' perceived level of exposure to pervasive skills development in undergraduate modules forming part of accounting degree programmes

To answer the second research question, students were asked to indicate, based on self-assessment and reflection on their undergraduates studies (from the first to the third year), their perceived level of exposure at the end of their third year to the various pervasive skills in their undergraduate models forming part of their accounting degree programme. From the mean scores reported for each of the pervasive skills (see table 4.8), it is clear that students perceived their level of exposure to the various pervasive skills required in terms of SAICA's Competency Framework to be moderate to high (where 3 = '*moderate level of exposure*'; and 4 = '*high level of exposure*'). Despite the latter, it is evident that students perceived their level of exposure to the development of *leadership* skills to be the lowest of all the pervasive skills, with a mean score of 2.99. The reason for this limited exposure to the development of *leadership* qualities and skills could possibly be ascribed to the fact that all three the role-players perceived the skill of *leadership* as one of the two least important pervasive skills to be developed at the higher education level before the formal workplace is entered (refer to the results reported in table 4.7). This finding also corresponds to what was reported by Ramlall and Ramlall (2014, 651), in their international study amongst accounting students of multiple universities in the United States, where the most significant disparity in what students perceived as important and how prepared they were for it was in respect of *leadership* skills.

Table 4.8: Students' perceived level of exposure to the development of the various pervasive skills in undergraduate accounting degree modules

	Students (N = 95)	
	Mean (1 – 4)	**Std. Dev.**
Working in a team	3.38	0.70
Time management	3.59	0.57
Ethical awareness	3.22	0.87
Solving problems	3.46	0.60
Strategising techniques	3.18	0.73
Leadership	2.99	0.68
Communication (writing skills)	3.14	0.75
Thinking critically	3.53	0.56
Influencing fellow students	3.16	0.73
Communication (verbal & listening)	3.19	0.61
Acting professionally	3.33	0.72

Noteworthy comments obtained from the students during focus group interviews relating to the level of exposure to pervasive skills in undergraduate models are as follows:

> *Our curriculum is mostly theoretical based. There is very little room for practical application and interaction. Yes, we had an audit assignment and a tax intervention this year* (referring to the third year) *and also a business project in our first year, but it was never sort of stipulated as to what the main purpose of it was.*
>
> *So, I knew about it*, *but I never felt like it was actually developed, until we had the tax court case evening assignment* (during third year of studies).
>
> *Yes, many times they told us theoretically that this is what is expected of you and that you need to be able to communicate, but never were these skills of ours actually developed*.
>
> *Lecturers often speak about how it will be when you start to work someday. But it is like if they are only speaking from their own experiences, rather than them trying to actually embed those skills within us. So they are really great lecturers, but if the goal really was to expose us to it, I feel it was more the case of them sharing their personal experiences rather than doing it as part of their duties.*

Based on the findings relating to moderate to high levels of exposure to the various pervasive skills in undergraduate modules reported by students, it is clear that progress has definitely been made in terms of pervasive skills development. However, it seems as if this

progress largely constitutes an awareness of the importance of pervasive skills raised rather than its active incorporation and application in course modules. Also, there seems to be a definite student need to better develop their *leadership* skills.

4.5.4 Employers' perceptions of their role to play in pervasive skills development at the higher education level

To answer the third research question, employers were asked to indicate whether employer companies should be involved in the development of pervasive skills at the university level. A mean score of 3.52 (between 3 representing '*quite a bit*' and 4 representing '*a great deal*') with a standard deviation of 0.51 was obtained for this question. This gives a positive indication that employers want to engage with universities to develop the pervasive skills of accounting students.

In addition, staff from employer companies was requested to provide examples of how, in their opinion, pervasive skills could be developed at the higher education level. The results of specific responses received were categorised under eight main suggested method themes and were matched with specific pervasive skills. The results are summarised in table 4.9.

Table 4.9: Examples provided by employers for methods to develop pervasive skills at the higher education level

		Employers	
		Frequency (N = 23)	
Suggested example themes	**Target pervasive skill(s)**	**%[#]**	
Group projects	Team work	7	30.4
Presentations and mock job interviews	Communication (verbal and listening); Influencing others	5	21.7
Active learning and game-based interventions outside the normal classroom environment	Combination of all 12 the required pervasive skills required by SAICA	4	17.4
Real life case studies and simulated client situations	Problem-solving; Critical thinking; Ethical awareness	3	13.0
Tasks requiring demonstration of leadership qualities	Leadership	2	8.7
Subject integrated projects	Problem-solving; Strategy; Critical thinking	1	4.3
Guest lectures and motivational speakers creating awareness about the importance of pervasive skills in practice	Influencing others	1	4.3
Incorporation in tests and examinations	Communication (writing); Ethical awareness	1	4.3

[#]*Number of instances mentioned (frequency) divided by the number of completed questionnaires*

4.6 Summary of findings and conclusions

The purpose of this study was to take stock of the pervasive skills development of South African accounting students from three different perspectives.

Firstly, the level of awareness and perceived level of importance of developing pervasive skills at the higher education level were determined. Accounting students indicated that although they were not so well aware of the fact that pervasive skills development at the undergraduate level was required in terms of SAICA's Competency Framework, they did recognise its importance and valued it as a crucial aspect of their undergraduate accounting curricula. Students perceive the university as the ideal environment in which pervasive skills could be developed, as it is a safe environment in which they can make mistakes and learn from these. Although students felt that they were made aware of and were exposed to pervasive skills development during their undergraduate studies, this exposure was not sufficient and that more could have been done to enhance their awareness and overall

development of pervasive skills. The latter findings were also echoed in the responses received from accounting educators. Educators indicated that they are very much aware of the fact that they should incorporate pervasive skills in their modules and curricula as required in terms of SAICA's Competency Framework, but admitted that while preparing for lectures and setting tests and examinations, they do not give enough consideration to the effective incorporation of the required pervasive skills and qualities. Also, educators perceived only six of the twelve pervasive skills of SAICA's Competency Framework to be their responsibility at the higher education level. Employers indicated that they regard the pervasive skills development of accounting students at the higher education level to be very important as the appointment of candidates who have already been exposed to it adds value to their business. Exposure to the skills of effective *team work*, *communication (verbal)* and *strategic thinking* was highlighted by employers as being most important before entering the workplace.

Secondly, the aim of the study was to determine whether students felt competent in possessing the pervasive skills required of them by practice at the end of their third year of studies. From the perceived level of exposure to each of the required pervasive skills provided by undergraduate modules, it is evident that students perceived an under-emphasis on their exposure to the development of *leadership* skills.

Thirdly, the study aimed to investigate the role that employers perceive they are to play in terms of pervasive skills development at the higher education level. Employers indicated that they felt they should also be involved in developing pervasive skills in accounting students at the higher education level and suggested methods such as simulated client situations, mock interviews, subject integrated group projects and guest lectures.

4.7 Implications for higher education and training

Considering the implications of the findings for higher education (i.e. students and educators) and training (i.e. employers) it is clear that, although accounting students are to a certain extent aware of the fact that pervasive skills development are required in terms of SAICA's Competency Framework at the undergraduate level, students are still not adequately exposed to sufficient opportunities to develop pervasive skills at the higher education level. It is also evident that higher education accounting curriculums are not adequately designed and planned to ensure the effective incorporation and development of pervasive skills. The fact that educators are either unaware that they should incorporate pervasive skills into their modules and curricula as required in terms of SAICA's Competency

Framework, or are aware of the requirement, but not actively responsive to it, is extremely cumbersome. This results in students entering the profession not being adequately equipped with the pervasive skills which are imperative for functioning effectively within the professional environment after graduation. The latter contributes to already pressurised employers to find graduates who possess the required pervasive skills and competencies and forces employers to provide additional training to develop these skills in graduates.

The latter implications are alarming due to the fact that despite the vast majority of literature available on and research conducted in respect of the importance and development of pervasive skills at the higher education level, its underdevelopment remains problematic. This persistent problem seems to be very relevant in today's higher education, specifically in relation to accounting education and training.

4.8 Recommendations

It is submitted that universities are placing emphasis on and recognise the importance of pervasive skills development at the higher education level as students admitted to it being continuously communicated to them. However, it would seem as if this emphasis is not sufficient and that it is only communicated because accounting educators know that it is required of them in order to adhere to the SAICA Competency Framework.

It is therefore recommended that accounting educators and programmes need to clearly inform accounting students and raise awareness of the pervasive skills and competencies required of them in terms of SAICA's Competency Framework. The reasons for incorporating pervasive skills development into the curricula of various undergraduate accounting modules should be clearly communicated to students, as well as the methods for doing this. The latter should form a crucial aspect of each programme's overall teaching-learning strategy and learning outcomes. The role that pervasive skills play in the application of technical knowledge should be motivated and explained to students.

There is a clear indication that higher education institutions should re-curriculate in order to address the lack of opportunities for pervasive skills development in their graduates. Thus, overall it is concluded that although progress has been made, there is still a need for new and innovative teaching methodologies and interventions to be developed, of which the main aim is to expose accounting students to pervasive skills, especially '*leadership*' skills, which was found to be lacking. A suggestion for future research is that the usefulness of such teaching methodologies and interventions needs to be explored and evaluated. Universities

and employers need to partner together in addressing and overcoming the pervasive skills shortages prevailing in accounting education at the higher education level. It is submitted that synergies will arise within such partnerships that will contribute to the accounting education pedagogy of pervasive skills development of South African accounting students.

4.9 References

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CHAPTER 5

DEVELOPING PERVASIVE SKILLS: USEFULNESS OF A TAX INTERVENTION

Chapter 5 (Article 2)

Developing pervasive skills: Usefulness of a tax intervention

The reader is requested to take note of the following:

- The article has been **accepted for publication** in *Meditari Accountancy Research*, an accredited academic journal.
- The confirmation of acceptance for publication of the article is included in **annexure B1**.
- The article was written in line with the journal's submission guidelines, which are included in **annexure B2**.
- The Editor of *Meditari Accountancy Research* requested that the article should be published under the title: "*Developing soft skills (also known as pervasive skills): Usefulness of an educational game*". For purposes of this thesis the original title of the article was retained in order to be consistent with the registered title of this study at the NWU (Potchefstroom campus).

Abstract

The need to deliver well-rounded accounting graduates demonstrating core technical and pervasive skills and competencies calls for new and innovative teaching methods. Accounting educators and programmes are continuously challenged regarding which methods to apply to meet these outcomes and substantiate their usefulness. The purpose of this paper was to evaluate the usefulness of a tax intervention from the perspectives of three groups of role-players (student participants, student committee members and employer companies). The intervention was designed to provide students with the opportunity to develop pervasive skills and to determine if the intervention succeeded in encouraging students to apply the broader set of pervasive skills required by the South African Institute of Chartered Accountants (SAICA). Action research was conducted according to a parallel convergent mixed-method research design. Both qualitative and quantitative data were gathered using questionnaires and focus group interviews to determine the usefulness of the intervention. All three groups perceived the intervention to be effective in requiring students to apply the full spectrum of pervasive skills. Although all the pervasive skills were perceived to be present in the intervention, teamwork, communication (listening and verbal) and time management skills were perceived to be most prominent, while written communication, professionalism and ethical awareness were found to be less prominent. Overall, the intervention can be recommended as an effective and innovative teaching method that can positively contribute to the pervasive skills development of accounting students.

Keywords:

Accounting education; Action research; SAICA competency framework; Perceptions; Pervasive skills; Skills development; Tax intervention; Teaching innovation; Usefulness.

5.1 Introduction

In the 21st century, ever-increasing emphasis is being placed on soft skills in the workplace, as well as on the role that education plays in developing soft skills (Kyllonen, 2013). Many studies have confirmed the association between career success and transferable generic skills (Gammie *et al.*, 2002; Hutchinson and Fleischman, 2003; Mohamed and Lashine, 2003; Hassall *et al.*, 2005). Robles (2012) concur by stating that technical skills and knowledge account for about 15% of success in the workplace, while 85% is based on soft skills.

However, there is growing consensus among accounting professionals that graduates do not meet the standards of potential employers in the globalised business environment (Van der Merwe, 2013). According to Bierstaker *et al.* (2004), professional body accreditation of the accounting curriculum does not guarantee professional readiness. In addition to sound technical knowledge, accounting graduates are required to possess an ever-broadening range of people skills, business acumen and leadership skills to maintain their preparedness for the increasingly unpredictable demands of the business world (Russell *et al.*, 2000; Barac, 2009; Webb *et al.*, 2009; Paisey and Paisey, 2010; Sin *et al.*, 2012; Barac and Du Plessis, 2014; CIMA, 2014).

Professional accountancy bodies around the world have moved away from a purely knowledge-based accreditation process for new members to include specific additional skills and competencies to be acquired before registering as a professional accountant (Steenkamp, 2012). In South Africa, the South African Institute of Chartered Accountants (SAICA) is responsible for the regulation and standard setting of requirements for obtaining the Chartered Accountant (CA(SA)) designation. Apart from their examinable pronouncements (a detailed syllabus of topics and technical knowledge to be acquired by students in the academic programme), SAICA (2014) developed their Competency Framework detailing the skills and competencies a CA(SA) should possess when entering the profession. In terms of this framework for the CA(SA) programme, providers of the academic programme (i.e. SAICA-accredited universities[1]) are expected to address all appropriate professional skills in their programme which include the exposure of candidates to the development of pervasive skills.

[1] SAICA-accredited universities' constitute programmes accredited by SAICA and means that: (i) the academic unit has put in place the appropriate resources that, if utilised effectively, should enable it to deliver the programme at the required standards and levels of quality; and (ii) the programme meets SAICA's requirements in terms of the standards of learning and teaching (SAICA, 2016).

The Competency Framework identifies pervasive skills in three categories: (i) Ethical Behaviour and Professionalism, (ii) Personal Attributes, and (iii) Professional Skills (SAICA, 2014). The qualities and skills resorting under the three categories are described as follows:

- *Ethical Behaviour and Professionalism:*
  Protecting public interests, acting with honesty and integrity, exercising due care, being objective and independent, avoiding conflict of interest, protecting the confidentiality of information, enhancing the profession's reputation and adhering to professional conduct.
- *Personal Attributes:*
  Demonstrating self-management and leadership, taking initiative and showing competence, adding value in an innovative manner, managing change, treating others in a professional manner, understanding the national and international environment, being a life-long learner, being a team member and demonstrating time management.
- *Professional Skills:*
  Critical thinking, problem-solving, effective communication, supervising and managing, understanding the impact of information technology and considering basic legal concepts.

Pervasive skills, also known as generic skills or soft skills, could be developed independently from a specific field of study because they are not subject specific (Boyce *et al.*, 2001; Barrie, 2004). Weber *et al.* (2009) defined soft skills as the interpersonal, human, people or behavioural skills needed to apply technical skills and knowledge in the workplace. The generic skills generally referred to in the literature include communication (verbal, listening and writing), interpersonal interaction, critical thinking, problem-solving and analytical skills (Hassall *et al.*, 2005; Paisey and Paisey, 2010; Hartie *et al.*, 2011; Barac and Du Plessis, 2014).

Based on the literature and drawn from the Competency Framework (SAICA, 2014), accounting students need to develop the following 12 pervasive skills: communication (verbal); communication (listening); communication (writing); problem-solving; teamwork; time management; leadership; professionalism; ethical awareness; strategic thinking; critical thinking; and influencing others.

5.2 Research objective and contribution

The primary objective of this paper is to determine the usefulness of an innovative tax intervention in encouraging the application of pervasive skills in final-year undergraduate accounting students. The research was based on the perceptions gathered from three groups of role-players, namely accounting students who physically participated in the

intervention; accounting students who did not participate, but who acted on the planning and organising committee of the intervention; and staff from employer companies (accounting, auditing and advisory firms) who were involved during the tax intervention.

The key learning objective of the intervention was to expose students to the development through the application of as many of the pervasive skills required in terms of the Competency Framework as possible. A tax education intervention was used as an experiential teaching tool to develop these skills and entailed the integration of tax knowledge with physical activities to be performed in an innovative manner. The paper, therefore, endeavours to answer the following research questions:

- Did the intervention encourage students to apply pervasive skills?
- Which pervasive skills were most and least prominent in the intervention?
- What were the most important perceived benefits derived from the intervention?
- What were the main constraints of the intervention?

This paper contributes to the current body of knowledge and the on-going discussion on teaching interventions that can develop pervasive skills as part of higher education accounting curricula. The usefulness of innovative teaching interventions in accounting education needs to be determined to keep track of the ever-changing nature of accounting and its concomitant accounting education needs. The paper is unique in the fact that the intervention's usefulness can be determined for three different groups of role-players. The findings could serve as a platform for accounting educators, professional bodies and employers in respect of the future design of teaching interventions aimed at pervasive skills development in the field of accounting education and training.

The remainder of the paper is organised as follows: First, the relevant literature on pervasive skills development in accounting education is reviewed and the research gap highlighted. This is followed by a description of the development of the tax intervention and an explanation of the research design and methodology. Finally, the empirical findings of the paper are reported and discussed, followed by a summary of the key findings and conclusions, as well as suggestions for further research.

5.3 Literature review: pervasive skills development within accounting education

New concepts, strategies and methodologies need to be introduced into the teaching of accounting for students to be able to acquire professional skills (Kermis and Kermis, 2010:5). The desperate need to incorporate soft skills into higher education accounting curricula is evident (Adler and Milne, 1997; Gammie *et al.*, 2002; Kern, 2002; Ballantine and McCourt Larres, 2009), but studies are not explicit on how to achieve the integration and practical implementation (De Villiers, 2010). Also, SAICA's Competency Framework (2010) does not provide direct guidance to educators and trainers; thus, it remains the responsibility of the academic providers to design courses in such a way that they enable the acquisition of the qualities and skills required by SAICA. Barac and Du Plessis (2014) found considerable variation in the way in which the development of pervasive skills is incorporated in the curricula of undergraduate programmes of SAICA-accredited universities. They suggested more integration of pervasive skills into course majors.

The education philosopher, Dewey (1938), believed that experiential learning theory should be applied in teaching to promote the development of pervasive skills through increased student engagement. Experiential learning is a philosophy of education based on the theory of learning from actual experiences (Kolb and Kolb, 2005; Fouché, 2013) and encompasses a range of educational interventions such as case studies, games, role-plays, field experiences, group projects and simulations (Cherrington and Van Ments, 1994; Fouché, 2013). The aim of experiential learning is to avoid single-solution scenarios and to encourage learners to experiment from subject knowledge (Kreber, 2001). Experiential learning is found to be more effective than traditional learning (Yan, 1999), because it produces more motivated learners (Burns and Gentry, 1998), it instils greater sensitivity for detail necessary for effective decision-making and management skills (Babbar, 1994); and it promotes life-long personal and professional development through self-learning and reflection (Hannon *et al.*, 2004).

The tax intervention in this paper is unique in that its activities (refer to section 5.4) encapsulate numerous experiential learning methods and combinations thereof. Table 5.1 summarises both local and international literature on teaching methods applied and researched in accounting education and their contribution to the development of pervasive skills and competencies.

Table 5.1: Teaching methods for researching pervasive skill development in accounting education

Researchers	Teaching method	Pervasive skills researched	Key findings
Adler and Milne (1997)	Problem-based learning case study	Teamwork; Communication (verbal)	Enhanced teamwork skills, desire for self-improvement, and oral communication skills.
Ballantine and McCourt Larres (2009)	Case study	Organisational; Communication (verbal and writing)	Contributed to skills development, regardless of accounting work experience.
Barsky and Catanach (2005)	Simulation	Critical thinking; Communication (verbal)	Improved critical thinking and oral communication skills.
Dale-Jones *et al.* (2013)	Intervention	Communication (writing)	Improved ability to apply assessment standards to grammatical, structural and presentation components of written communication.
Edmonds *et al.* (2003)	Problem-based learning	Critical thinking; Communication; Leadership	Helped in developing critical and creative thinking, decision-making, communication, and leadership skills.
Fouché and Visser (2008)	Board game	Communication (verbal); Critical thinking; Strategic thinking	Enhanced development of technical competencies and soft skills; broadened view of the role of the professional accountant.
Kern (2000; 2002)	Problem-based learning	Critical thinking; Problem-solving	Developed critical thinking and problem-solving skills.
Maelah *et al*. (2012)	Field experiences (industrial training)	Time management; Communication (oral); Teamwork	Developed time management, oral communication and groupwork skills.

Sawyer *et al*. (2000)	Case study	Professionalism; Communication (writing); Problem-solving	Developed professionalism and writing and problem-solving skills.
Stainbank (2003 and 2009)	Group projects	Management; Teamwork; Interpersonal skills	Developed management and interpersonal skills; contributed to career preparedness.
Van der Merwe (2013)	Case study and business simulation	Teamwork; Communication (verbal and writing)	Developed teamwork, research, communication, computer and presentation skills.
Weil *et al*. (2001)	Case study	Critical thinking; Problem-solving; Strategic thinking	Developed problem-solving skills, helped to apply and integrate theory to the real world and distinguish facts from opinions.
Weil *et al*. (2004)	Case study	Critical thinking; Problem-solving; Strategic thinking	Helped with evaluating situations from several perspectives, considering alternative solutions, applying judgment, analysing and solving problems, identifying relevant information and integrating knowledge.

Most of these studies applied only one teaching method and focused on a limited number of specifically identified pervasive skills. Clearly, a gap exists in the literature on the usefulness of single interventions involving a wide range of pervasive skills using various experiential learning methods. Furthermore, active learning methods seem to be developed and evaluated mainly within the subject-specific areas of financial accounting, auditing, managerial accounting and finance, and none in taxation. In a recent study, CA(SA) candidates indicated that management decision-making and control, auditing and assurance, and taxation had the lowest contribution to the development of their pervasive skills (Strauss-Keevy and Maré, 2014). Therefore, more tax-related interventions aimed at pervasive skill development should be applied, and their usefulness evaluated, to address the identified research gap namely a lack of interventions aimed at exposing students to the broader spectrum of the required pervasive skills set.

5.4 Development of the tax intervention

The author (as main researcher) initially established the concept of *The Amazing Tax Race* (hereafter referred to as 'the tax intervention') in 2011, and has since presented it to final-year undergraduate accounting students over four consecutive years. The intervention is in the form of an interactive action game. The design of the tax intervention is based on the principles of the active learning theory (Ritzko and Robinson, 2006). Today's students prefer a responsive learning environment where they can be more actively involved in the learning process, and where they can obtain immediate feedback (Sugar and Takacs, 1999). Using gamification, as was applied in this study, as a vehicle to promote active learning, may be an option to provide students with such a learning environment. The intervention takes on the form of a race against time where student teams participate in tax-related activities hosted at stations across the campus. Although the integration of tax knowledge in these activities is important, the overall focus remains on the exposure to and the development of pervasive skills and competencies. Participants receive clue cards leading to the stations on a rotation basis. Clue cards comprise a combination of tax related crossword puzzles to be completed where a combination of answers reveals the next destination, tax riddles incorporated with tax case law names and tax calculations to be performed where answers indicate a specific campus building or room number. To decrypt clues and complete activities successfully, teams need to apply their tax knowledge by working together and communicating effectively. This requires strategic and critical thinking while acting in an ethical and professional manner, all under time constraints.

The author was responsible for developing and organising all aspects of the tax intervention in the initial stages of the project. In response to the challenge of large class sizes and to accommodate as many students as possible, an organising committee was established in 2014 to expand the involvement of the students in the planning and executing of the intervention. Students could choose, based on their personality type and preferred learning styles, to be involved in the intervention either as a participant or as an acting member of the committee. Committee members were tasked in pairs to develop a tax-related activity, keeping the application of pervasive skills in mind, to be hosted at a station on the day of the intervention to participants. Activities had to be presented at a committee meeting to obtain feedback from all members (thus, achieving peer assessment) and ultimate approval of technical correctness and practical feasibility by the author. Examples of activities included a tax-related monopoly game, a '*Fringe Idols*' game where teams need to create and perform a song illustrating the tax implications of specific fringe benefits and a wheelbarrow race where teams need to obtain private and business kilometer cards in order to perform a travel

allowance calculation. The race comprised 13 stations across campus, each hosting a tax-related activity. Ten teams comprising eight students per team participated in the race that took between two and a half and three hours to complete. One tax professional body and six accounting, auditing and advisory firms were approached for sponsoring the stations and assisting the committee members in hosting the activities. Sponsorship entailed prizes for the top three teams, best team spirit, most creative team name, best team dress, and prizes for individuals demonstrating outstanding leadership qualities. The intervention also served as a networking opportunity for students and prospective employers.

5.5 Research design and method

5.5.1 Overall research design and method

Action research was considered to be the most appropriate research method to determine the usefulness of a newly developed and innovative teaching method. Mills (2011) described 'action research' as an on-going creative activity in which the researcher is exposed to surprises along the way. The design of innovative teaching and learning practices constitutes a continuous creative process that requires reconnaissance, identifying questions, planning, acting, observing, collecting data and reflection in order to ensure its ultimate usefulness (Grundy, 1995; Maxwell, 2003; Kemmis and McTaggart, 2005; Apostolou *et al*., 2010; Sherab, 2013). A parallel convergent mixed-method research design was followed and aimed to build on the synergy and strength that exist between quantitative and qualitative research (Johnson and Turner, 2003; Creswell *et al*., 2011).

5.5.2 Data collection

Quantitative data were collected through questionnaires and qualitative data were collected through focus group interviews. Both data sets were supplemented by the author's field notes and observations as an active participant in the action research process. The process lasted over a four-year period of designing, planning, delivering, reflecting and making adjustments to the tax intervention. Ethical clearance was obtained from the higher educational institution where the research was conducted.

5.5.2.1 Collection of quantitative data

Students' perceptions are important and good sources of information because students know their own situation well, uniquely know how students think and feel, experience an intervention first hand and can directly indicate the benefit from it (Steenkamp *et al*., 2009). Three questionnaires were developed to survey the perceptions of the three groups of role-

players in the intervention. These questionnaires were mainly developed from a questionnaire that had been used to assess student perceptions of an accounting educational intervention (Fouché and Visser, 2008). Support was provided by a review of literature on teaching interventions in accounting education aimed at pervasive skills development of students and their perceptions thereof. Additional sources, such as SAICA's Competency Framework and literature on questionnaire design, were also considered in developing the questionnaires. Questionnaires comprised both open-ended and Likert-type scale questions. The Likert-type questions were applied on a four-scale rating, because an even-numbered scale is recommended to measure teaching effectiveness (Berk, 2014). The questions covered the following areas: demographic and profile information; opinions on the application of and exposure to pervasive skills; perceived benefits and constraints of the tax intervention; personal meaning gained from and overall experience of being part of the tax intervention.

Three independent accounting education researchers and one independent statistical consultant reviewed the questionnaires to ensure its validity, completeness and unbiased nature. The student questionnaires were then tested on a sample of students to identify ambiguity and determine face validity.

One week after the intervention hard copies of the questionnaires were distributed to the student participants and the student organising committee to be completed and returned at the end of a tax lecture contact session. Staff of the participating accounting, auditing and advisory firms received their questionnaires on the day of the intervention to be completed and submitted immediately after the intervention. The completion of all questionnaires was totally voluntary and all questionnaires were completed anonymously. An independent statistician captured and analysed the data by means of SPSS (SPSS Inc., release 21.0.0, 2014). Data from open-ended questions were captured and summarised in similar categories using Microsoft Excel for further analysis.

5.5.2.2 Collection of qualitative data

Collecting qualitative data by means of student focus group interviews has proved to be the richest source of information and is recognised as highly effective for studying education and training (Field, 2000). A series of semi-structured interviews (Flick, 2006) were conducted with student teams within two weeks of the intervention. The author acted as focus group facilitator and introduced a number of pre-determined discussion points to ensure the continuous flow of relevant conversation. The fact that the author had not been lecturing the students contributed to ensuring anonymity between the students and the author as focus group facilitator. Interviews were audio and video recorded (with permission of the

interviewees after total confidentiality had been assured) and lasted between 50 to 60 minutes each. All interviews were conducted in the same boardroom on campus. Participation in the interviews was voluntary and, to ensure complete independence, no incentive was provided for participation. Forty six of the 80 students who participated in the intervention attended the interviews (representing 58% coverage and a fair spread of gender, 18 males and 28 females). After eight of the ten participating teams had been interviewed, the researcher decided to cease further interviewing as data saturation had been achieved (Davies, 2007; Greeff, 2012).

The author transcribed and analysed the interviews using ATLAS.ti (version 7.1.4, 2014). The data were analysed using a deductive coding approach (Elo and Kyngäs, 2008; Saldaňa, 2013). Quotes in Afrikaans were meticulously translated into English and was reviewed by an independent person as a measure to ensure that the meaning remained the same. From the analysis, themes emerged and theory-building was enabled (Friese, 2012) through the identification and conceptualisation of the relationships between coded data.

5.6 Empirical research findings

5.6.1 Study population profile

The target population comprised all 258 students registered for the third-year taxation module in 2014 as part of the chartered accountancy degree programme. The sample population consisted of three groups, namely the students who participated in the intervention (ten teams of eight individuals), the students who acted on the organising committee (28 students) and 30 staff members representing seven employer companies who sponsored the intervention and who were present on the day of the intervention to assist with and man the various stations of the intervention. The employer companies comprised six accounting and auditing firms (which included Big Four firms) and one tax professional body. Faithful to the experimental nature of action research, only 80 students were allowed to participate and 28 students to act on the committee. All students had a fair chance to be part of the intervention. Students had to enter via email volunteering to either act as participant or as committee member. As limited space was available entrants qualified for participation on a first-come-first-serve basis. However, this could not be considered to be a random sample from the target population, but rather as an availability sample. From the total study population, 71 completed questionnaires were received from student participants (response rate of 88.8%), 24 completed questionnaires were received from student committee members (response rate of 85.7%) and 23 completed questionnaires

were received from the staff of employer companies (response rate of 76.7%). The staff from employer companies represented various levels of experience. The profile of the study population is summarised in table 5.2.

Table 5.2: Profile of the study population

Variable	Participants % N=71	Committee members % N=24	Employers % N=23
Gender:			
Male	36.6	20.8	30.4
Female	63.4	79.2	69.6
Race/ethnic group:			
African/Black	1.4	33.3	
Coloured	1.4	4.2	
Indian/Asian	1.4	4.2	
White	95.8	58.3	
Position held at firm/professional body:			
Manager			8.8
Recruitment Officer			13.0
Human Resource Manager			13.0
Trainee Accountant			34.8
Tax Consultant			30.4

Focus group interviews were held with participating teams. Although it is not a sampling requirement for qualitative data analysis to obtain adequate coverage, it was re-assuring to note that 46 of the 80 students (57.5%) who participated in the intervention voluntarily took part in the interviews.

5.6.2 Application of pervasive skills in the intervention

The Competency Framework states that knowledge and understanding alone do not result in competency; the ability to execute a task by applying knowledge and understanding in practical circumstances is indispensable for the acquisition of a competency (SAICA, 2014). Therefore, to determine which pervasive skills and competencies respondents applied in the

intervention (and to answer the first research question), the questionnaire contained 14 variables testing the opinions of both student participants and student committee members on the extent to which they had to apply various actions which indirectly represent the pervasive skills required by SAICA. The 'indirect' representation is drawn from the meaning of and the manner in which the pervasive skills are defined in the literature. The responses to the 14 variables are summarised in table 5.3.

Table 5.3: T-test comparison between participants and committee members on the application of pervasive skills

	To what extent did you have to do or use the following during your participation in the tax intervention?	**Participants (N=71)**		**Committee members (N=24)**			
	Variable:	**Mean (1–4)**	**Std. dev.**	**Mean (1–4)**	**Std. dev.**	***p value****	**Effect size (*d value*)^**
5.3.1	I learned from the way participants/committee members interpreted different concepts	3.10	0.90	3.63	0.58	0.00	0.59
5.3.2	I had to deal with different personalities, backgrounds and cultures	3.32	0.82	3.71	0.55	0.01	0.47
5.3.3	Thinking on my feet/making decisions fast	3.51	0.70	3.25	0.68	0.12	0.37
5.3.4	I contributed to the success of my team/ activity to be hosted	3.19	0.71	3.42	0.58	0.12	0.33
5.3.5	I thought differently about academic concepts due to being forced to think creatively	3.24	0.75	3.46	0.72	0.21	0.29
5.3.6	I directed my team/committee members on what to do and how to do it	2.80	0.65	3.00	0.89	0.32	0.23
5.3.7	I had to listen to the opinions of fellow team members and/or committee members	3.62	0.54	3.50	0.59	0.39	0.20
5.3.8	I had to manage around conflict and differences of opinion	3.04	0.94	2.83	1.05	0.39	0.20
5.3.9	Express my opinion in concepts with my fellow team/committee members	3.29	0.71	3.17	0.70	0.48	0.17
5.3.10	I applied theoretical concepts practically	3.38	0.80	3.25	0.79	0.49	0.16
5.3.11	I had to apply critical thinking skills to solve problems	3.39	0.67	3.29	0.75	0.59	0.13
5.3.12	The manner in which I presented myself adhered to the SAICA code of conduct	3.53	0.56	3.58	0.50	0.66	0.10

5.3.13	I had to adapt to change and unexpected events	3.27	0.79	3.33	0.76	0.72	0.08
5.3.14	I had to take a stand to convince my fellow team and/or committee members of facts and theory application	2.93	0.79	2.87	0.76	0.76	0.07

**p value: <0.05, indicates a significant result, assuming a random sample*
^d value: Small effect: d=0.2; medium effect: d=0.5; large effect: d=0.8

The mean perception score for both these groups for all 14 variables were all averaging between 3 (or close to 3, representing 'Quite a bit') and 4 (representing 'A great deal'). Thus, the majority of participants and committee members indicated that they had to apply all the pervasive skills (indirectly referred to in variables 5.3.1 to 5.3.14).

On comparing the perceptions of the participants with the committee members, two significant differences in the mean scores (variables 5.3.1 and 5.3.2) were noted where the p values were both smaller than 0.05 (Pallant, 2007). Also, the effect sizes (d values) of the first two variables were 0.59 and 0.47 respectively, indicating a medium to large statistical significant effect in practice (Ellis and Steyn, 2003).

The first significant difference (variable 5.3.1) pertains to the committee members' opinion that they had learned more from the way that participants and fellow committee members interpreted different concepts than the participants had. This finding could be ascribed to the fact that the intervention provided a two-folded opportunity for committee members to learn from peers. The first opportunity was during the planning stage of the intervention. By means of brainstorming and sharing ideas on the tax activities, members were exposed to the way that peers interpreted tax concepts. Secondly, during the intervention itself, committee members had the opportunity to observe the way in which each team visiting their station interpreted information to solve problems and complete the activities. This could be linked to the following pervasive skills: communication (verbal and listen), teamwork, critical thinking, strategic thinking, leadership and professionalism.

The second significant difference (variable 5.3.2) relates to committee members indicating that they had to deal with different personalities, backgrounds and cultures to a greater extent than the participants had to. This finding could be motivated by the fact that committee members had been required to work and interact more closely when planning the intervention. Other than informal planning of team dress, team name and war cry to be performed on the day of the intervention, the participants were not necessarily required to

interact with one another before the intervention. For this reason, the committee members had the greater opportunity to develop general interpersonal skills which include elements of the following pervasive skills: teamwork, professionalism, ethical awareness, and communication (listen, verbal and writing). Another reason supporting the higher score for committee members is because they had the opportunity to interact on a personal level not only with other members, but also with all the participants who visited their stations, the organising lecturer (author), and the staff from the employer companies assisting at the stations. The profile of the study population (table 5.2) also indicates that the cultural composition of the committee was more diverse in comparison to the homogeneous group of participants, which could also have contributed to this significant difference.

5.6.3 The most and least prominent pervasive skills in the tax intervention

To answer the second research question, focus group interviews were held. Interviewees were shown a list of the 12 pervasive skills drawn from the Competency Framework and requested to discuss which of these skills had been most prominent, least prominent or totally lacking in the intervention. Interviewees were also required to motivate their responses by providing examples of their experiences. For comparison, the questionnaire for the staff of employer companies contained an open-ended question to gauge their perceptions on the pervasive skills that were prominent in the intervention. The summarised results are shown in table 5.4.

Table 5.4: Prominent pervasive skills in the tax intervention

	Students: Focus group interviewees N=46		Staff from employer companies: Questionnaire N=23	
Prominent pervasive skills	**Frequency**	**%***	**Frequency**	**%#**
Teamwork	12	26.1	17	73.9
Communication (listening)	12	26.1	8	34.8
Problem-solving	10	21.7	3	13.0
Communication (verbal)	9	20.1	4	17.4
Influencing others	6	13.0	1	4.3
Strategic thinking (strategy)	5	10.9	-	-
Time management	3	6.5	4	17.4
Critical thinking	3	6.5	2	8.8
Professionalism	2	4.3	1	4.3
Leadership	1	2.2	2	8.8
Ethical awareness	**1**	**2.2**	**-**	**-**

**Number of instances mentioned (frequency) divided by the number of interviewees*

#*Number of instances mentioned (frequency) divided by the number of completed questionnaires*

(Respondents were allowed to indicate more than one type of pervasive skill; thus, the total exceeds 100%.)

From table 5.4 it is evident that teamwork was perceived by both interviewees and staff from employer companies to be the most prominent skill of the intervention. This corresponds with the findings in table 5.5 where participants, committee members and employer companies all indicated that 'teamwork skills development' is the greatest perceived benefit of the intervention. Interestingly, although the order of frequency differs, the top four skills identified by the two groups correspond, being: (1) Teamwork; (2) Communication (listening); (3) Problem-solving; and (4) Communication (verbal) indicated by interviewees, and (1) Teamwork; (2) Communication (listening); (3) Communication (verbal) and Time management; and (4) Problem-solving, indicated by staff from employer companies.

Eleven and 9 out of the 12 pervasive skills required by the Competency Framework were indicated respectively by interviewees and staff from employer companies to be prominent in this intervention. This proves that the intervention was successful in incorporating and exposing students to a comprehensive range of the pervasive skills set.

Some of the noteworthy comments by interviewees, supporting the results in table 5.4, on the four prominent pervasive skills are quoted below:

Teamwork:

Definitely teamwork. There was no chance for a single person to perform an activity totally on its own. And we all like continuously chipped in like 'look here, look here' and we were like operating as a team the whole time.

Communication (listening and verbal):

I think it's also where the communication, listening and verbal, came in because you had to listen, but you should also be able to say why you say certain things. And I think if you cannot listen, that's maybe why so many of the teams were fighting, because there were people who simply could not listen and just thought that they were right all the time.

Problem-solving:

There were many problems that had to be solved. It was not possible to just sit and to make the problem your own. You had to like discuss it amongst each other and you had to listen to other people to hear how they saw the problem.

Although the average perception of participants were that all 12 pervasive skills were present in the intervention in some or other way, the four pervasive skills that were perceived to be the least prominent were: (1) Communication (writing); (2) Professionalism; (3) Ethical awareness; and (4) Leadership. Some of the noteworthy comments by interviewees are quoted below:

Professionalism:

I think professionalism, since it was actually in a funny environment. You had to work quickly, but without being rude.

And I also think we have not really registered, okay, this is people from like big companies that we are working with, and now we actually have to act professionally. We just wanted to complete the tasks so that we can move on.

Ethical awareness:

I think the ethical awareness did not really feature, because I think it is within us. It is part of our profession, and actually you just don't want to cheat.

Leadership:

I think that leadership was not necessarily something that was there for everybody. I think it would be like there for one or two persons in the group.

5.6.4 Greatest perceived benefit of the tax intervention

To answer the third research question, the respondents from all three groups were required to indicate the greatest benefit of the tax intervention. This was asked as a separate open-ended question. Benefits listed were summarised and similar answers were categorised into themes, of which the results are indicated in table 5.5.

Table 5.5: Greatest perceived benefit of the tax intervention

Benefit themes	Participants % (N= 71)	Committee members % (N=24)	Employers % (N=23)
Teamwork skills development	33.8	25.0	56.5
Learning by having fun	23.9	16.7	17.4
Better understanding of tax theory and tax concepts due to practical application	19.7	12.5	8.7
Communication skills development	8.5	4.2	-
Development of social skills/ relationship building/interpersonal skills	8.5	29.2	-
New way of learning	2.8	20.8	4.3
Problem-solving skills development	2.8	-	8.7
Time management skills development	1.4	4.2	4.3
Critical thinking skills development	1.4	8.3	4.3

(Some respondents indicated more than one greatest perceived benefit; thus, the total exceeds 100%.)

All three groups mentioned teamwork skills development as the greatest benefit of the intervention. Apart from pervasive skills development, it is also important to highlight that the intervention was perceived to be largely beneficial in developing technical (hard) skills, such as obtaining a better understanding of tax theory and tax concepts due to practical application. Other benefits reported only by the participant group were to learn in a relaxed environment, to receive rewards (prizes) for participation and to have the opportunity to have fun and a break from normal academic work.

5.6.5 Constraints arising from the tax intervention

Table 5.6 summarises the codes identified from the open-ended question to all three groups on the possible constraints or negative aspects of the intervention.

Table 5.6: Main perceived constraints of the tax intervention

Constraint themes	Participants % (N=71)	Committee members % (N=24)	Employers % (N=23)
Physical aspect/fitness level	18.3	8.3	8.7
Time management	11.3	8.3	17.4
Group/team sizes	9.9	-	8.7
Competence level of committee	9.9	-	-
Competence level of participants	7.0	-	4.3
Limited space for participation	5.6	20.8	-
Other	5.6	25.0	13.0

Although also indicated by the committee members and the employers, it was the participants who felt that the physical aspect of the intervention was the main constraint. As the intervention took on the form of a race against time, teams were required to move between the various stations as fast as possible, which required running. Some participants indicated that they struggled to keep up, that they were tired and that they realised how unfit they were. Other participants expressed irritation with team members who slowed down their team. In the focus group interviews, participants indicated that this taught them to be more patient and accommodating towards team members, which contributed to the development of teamwork and leadership skills when unfit participants had to be motivated.

Negative aspects relating to time management raised by employers were that teams were too rushed and too focused on winning, which resulted in their missing important

interpretations of the information and prohibited their full comprehension and understanding of concepts. Participants indicated that they found time management challenging during the intervention because they did not know where they were tracking in comparison to other teams. In some cases, certain teams moved too fast, resulting in bottle-necking at stations. Committee members perceived the intervention to be too time consuming. This could be due to the fact that committee members, unlike participants, were not only involved during the intervention itself, but also during the preparation of the intervention.

Concerns raised by participants in respect of the competence level of the committee included factors such as: *committee members were not always aware of answers to activities*; *instructions at certain stations were not clear* and *questions were not always asked clearly and this wasted time*. With regard to knowledge level of participants, the participants themselves indicated the following aspects that they experienced negatively: *the knowledge level of their team members; their struggle to apply knowledge to practice; and their inability to be effective team players*.

Committee members experienced limited participation space as a significant constraint, and some indicated that they acted on the committee only because they still wanted to be part of the intervention after applying too late to qualify as participants. In contrast, both participants and employers mentioned that the team sizes were too big, allowing for certain team members to not actively participate, without being noticed.

5.6.6 Appropriateness of the tax intervention for developing pervasive skills

Respondents from all three groups were required to describe the tax intervention in one word. Table 5.7 contains a frequency distribution from the qualitative summary and indicates that the vast majority of respondents (all above 90%) from all three groups described the intervention with positive words. The three words that were used the most in each group were ‘fun,’ ‘amazing and ‘awesome’. Other positive words used in at least two of the three groups and that were repeated more than once were ‘brilliant,’ ‘creative,’ ‘enjoyable,’ ‘exciting,’ ‘fantastic,’ ‘incredible’ and ‘innovative’. Only three respondents from the group of participants described the tax intervention negatively, namely as ‘average,’ ‘terrible’ and ‘tiring’. Words used by respondents that supported the intervention’s ability to contribute to personal attributes and pervasive skills development included ‘challenging,’ ‘fast,’ ‘interactive,’ ‘teamwork’ and ‘uplifting’. The innovative nature of the intervention is supported by words such as ‘adventure,’ ‘creative,’ ‘exceptional’, ‘experience,’ ‘extraordinary,’ ‘innovative,’ ‘unforgettable’ and ‘unique’.

Table 5.7: Frequency distribution of describing the tax intervention in one word

	Participants % (N=71)	Committee members % (N=24)	Employers % (N=23)
Positive word descriptions	91.6	95.8	91.3
Negative word descriptions	4.2	-	-
No response	4.2	4.2	8.7
Total	100	100	100

Table 5.8 contains an analysis of variance test between the three groups' perceptions as to the intervention's effectiveness as teaching method to develop pervasive skills in students. The ANOVA resulted in a significant difference in the mean scores for the three groups, as the p value is 0.02 (which is below 0.05). The mean score for the committee members and the staff from employer companies were closer to 4 (representing 'Strongly agree'), while the mean score for participants were closer to 3 (representing 'Agree'). This difference might be attributable to the fact that committee members were forced to develop various pervasive skills because they were compulsory for planning, organising and executing the intervention. Participants, on the other hand, could have participated with a pre-determined attitude of not being interested in some of the activities. The latter statement is summarised in the following response from a participant during the focus group interviews:

> *I certainly think the Amazing Tax Race provides the opportunity to apply all those skills, limited to the extent to which you expose yourself to it. I mean, you will decide how many times you want to express your opinion. You will choose in what sense you want to act professionally. So it definitely creates the opportunity to apply all that stuff, but it depends on you how much you want to engage to apply, learn and develop those skills.*

Table 5.8: Comparison of the overall appropriateness of the tax intervention for developing pervasive skills

Variable	Participants (N=71) Mean (1–4)	Std. dev.	Committee members (N=24) Mean (1–4)	Std. dev.	Employers (N=23) Mean (1–4)	Std. dev.	*p* value*
Do you think the tax intervention is an effective teaching method of exposing students to the development of pervasive skills?	3.48	0.58	3.75	0.44	3.77	0.43	0.02

**p value: <0.05, indicates a significant result, assuming a random sample*

Table 5.9 indicates the results on whether the students, either in the role as participants or committee members, would recommend the tax intervention and similar interventions to other students as a method to develop pervasive skills.

Table 5.9: T-test comparison on overall recommendation of the tax intervention between participants and committee members

	Variable	Participants (N=71) Mean (1–4)	Std. dev.	Committee members (N=24) Mean (1–4)	Std. dev.	*p value**	Effect size (*d value*)^
5.9.1	I would recommend participation in/acting on the committee of the tax intervention to other students	3.85	0.47	3.67	0.48	0.12	0.37
5.9.2	I would recommend teaching methods similar to the tax intervention to be hosted in order to develop my pervasive skills	3.61	0.64	3.75	0.53	0.28	0.22

**p value: <0.05, indicates a significant result, assuming a random sample*
^d value: Small effect: d=0.2; medium effect: d=0.5; large effect: d=0.8

Although no significant differences were reported, the mean scores for participants and committee members were both close to 4 (representing 'Strongly agree'), serving as proof

that the tax intervention was indeed perceived to be useful in developing pervasive skills in accounting students.

5.7 Conclusion and recommendations

The objective of this paper was to investigate the usefulness of a tax intervention for developing pervasive skills in accounting students. Both the quantitative and qualitative findings indicated that the tax intervention was perceived to be successful in encouraging accounting students to apply the broader spectrum of pervasive skills required by SAICA's Competency Framework.

Overall, the tax intervention was described positively and students agreed that it was an effective teaching method for developing pervasive skills. Students indicated that they would recommend the tax intervention to other students and that similar teaching methods should be applied to develop pervasive skills. Based on the findings, it is recommended that accounting educators attempt to incorporate a broader set of pervasive skills into their accounting modules by applying innovative interventions similar to the one in this paper. This could be achieved by combining various experiential learning methods into one single intervention.

In conclusion, this paper adds to new insights into the perceptions and experiences of students and accounting, auditing and advisory firms regarding a tax-related intervention aimed at pervasive skills development in South Africa. It is suggested that, apart from evaluating the usefulness of similar tax interventions for developing pervasive skills, future studies should focus on the actual benefit of these interventions and aim to develop reliable assessment criteria and instruments to measure the effectiveness of pervasive skills development. To enhance the face validity of similar studies of this nature in future it is recommended that quasi experiment testing could be applied. Also, the impact of different personality types and learning styles could be evaluated. It would also be interesting to investigate another perspective on the tax intervention, namely the perceptions of students and accounting educators pertaining to the design variables of the tax intervention that either contributes to or strain pervasive skills development.

5.8 Limitations of the study

The research was subject to the following limitations:

- the study tested the perceptions of the usefulness of the tax intervention to develop pervasive skills and not the actual benefit derived, and identified the perceived main constraints of the tax intervention without considering strategies to overcome these constraints;
- the results could be impacted by the fact that students have different personality types, learning styles and learning preferences (Boyce *et al*., 2001; Visser *et al*., 2006);
- the effect of prior exposure to pervasive skills development, either by way of previous work experience or by way of exposure to similar teaching methods, was not tested or analysed;
- the possibility of sampling bias could exist due to the fact that students volunteered to participate in the research which could limit the generalisation of the findings; and
- owing to the nature of the intervention, and as part of the on-going action research evaluation process, only a limited number of students were allowed to participate in the intervention or to act on the intervention's organising committee. This intervention was also conducted as an extra-curricular activity and did not have an impact on the normal teaching-learning assessment of the module.

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CHAPTER 6

NATIONAL HOSTED TAX INTERVENTION: SOUTH AFRICAN STUDENTS' PERCEPTIONS OF ITS USEFULLNESS TO DEVELOP PERVASIVE SKILLS

Chapter 6 (Article 3)

National hosted tax intervention: South African students' perceptions of its usefulness to develop pervasive skills

The reader is requested to take note of the following:

- The article has been **submitted for publication** in the *Journal of Economic and Financial Sciences*, an accredited academic journal.
- The proof of submission of the article at the journal is included in **annexure C1**.
- The article was written in line with the journal's submission guidelines, which are included in **annexure C2**.

Abstract

The paper aims to determine the usefulness of a nationally hosted tax intervention targeted at pervasive skills development and presented to tax students from various South African universities. The intervention was designed to provide students with the opportunity to develop pervasive skills and to determine the intervention's success in encouraging students to apply the pervasive skills required by professional bodies and employers. The paper is unique in that it evaluates the usefulness of a one-of-a-kind tax-related intervention derived from a wide-ranging spectrum of South African tax students' perceptions. Action research was conducted where quantitative data was gathered using questionnaires to determine the usefulness of the tax intervention in exposing students to the development of pervasive skills and encouraging them to apply these. Overall, tax students recommended the intervention as an effective teaching method that could positively contribute to pervasive skills development.

Keywords:

Accounting education; action research; perceptions; pervasive skills; skills development; South Africa; tax intervention; tax students

6.1 Introduction

On a global scale professional accounting bodies are moving away from a purely knowledge-based accreditation process for new members, to include specific additional skills and competencies to be acquired before registering as a professional (Boritz & Carnaghan, 2003; Steenkamp, 2012:482; Strauss-Keevy, 2014). Barac (2009) found that South African training officers place much emphasis on the pervasive skills set of entry-level trainee accountants. Pervasive skills enhance graduate work-readiness (Jackson, Sibson & Riebe, 2013:7) and include the cognitive and soft skills required by graduates to apply their discipline-specific knowledge in the workplace (Jackson & Chapman, 2012:95). Bennett (2002) indicates that higher education institutions which are serious about wanting their graduates to be more employable should make a careful study of current trends in employers' demands for particular personal skills and then develop these skills in undergraduate programmes. It is clear that both employers and professional bodies require academic providers to not only teach technical skills, but also to incorporate and expose students to the development of pervasive skills and qualities (also generally referred to in the literature as 'generic' or 'soft' skills) at the higher education level. Furthermore, students regard the development of pervasive skills as a crucial component of their higher education training to better prepare them for the formal workplace (Ramlall & Ramlall, 2014). For most interventions explored and evaluated within accounting education, it was found that pervasive skills development is not necessarily the main focus but rather a by-product of such research studies. Additionally, pervasive skills interventions within the South African context have mainly been developed and tested within the fields of financial accounting (Stainbank, 2003, 2005 & 2009; Van der Merwe, 2013), management accounting (Rudman & Kruger-van Renen, 2014), and auditing (Steenkamp & Rudman, 2007; Rudman & Terblanche, 2011; De Villiers & Fouché, 2015), and none within the field of taxation. The latter finding is further supported by that of Strauss-Keevy and Maré (2015a) who reported that South African accounting students indicated that, out of all their accounting-related modules, it was taxation that made the poorest contribution to developing their pervasive skills at the higher education level.

Very few South African universities provide a purely tax-focused mainstream qualification. Most South African tax students are enrolled for mainly-accounting focused degree programmes to obtain designations such as: CA(SA); AGA(SA); SAIPA; CIMA; CGMA; or ACCA, where taxation either constitutes a major subject or forms a core module underpinning such a degree programme. Therefore, because the main aim of tax students studying towards these accounting degree programmes is eventually to register with and

become members of local professional bodies such as the *South African Institute of Chartered Accountants* (SAICA), the *South African Institute of Tax Professionals* (SAIT), and the *South African Institute of Professional Accountants* (SAIPA), as well as international professional bodies such as the *Chartered Institute of Management Accountants* (CIMA), the *Chartered Global Management Accountant* (CGMA), and the *Association of Chartered Certified Accountants* (ACCA), it is essential for educators and trainers of tax students to be sensitised to the pervasive skills and qualities required by such professional bodies (Strauss-Keevy, 2014, 2015b). Barac and Du Plessis (2014) add to this argument by suggesting greater integration of pervasive skills into course majors.

The methods put forward for integrating and balancing the pervasive skills development expectations of professional bodies, employers and students within the accounting education environment at higher education level pose problems for academic providers and educators (De Villiers, 2010) due to present challenges such as technical syllabus overloads (Medlin, Graves & McGowan, 2003; Paisey & Paisey, 2007; Milner & Hill, 2008) limited contact time (SAICA, 2014), and large class sizes (Wessels & Steenkamp, 2009). There is a need for innovative interventions to be developed and applied outside of the normal classroom environment that will expose students to pervasive skills and encourage them to apply these holistically (Ballantine & McCourt Larres, 2009; Kermis & Kermis, 2010:5; Kirstein & Plant, 2011).

6.2 Research objective and contribution

The primary objective of this research paper was to evaluate the usefulness of a tax-related intervention aimed at pervasive skills development hosted on a national level (within two regions) where tax students from various universities across South Africa participated during the 2015 Tax Student Conferences held by the South African Institute of Tax Professionals (SAIT). The evaluation is based on student perceptions and the research was conducted for purposes of answering the following research questions:

- Which pervasive skills did tax students apply during participation in the tax intervention?
- Which pervasive skills did the tax intervention expose tax students to?
- What were the main perceived benefits derived from participation in the tax intervention?
- What were the main perceived constraints of the tax intervention?

This study is unique in two ways. First, a search of the literature revealed that no such evaluations had already been conducted which were aimed at the pervasive skills

development of tax students from different South African universities and who are accredited with various professional bodies including SAICA, SAIPA, SAIT, CIMA, CGMA and ACCA. Secondly, the intervention itself is regarded as new and innovative and is the first tax-related intervention of its kind to be hosted on a national level in South Africa. The research contributes to the body of knowledge on pervasive skills development as part of higher education accounting curricula, and more specifically the field of taxation. The results serve as a valuable platform for accounting educators and trainers, including professional bodies and employers, in the design of innovative interventions to enhance and contribute to pervasive skills development.

The remainder of the paper is structured as follows: Firstly, a literature review is conducted to clarify the pervasive skills that South African tax students need to develop and be exposed to as required by both local and international professional accounting bodies responsible for accrediting the accounting degree programmes that tax students are enrolled in. Hereafter, a description of the development of the nationally hosted tax intervention is provided, followed by an explanation of the research design and methodology. Finally, empirical findings on the tax intervention's success in exposing students to pervasive skills and encouraging them to apply these are reported and discussed, followed by a summary of the key findings, conclusions and recommendations, as well as suggestions for further research.

6.3 Literature review

6.3.1 Pervasive skills required by local and international professional accounting bodies

Professional bodies design competency frameworks to assist their upcoming and existing members, their employers as well as academic providers to understand the desired knowledge, skills and competencies required for registration with and to obtain membership with such bodies. Competency frameworks enable academic educators to better prepare students to become well-grounded professionals and inform employers on membership requirements of their employees at such bodies.

Competencies are regarded as the bridge between education and employment (CGMA, 2014a:5). The competency frameworks of all the professional bodies inspected support the concept of life-long learning as well as continuous professional development (CGMA, 2014b; SAICA, 2014).

6.3.1.1 SAICA

Apart from the Chartered Accountancy (CA(SA)) designation, SAICA also provides the AGA(SA) designation requiring a high level of accounting skill as well as a high level of ethics and governance (*Coates,* 2015). SAICA's Competency Framework identifies pervasive skills in three categories: (i) *Ethical Behaviour* and *Professionalism*, (ii) *Personal Attributes*, and (iii) *Professional Skills* (SAICA, 2014) as described in table 6.1.

6.3.1.2 SAIT and SAIPA

Neither SAIT nor SAIPA have a public available competency framework detailing the pervasive skills and competencies required from current and prospective members.

6.3.1.3 CIMA

CIMA indicates that in addition to candidates' clear understanding of an organisation, its business model, its strategic context and its competitive position, they also need to demonstrate (i) *People skills* and (ii) *Leadership skills* (CIMA, 2015), as described in table 6.1.

6.3.1.4 CGMA

The CGMA designation, jointly created by two international accounting bodies, namely CIMA and AICPA (Association of International Certified Professional Accountants), developed a competency framework which requires four major competencies: (i) *Technical skills* (the ability to apply accounting and finance skills); (ii) *Business skills*; (iii) *Leadership skills* (to lead within an organisation); and (iv) *People skills* (the ability to influence people) (CGMA, 2014b). The first two competencies resort mainly under hard (technical) skills, while the last two competencies are classified as soft (pervasive) skills. The CGMA framework (2014b) is underpinned by objectivity, integrity, and ethical behaviour, and includes a commitment to continuously acquire new skills and knowledge. The two competencies required by the CGMA (2014a:3-4) and which resort under the soft (pervasive) skills, are *People Skills* and *Leadership Skills* as described in table 6.1. These are also the same two competencies on which the CIMA Competency Framework is based (CIMA, 2015).

6.3.1.5 ACCA

In terms of the *ACCA P6 Advanced Taxation South Africa (ZAF) syllabus and study guide* (2015), ACCA's required competencies are described on three cognitive levels comprising:

(i) the *Knowledge module*; (ii) the *Skills module*; and (iii) the *Professional level*. The pervasive skills resort under the *Skills module* and are described in table 6.1.

Table 6.1: Comparison of professional body pervasive skills requirements

Professional body	Classification of pervasive skills	Description of each category of pervasive skills
SAICA (see 6.3.1.1)	*Ethical behaviour and professionalism*	Protecting public interests, acting with honesty and integrity, exercising due care, being objective and independent, avoiding conflict of interest, protecting the confidentiality of information, enhancing the profession's reputation and adhering to professional conduct.
	Personal attributes	Demonstrating self-management and leadership, taking initiative and showing competence, adding value in an innovative manner, managing change, treating others in a professional manner, understanding the national and international environment, being a life-long learner, being a team member and demonstrating time management.
	Professional skills	Critical thinking, problem solving, effective communication, supervising and managing, understanding the impact of information technology and considering basic legal concepts (SAICA, 2014).
CIMA and CGMA (see 6.3.1.3 and 6.3.1.4)	*People skills*	The ability to influence, negotiate, decision-making, communication as well as collaboration and partnering skills. Communication entails the ability to influence the decisions, actions and behaviours of decision-makers and others throughout an organisation and its stakeholders.
	Leadership skills	Team building, coaching and mentoring, driving performance, motivating and inspiring, and change management. Leadership is further defined on three levels: (i) *Peer leadership* (involving leading peers in and out of the finance function); (ii) *Functional leadership* (ensuring that the finance function delivers its objectives to the organisation; and (iii) *Strategic leadership* (to define, formulate and oversee the

		implementation of planned strategy) (CGMA, 2014a:3-4; CIMA, 2015).
ACCA (see 6.3.1.5)	*Skills module*	Candidates' knowledge of the tax system is extended by the required ability to apply tax knowledge to the issues commonly encountered by individuals and businesses. Candidates should have the ability to interpret and analyse information and communicate the outcomes in a manner appropriate to its intended audience (ACCA, 2015:5).

Source: Authors' compilation

Conclusion regarding pervasive skills in the competency frameworks

Based on the review of pervasive skills and competencies required by local professional bodies, it is SAICA's Competency Framework which is considered to be the most developed, detailed and specific on pervasive skills and qualities. Therefore, SAICA is regarded to be the leading professional body in terms of pervasive skills development in South Africa. Consequently, this paper uses the pervasive skills and qualities required and described in terms of the SAICA Competency Framework to determine the usefulness of the tax intervention in terms of its perceived ability to expose tax students to the development and application of such pervasive skills, including *communication*, *problem solving*, *team work*, *time management*, *leadership*, *professionalism*, *ethical awareness*, *strategy*, *critical thinking* and *influencing others*.

6.4 Description and development of the tax intervention

The first author approached the professional body for tax professionals in South Africa, namely the South African Institute of Tax Professionals (SAIT), to present a tax-related intervention to students attending its annual tax student conference hosted in two geographical regions (northern and southern) of South Africa. The aim of these conferences was to inform young and upcoming tax professionals about the career opportunities in tax, the SAIT Learnership Programme (comprising three components: knowledge, practical skills and workplace experience) and to network with the country's top tax minds and employers (TaxStudents, 2015). As pervasive skills development is regarded an important competency required by professional bodies and industry (as discussed under the *Introduction* section), the tax intervention aims to provide tax students with the opportunity to develop pervasive skills and to encourage tax students to apply these pervasive skills in an innovative, fun and real tax-related environment.

The tax intervention originated from "*The Amazing Tax Race*" concept which was initially established by the first author at his employer university where, since 2012 it is hosted annually to third-year tax students in order to develop their pervasive skills. The first author made adjustments to the above-mentioned intervention's format to enable it to be presented nationally between participants from various universities. The first author was responsible for the overall planning, structure and execution of the adjusted version of the tax intervention under review in this paper, known as the national "*Tax Amazing Race*" (henceforth referred to as 'the tax intervention'), in conjunction with SAIT and various tax-related employers (including big four South African accounting, auditing and advisory companies) who developed and presented the tax-related activities to participating teams. Although the integration of tax knowledge in these activities is important, the overall focus remains on the exposure to and development of pervasive skills and qualities. The first two national "*Tax Amazing Races*" were held in 2014. As part of the action research process (Mills, 2011; Creswell, 2012), the first author recorded personal field notes on effective and less effective elements of the overall planning, structure and execution of the tax intervention in order to make suitable adjustments for its repeat in 2015.

The tax intervention constitutes a race against time where tax students compete against each other in a university team context and where they participate in various tax-related activities hosted at several stations in a theme park (located in either the northern or southern region of South Africa). The intervention is unique in that it combines the application of technical tax knowledge with the development of pervasive skills and competencies through innovative tax-related games and activities incorporated with theme park rides. Initially, participating teams each received a theme park map and a clue leading them, on a rotation basis, to the first station of the race where a tax-related game or activity had to be completed. Clue cards handed out at each leg of the race either comprised a tax-related crossword puzzle, a tax riddle or a tax calculation that needed to be performed. Answers to these revealed a specific point of interest or location on the map which in turn directed participants to the next leg of the race. In order to decipher clues and to complete activities successfully, teams had to apply their tax knowledge by demonstrating team work, leadership and effective communication. This requires strategic and critical thinking while acting ethically and professionally, all under time constraints.

The race in the northern region consisted of seven legs (stations) and five theme park rides, while the race in the southern region comprised six legs and four theme park rides that participating teams needed to visit and complete. Each leg was manned by a specific employer company where their uniquely developed tax-related activity was presented. Six of

the seven tax-related activities presented in the northern region corresponded to and were repeated as the six main tax-related activities presented in the southern region. Because a greater number of teams entered in the northern region, the northern region race included an extra tax-related activity and theme park ride as teams needed to move between the various legs on a rotation basis. Each race took between two and a half and three hours to complete.

6.5 Research design and method

6.5.1 Overall research design and method

An action research methodology was adopted as this is seen as the best approach for teacher-researchers to solve practical problems by choosing the focus of the research (Gay, Mills & Airasian, 2009) and to determine the effectiveness of a specific teaching intervention in a particular setting (Drew, Hardman & Hosp, 2008:12). The action research process (Mills, 2011; Creswell, 2012:589-590) involves seeking solutions for identified problems without concern for generalising the findings and focusing on participants' experience of reality (Daff, 2013:568). Tax students' perceptions were probed to determine the usefulness of a nationally hosted, one-of-a-kind tax intervention aimed at pervasive skills development. Students' perceptions are regarded as important and quality sources of information, because students know how students think and feel, they experience the intervention first-hand and hence are able to clearly describe its benefits (Steenkamp, Baard & Frick, 2009). A quantitative research method was applied through the use of a structured questionnaire to collect data from both regions. Datasets were supplemented by the author's field notes and observations as an active participant in the action research process, i.e. notes on the design, planning and delivery of the intervention, as well as his reflections on the process and adjustments he felt needed to be made in the repetition the following year. Ethical clearance was obtained from the professional body (SAIT) as the research was conducted on a tax intervention presented as part of the formal programme of its annual national Tax Student Conferences.

6.5.2 The questionnaire

A questionnaire that was largely based on a similar one used by Fouché and Visser (2008) to assess student perceptions of an accounting educational intervention, was developed to survey tax students' perceptions of participation in the national tax intervention. The questionnaire development was supported by a review of relevant literature on teaching interventions in accounting education aimed at pervasive skills development, the competency frameworks of various professional accounting bodies, and literature on general

questionnaire design. A pre-test pilot study was conducted in 2014 to ensure the questionnaire's reliability and validity (Smith, 2011:122). Small amendments were made to the 2014 questionnaire in order to formally survey the intervention in 2015. To further ensure the validity, comprehensiveness and unbiased nature of the questionnaire, it was reviewed by three independent accounting education researchers and one independent statistical consultant.

The questionnaire, which comprised eight sections, captured the following information: demographic and profile detail (Parts A and B); application of pervasive skills (Part C); exposure to pervasive skills (Part D); benefits and constraints of the intervention (Part E); as well as personal meaning gained, overall experience and participant recommendations (Parts F, G and H). The questionnaires were comprised of both open-ended and Likert-type scale questions. As Berk (2014) recommends an even-numbered scale to measure teaching effectiveness, all Likert-type questions were applied on a four-point rating scale, where 1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree. The same questionnaire was used to survey tax students across the board.

6.5.3 Data collection, capturing and analysis

After the tax intervention was conducted in each region, hard copies of the questionnaire were distributed to the various universities where a tax lecturer at each university handed out and collected completed questionnaires from the participating students. The completion of all questionnaires was entirely voluntary and completely anonymous.

Data was captured and analysed by means of SPSS (SPSS Inc., release 22.0.0, 2015). Principal factor analysis was performed, using Oblimin rotation with Kaiser normalisation on the 20 items under "application of pervasive skills" and the 10 items under "exposure to pervasive skills", to explain the variance-covariance structure of variable set through a linear combination of these variables. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to determine whether the covariance matrix was suitable for factor analysis. Only factors with eigenvalues larger than one were considered in terms of Kaiser's criteria for extraction. Items with factor loadings exceeding 0.3 were considered to be contributing to a factor, while loadings smaller than 0.3 were considered to have non-significant correlation with the factor (Steyn, 2000; Pallant, 2013). Items with factor loadings above 0.3 that cross-loaded on two factors were categorised under the factor with optimal interpretability. Cronbach's alpha-coefficient was computed as a reliability coefficient to determine the internal consistency of each factor. All factors with a reliability coefficient

above 0.6 were considered acceptable for this study. Furthermore, the inter-item correlation was used as a further measure of reliability that should be between 0.15 and 0.55 (Clark & Watson, 1995).

Data from open-ended questions were captured and summarised in similar categories using Microsoft Excel for further analysis. Themes emerged from the analysis and theory-building was enabled through the identification and conceptualisation of the relationships between data.

6.6 Empirical research findings

This section describes the respondent profiles (participants in the tax intervention), and discusses the results of the exploratory factor analysis and t-tests (application and exposure to pervasive skills) together with the benefits and constraints of the tax intervention, as well as participants' overall experience and recommendations in respect of the tax intervention. The rationale for separate reporting on the two geographic regions is to validate the findings through the subsequent repetition of the intervention from one region to the next, as well as in aggregate, as this is synonymous with the repetitive nature of action research. This approach was followed to ensure the rigour of the research and to enhance its credibility and relevance.

6.6.1 Respondent profile

The target population consisted of a total of 440 tax students (330 in the northern region; 110 in the southern region) from seven different universities across South Africa who had registered for the SAIT-hosted 2015 Tax Student Conferences. The overall sample population comprised a total of 218 tax students who participated in the tax intervention hosted as part of each conference (14 teams in the northern region, comprising 118 participants; and 11 teams in the southern region, comprising 100 participants). Universities were allowed to enter teams comprising a minimum of six and a maximum of 10 members per team. Four universities from the northern region and three universities from the southern region participated.

All tax students had a fair chance to participate in the intervention as entry was completely voluntary. Limited space was available and entrants qualified for participation via web-based registrations on a first-come-first-serve basis. Therefore, it could not be considered a random sample from the target population, but rather as an availability sample. From the total study

population, 164 completed questionnaires were received (response rate of 75%), of which 92 were received from the northern region (response rate of 78%) and 72 were received from the southern region (response rate of 72%).

Table 6.2: Number of respondents per university per region

University	Number of respondents per university	Northern region % N=92	Southern region % N=72	Overall % N=164
N1	28	30.4	-	17.1
N2	27	29.3	-	16.5
N3	27	29.3	-	16.5
N4	10	11.0	-	6.0
S1	30	-	41.7	18.3
S2	23	-	31.9	14.0
S3	19	-	26.4	11.6
Total	**164**	**100**	**100**	**100**

Source: Authors' compilation

Table 6.3: Demographic profile of the study population

Variable	Northern region % N=92	Southern region % N=72	Overall % N=164
Gender:			
Male	40.8	45.8	42.7
Female	59.8	54.2	57.3
Race/ethnic group:			
African/Black	55.4	37.5	47.5
Coloured/Brown	6.5	43.1	22.6
Indian/Asian	3.3	8.3	5.5
White	34.8	8.3	23.2
Other	-	2.8	1.2
Degree/Qualification registered for:			
BCom Chartered Accountancy (3rd year) [SAICA]	4.4	5.6	4.9
Hons BCom Chartered Accountancy / CTA [SAICA]	30.4	41.6	35.4
BCom Financial Accounting (3rd year) [SAIPA/CIMA]	2.2	1.4	1.8
Hons BCom Financial Accountancy [SAIPA/CIMA]	4.3	-	2.4
BCom Taxation [SAIT]	4.3	2.8	3.7
Hons BCom Taxation [SAIT]	44.6	11.1	29.8
Other (including second year and BCom LLB students)	9.8	37.5	22.0

Source: Authors' compilation

The respondent pool represented a wide range of tax students studying various accounting degree programmes accredited with a variety of professional bodies. The majority (65.2%) of the study population comprised honours-level students who had already been exposed to and passed undergraduate tax modules.

6.6.2 Application of pervasive skills

6.6.2.1 Results of the factor analysis

The two datasets from the interventions held in the northern and southern regions were merged and an exploratory factor analysis was performed on the combined dataset. The

factorability of the data was found to be suitable, with a KMO value of 0.85, i.e. exceeding the recommended value of 0.6. Furthermore, the Bartlett's Test of Sphericity (BTS) value of 0.00 indicated statistical significance as it was below the required $p<0.05$ (Pallant, 2013:190). With factor loadings being relatively high and the fact that all items loaded on a factor with a loading greater than 0.3, it became apparent that there was a strong correlation between the factors and their component items. Four factors were extracted (see table 6.3) from the factor analysis performed on the data relating to the 20 items resorting under the section '*during my participation in the tax intervention I had to do or use the following*'. These four factors were labelled as: *Leadership* (Factor 1); *Influencing others* (Factor 2); *Strategic and critical thinking* (Factor 3); and *Communication* (Factor 4). Cronbach's alpha-coefficients for all factors (except Factor 2) were between 0.67 and 0.80, confirming the reliability of the dataset (Field, 2005). Because factor 2 comprised only two items, its inter-item correlation (the second measure of reliability) constituted a stronger indicator of reliability and was computed as 0.38, falling within the acceptable range of 0.15 to 0.55 (Clark & Watson, 1995).

Table 6.4: Factor analysis (Application of pervasive skills)

Application factors and items	**1**	**2**	**3**	**4**
Factor 1: Leadership				
Taking lead (I directed my team on what to do)	0.784			
I had to motivate others	0.760			
Being a team player (contributing to the team's success)	0.740			
Thinking on my feet / Making quick decisions	0.520			
I had to function effectively within a group (team work)	0.430			
Being a listener (I had to listen to opinions of team members)	0.429			
I performed time management as it was a race against time	0.403			
I had to adapt to change and unexpected events	0.398			
I thought differently about academic concepts due to being forced to think creatively	0.345			
Factor 2: Influencing others				
Ability to persuade others (I had to take a stand to convince my team members of facts and theory application)		0.632		
I had to express my opinion/understanding of a concept		0.498		

Factor 3: Strategic and critical thinking				
I learned from the way team members interpreted concepts			0.307	
I had to motivate myself to stay involved and to participate			0.878	
I had to manage myself to contribute to success of my team			0.709	
I had to apply critical thinking skills to solve problems			0.433	
I had to apply theoretical concepts practically			0.348	
Factor 4: Communication				
I had to demonstrate my analytical ability by forming logical arguments and summarising information				0.750
I had to execute strategies for the task at hand				0.749
I acted in an ethical manner (keeping to the rules of the race)				0.712
I had to communicate my ideas and opinions to others				0.410
Total variance explained	***50%***			
Cronbach's alpha-coefficient	***0.80***	***0.55***	***0.67***	***0.69***
Inter-item correlation	***0.32***	***0.38***	***0.30***	***0.35***
Mean value	***3.36***	***3.28***	***3.27***	***3.38***

Source: Authors' compilation

Factor scores were calculated as the average of all items (underlying actions representing skills applied) contributing to a specific factor (specific pervasive skill) in order to interpret it on the original four-point Likert scale. Table 6.3 shows that *Communication* (Factor 4) demonstrated the highest mean value (3.38), thus representing the main pervasive skill that students had to apply during participation in the intervention, followed by *Leadership* (Factor 1; 3.36), *Influencing others* (Factor 2; 3.28) and *Strategic and critical thinking* (Factor 3; 3.27).

6.6.2.2 Results of the t-test (comparing skills application between the two regions)

On comparing the perceived application of pervasive skills between participants in the northern and southern regions (see table 6.5), significant differences were noted in the mean scores of all the variables where the p-values were smaller than 0.05 (Pallant, 2013:250). Furthermore, the effect sizes (d-values) of all the variables ranged from 0.5 (minimum) to 0.8

(maximum), indicating medium to large statistical significance in practice (Ellis & Steyn, 2003:3).

Table 6.5: T-test comparison of the application of pervasive skills during participation in the tax intervention per region

Variable	Northern region (N=92)		Southern region (N=72)			
	Mean (1-4)	Std Dev.	Mean (1-4)	Std Dev.	*p*-value*	Effect size (*d*-value)^
Leadership	3.46	0.37	3.22	0.37	0.00	0.65
Influencing others	3.39	0.52	3.14	0.48	0.00	0.48
Strategic & critical thinking	3.37	0.44	3.16	0.39	0.00	0.47
Communication	3.52	0.37	3.19	0.43	0.00	0.78

**p-value: <0.05, indicates a significant result, assuming a random sample*
^d-value: Small effect: d=0.2; medium effect: d=0.5; large effect: d=0.8
Source: Authors' compilation

6.6.3 Exposure to pervasive skills

6.6.3.1 Results of the factor analysis

Again the two datasets from both regions were combined and an exploratory factor analysis was performed. The factorability of the data was confirmed with a KMO value of 0.82 for the grouping (exceeding the minimum value of 0.6) and a BTS value of 0.00 (under the required p<0.05) (Pallant, 2013:190). Two factors were extracted (see table 6.6) in the exploratory factor analysis of 10 items (pervasive skills required by professional bodies) resorting under the section '*the intervention exposed me to the following pervasive skills*'. The two factors were labelled as: *Interpersonal skills* (Factor 1); and *Personal skills* (Factor 2). The data was considered to be reliable since the Cronbach's alpha-coefficient yielded a value of 0.77 for both the factors (Field, 2005), and an inter-item correlation of 0.6 (Factor 1) and 0.47 (Factor 2), both falling within the required range of 0.15 to 0.55 (Clark & Watson, 1995).

Table 6.6: Factor analysis (Exposure to pervasive skills)

Exposure factors and items	**1**	**2**
Factor 1:Interpersonal skills		
Leadership	0.841	
Professionalism	0.708	
Ethical awareness	0.640	
Strategy	0.635	
Critical thinking	0.560	
Influencing others	0.552	
Factor 2: Personal skills		
Team work		0.851
Problem solving		0.825
Communication (verbal and listening)		0.753
Time management		0.599
Total variance explained	***53%***	
Cronbach's alpha-coefficient	***0.77***	***0.77***
Inter-item correlation	***0.36***	***0.47***
Mean value	***3.42***	***3.62***

Source: Authors' compilation

'*Interpersonal skills*' are defined as the capacity to project oneself into the inner experience of another human being (Dean, 1984:130). The notion encapsulates skills contributing towards the achievement of a group dynamic. Skills resorting under Factor 1 ('*Interpersonal skills*') include taking lead, acting ethically and professionally, and demonstrating strategy by thinking critically and influencing others. '*Personal skills',* on the other hand, are described as communication skills, initiative, creativity, the capacity to solve problems (Stewart & Knowles, 2001) and also the ability to work well with others, to organise and self-motivation (DfEE, 1997:34). Items resorting under Factor 2 ('*Personal skills*') are the pervasive skills participants were exposed to and which they applied in conducting themselves. This skill comprised contributing as an individual team player (team work), solving problems, sharing personal ideas verbally and listening to others (effective communication), as well as successful time management. The average mean score for both the interpersonal skills (3.42) and the personal skills (3.62) was high and reached a value very close to 4 (representing 'Strongly agree'), serving as proof that the tax intervention was indeed perceived to be successful in exposing students to both the interpersonal and personal skills

(i.e. the pervasive skills) required by professional bodies as identified from the literature review (refer to section 6.3.1).

6.6.3.2 Results of t-test (comparing exposure to skills between the two regions)

On comparing the perceived exposure to pervasive skills between participants in the northern and southern regions (see table 6.7) a significant difference was only noted in the mean score of personal skills, where the p-value of 0.03 was below 0.05 (Pallant, 2013:250). However, the effect sizes (d-values) for both variables ranged between 0.2 (minimum) and 0.5 (maximum) indicating low to medium statistical significance in practice (Ellis & Steyn, 2003:3). Despite the latter, the mean scores in both regions were close to 4 (representing "Strongly agree"), indicating that the tax intervention was perceived as successful in both regions in its aim of exposing participants to all ten required pervasive skills as drawn from the review of professional body competency frameworks in section 6.3.1.

Table 6.7: T-test comparison of exposure to the required pervasive skills per region

Variable	Northern region (N=92)		Southern region (N=72)			
	Mean (1-4)	**Std Dev.**	**Mean (1-4)**	**Std Dev.**	***p*-value***	**Effect size (*d*-value)^**
Personal skills	3.49	0.41	3.68	0.37	0.03	0.34
Interpersonal skills	3.34	0.44	3.55	0.44	0.06	0.28

**p-value: <0.05, indicates a significant result, assuming a random sample*
^d-value: Small effect: d=0.2; medium effect: d=0.5; large effect: d=0.8
Source: Authors' compilation

6.6.4 Main perceived benefit of the tax intervention

To answer the third research question respondents were required to indicate the main perceived benefit that participation in the tax intervention might have had. This was asked as a separate, open-ended question. Benefits were summarised and similar answers were categorised into pervasive skills development benefit themes (as far as possible), of which the results are indicated in table 6.8.

Table 6.8: Main perceived benefit of the tax intervention

Benefit themes	Northern region % (N=92)	Southern region % (N=72)	Overall % (N=164)
Team work skills development	16.3	23.6	19.5
Learning by having fun	19.6	11.1	15.9
Obtaining a holistic view of the tax profession	6.5	15.2	10.4
Creates a network opportunity	9.8	8.3	9.1
Integrated learning opportunity combining technical and soft skills development in a tax-related environment	7.6	9.7	8.5
Development of social skills / interpersonal skills	7.6	9.7	8.5
Better understanding of tax theory due to practical application	9.8	2.8	6.7
Personal attributes: enhance self-confidence	7.6	2.8	5.5
New way of learning	6.5	4.2	5.5
Time management skills development	6.5	1.4	4.3
Communication skills development	1.1	4.2	2.4

(Some respondents indicated more than one/ no benefit; thus, the totals could exceed/be below 100%)
Source: Authors' compilation

Overall, the majority of participants perceived team work skills development to be the tax intervention's greatest benefit. Although the main focus of this paper is on pervasive (soft) skills development, it is clear from the results that participants indicated that the tax intervention was also beneficial in that it was perceived to be a fun way of learning and a method of obtaining a holistic view and a better understanding of what the tax profession entails. Therefore, the latter also positively contributes to the development of technical (hard) skills where students obtain a better understanding of tax theory and concepts due to being required to apply their tax knowledge practically.

6.6.5 Main perceived constraints of the tax intervention

Table 6.9 contains the summarised results of an open-ended question posed to participants on the possible constraints or negative aspects of the tax intervention.

Table 6.9: Main perceived constraints of the tax intervention

Constraint themes	Northern region % (N=92)	Southern region % (N=72)	Overall % (N=164)
Negative impact of bad weather conditions	22.8	-	12.8
Time management	8.7	12.5	10.4
Physical aspects / fitness level	6.5	13.9	9.8
Difficulty level	4.3	12.5	7.9
Lack of overall logistical control	8.7	-	4.9
Conflict within teams	4.3	1.4	3.0
Competitive advantage	3.3	2.8	3.0
Limited space for participation	2.2	2.8	2.4
Group composition/team size	3.3	1.4	2.4
Limited networking opportunity	1.1	1.4	1.2

(Some respondents reported no constraints, thus totals per region and overall are less than 100%)
Source: Authors' compilation

The major constraint reported by the northern region was the bad weather conditions (it started raining near the end of the race) which negatively impacted participants' overall experience (also refer to the discussion under section 6.6.6). It seems as if the rain also made a major contribution to the second largest constraint reported in the northern region, namely a lack of overall logistical control. When heavy rain started near the end of the intervention, communication with teams was hampered as teams were scattered all over the theme park at various locations, making it difficult to communicate and provide clear instructions. Participants reported that the rules of the intervention were not entirely clear in terms of unexpected circumstances, such as heavy rain conditions. Some of the individual noteworthy comments raised by participants on logistical problems are quoted below:

> "*Representatives from firms did not always know the rules and overall structure of the race*"
>
> "*The rules are not always followed and no one is there to assure it*"
>
> "*The different firms were a bit incompetent with clues*"

It is submitted that effective communication to all stakeholders of the intervention hosted in two different regions with such a large sample size and scope (involving 7 universities, 25 teams, 5 employer firms and companies, and one professional body) was challenging from a logistical perspective and is flagged as an aspect to be improved. The first author (who was

overall responsible for the planning and execution of the intervention within both regions) furnished clear communication documents to the various firms involved and who were responsible for hosting the activities at the various legs of the race beforehand. However, it was found that not all these staff members had properly read and familiarised themselves with the content of the documents containing the rules and overall structure of the intervention. This resulted in confusion and hesitancy on the firms' side in providing clear and effective instructions and in handing out clue cards to the participating teams. The latter will, true to the action research process, be taken into consideration in adapting the intervention for its future repetition. Other major constraints reported constituted the difficulty to perform effective time management while participants struggled to physically keep up (as it was a race against time) as it was found that team members became tired and found themselves unfit and ultimately exhausted. Although the majority of participants comprised honours-level students (see table 6.3 for respondent profile) who had already been exposed to and had passed their undergraduate level taxation modules, some participants reported that the difficulty level of activities was quite challenging as it sometimes dealt with tax topics that had not yet been covered at their academic level. However, based on the fact that far less constraints than benefits were reported, it can be concluded that the intervention was successful in benefiting the participants in various aspects and that the overall intervention was experienced far more positively than negatively.

6.6.6 Overall experience and recommendation of tax intervention as an effective method to develop pervasive skills

Respondents were required to describe their overall experience of the tax intervention in one word. Table 6.10 contains a frequency distribution from the qualitative summary and indicates that the vast majority of respondents (from both regions) described the intervention using positive one-word descriptions. Overall, respondents used 40 different positive words to describe the tax intervention, as opposed to five negative and 2 neutral words. The three words used most frequently were 'fun', 'amazing' and 'awesome'. Other positive adjectives that were used in excess of three times were: 'exciting', 'fantastic', 'motivating', 'informative', 'educational', 'inspirational' and 'interesting'.

Table 6.10: Frequency distribution of participants describing the tax intervention in one word (positive, negative or neutral)

Type of one-word description used	Northern region % (N=92)	Southern region % (N=72)	Overall % (N=164)
Positive	90.2	87.2	89.0
Negative	4.3	1.4	3.0
Neutral	2.2	-	1.2
No response	3.3	11.1	6.7

Source: Authors' compilation

Only five respondents overall (four from the northern region and one from the southern region) described the tax intervention using negative words, namely 'unfair', 'exhausting', 'tough', 'mediocre' (northern region) and 'long' (southern region). Although the negative descriptions are not regarded to be significant when compared to the large number of positive descriptions, it could be argued that the negative weather conditions (the rain) that affected the northern-region intervention (see table 6.9) contributed towards the negative descriptions (four) reported by participants from this region as opposed to the single negative description reported in the southern region. Rain conditions near the end of the race resulted in some of the rides needing to close for safety reasons, preventing some of the teams from completing certain rides. These teams felt it was unfair, which could have resulted in one-word descriptions such as 'unfair' and 'mediocre'. Overall, only two respondents used neutral words to describe the tax intervention. These are 'experience', which could be seen as positive or negative, and 'rush', which could be interpreted as either the intervention being too rushed (negative) or it being experienced as providing an adrenaline rush (positive).

Words used by respondents that supported the tax intervention's ability to contribute to personal attributes, pervasive skills development and its educational value included: 'challenging', 'happiness', 'critical-thinking', 'insightful', 'beneficial', 'clarifying', 'enlightening' and 'worth-it'. The fresh and innovative nature of the intervention is supported by words such as 'adventurous', 'world-class', 'exceptional', 'superb', 'awakening', 'entertaining', 'innovative' and 'exhilarating'.

Table 6.11 provides the results of the investigation into whether participants would recommend the tax intervention and similar interventions to other tax students as a method to develop pervasive skills.

Table 6.11: T-test comparison on overall recommendation of the tax intervention

	Northern region (N=92)		Southern region (N=72)			
Variable	**Mean (1-4)**	**Std dev.**	**Mean (1-4)**	**Std dev.**	***p-value****	**Effect size (*d-value*)^**
I would recommend participation in the tax intervention to other students	3.85	0.47	3.70	0.46	0.04	0.32
I would recommend teaching methods similar to the tax intervention to be hosted in order to develop my pervasive skills	3.75	0.51	3.57	0.61	0.04	0.31

***p-value: <0.05, indicates a significant result, assuming a random sample*
^d-value: Small effect: d=0.2; medium effect: d=0.5; large effect: d=0.8
Source: Authors' compilation

Although no significant differences were reported, the mean scores for respondents in both regions were all close to 4 (representing 'Strongly agree'), serving as proof that the tax intervention was indeed perceived to be useful in developing pervasive skills in tax students.

6.7 Summary of findings, conclusion and recommendations

This is the first study of its kind where the usefulness of a tax intervention hosted on a national level and aimed at the pervasive skills development of South African tax students was evaluated. The findings (as discussed in sections 6.6.2 and 6.6.3) indicate that the tax intervention was indeed perceived to be successful in encouraging tax students to apply the pervasive skills of: leadership, influencing others, strategic and critical thinking, and communication. Furthermore it was found that the tax intervention succeed in exposing tax students to both the personal and interpersonal skills set encapsulating all ten required pervasive skills as identified from the review of competency frameworks of the professional accounting bodies responsible for accrediting the accounting degree programmes South African tax students are enrolled for.

Participants perceived the tax intervention to be mainly beneficial in developing team work skills, to learn while having fun, to obtain a better understanding of tax concepts due to an integrated learning opportunity where the application of technical and soft skills are combined, in enhancing self-confidence and positively contributes to relationship building. Apart from the external factor of bad weather that negatively affected participants' experience in one of the regions, the overall main perceived constraints of the tax

intervention were that it was physically challenging, that the difficulty level of the activities was sometimes too high, and that an overall lack of logistical control was experienced.
To further incorporate student actions that will ensure the application of the broader set of the required pervasive skills and to ensure the application of tax knowledge on a more appropriate difficulty level, it is recommended that employer firms and the companies involved liaise more closely with the organiser(s) in the overall planning of the intervention. This could improve overall logistical control as the organising stakeholders will be more informed on detailed aspects pertaining to the execution of the intervention.

In conclusion, the tax intervention was positively experienced and perceived to be successful in contributing to the application and development of pervasive skills. Student participation in a national-based intervention is deemed beneficial in that it releases pressure from individual tax educators at various universities for designing and developing their own interventions to be hosted at their individual universities, which could be very time-consuming. However, it is argued that nationally hosted interventions are not always accessible to all students on account of challenges such as remote locations, long travel distances, and financial constraints in terms of transport and registration fees for such interventions. However, it is recommended that educators who are unable to send their tax students to a national tax intervention could apply and host the same concept (similar to the tax intervention under review in this paper) at their own universities as these have proven to be successful, based on the findings of this research paper, in encouraging exposure to and application of the pervasive skills in tax students.

The findings of this paper contribute new insights into students' perceptions of how a nationally hosted tax-related intervention could be used as a teaching tool to develop pervasive skills in tax students. It is suggested that future studies could evaluate the usefulness of a nationally hosted intervention based on the perceptions of the employer companies and firms involved, as well as that of tax educators and trainers.

6.8 Limitations of the study

The research conducted was subject to the following limitations:

- the study only tested perceptions on pervasive skills developed and not the actual benefit derived;
- the results could be impacted by different personality types, learning styles and -preferences; and

- although the majority of tax students were honours-level students, the possibility of sampling bias exists due to the fact that students were not all on the same academic level and also volunteered to participate in the research, which could limit the generalisation of the findings.

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CHAPTER 7

QUALITIVE EVALUATION OF DESIGN VARIABLES OF A TEACHING INTERVENTION TO EXPOSE ACCOUNTING STUDENTS TO PERVASIVE SKILLS

Chapter 7 (Article 4)

Qualitative evaluation of design variables of a teaching intervention to expose accounting students to pervasive skills

The reader is requested to take note of the following:

- The article has been **accepted for publication** in the journal *Industry & Higher Education*, an accredited international academic journal.
- The proof of submission of the article at the journal is included in **annexure D1**.
- The article was written in line with the journal's submission guidelines, which are included in **annexure D2**.

Abstract

The primary objective of this paper is to evaluate the design variables of a newly developed teaching intervention, 'The Amazing Tax Race'. It comprises a race against time in which accounting students participate within teams in multiple tax-related activities so that they are exposed to pervasive skills. The findings provide information to accounting educators on the effectiveness of the design variables considered in the development of teaching initiatives aimed at pervasive skills development. The evaluation was conducted by means of a qualitative analysis of focus group transcripts gathered from interviews held with accounting students who participated in the teaching intervention hosted at a South African university accredited by the South African Institute of Chartered Accountants. Overall, the design variables applied were found to contribute positively to pervasive skills development. The format of the intervention could serve to overcome the challenge of accommodating large student groups. The author also notes limitations and makes recommendations for designing future teaching interventions.

Keywords:

Accounting education; accounting students; design variables; pervasive skills; South Africa; teaching intervention

7.1 Introduction

The demand from industry for graduates to be equipped with the required employability skills to apply disciplinary knowledge and skills on entering the workforce continues to increase worldwide (Jackson *et al*, 2013). Chief among the accounting industry's expectations is that tertiary accounting education will provide professional accountancy training bodies and employers with graduates who possess certain transferable skills (Stovall and Stovall, 2009; Kermis and Kermis, 2010; Strauss-Keevy, 2015). In the literature 'employability skills' and 'transferrable skills' are otherwise referred to as non-technical, generic, professional, soft or pervasive skills and refer to skills that enhance graduates' work readiness (Brungardt, 2009; Jackson and Chapman, 2012; Jackson *et al*, 2013).

In South African, the South African Institute of Chartered Accountants (SAICA) requires that chartered accountant (CA) candidates demonstrate the highest level of competency for all the pervasive skills described in terms of its competency framework (SAICA, 2014). The competency framework identifies pervasive skills in three categories: (i) *ethical behaviour and professionalism*; (ii) *personal attributes;* and (iii) *professional skills* (SAICA, 2014). From the descriptions provided under these categories, 12 pervasive skills are identified which accounting graduates need to demonstrate verbal communication, listening communication, writing communication, problem-solving, teamwork, time management, leadership, professionalism, ethical awareness, strategic thinking, critical thinking and influencing others. SAICA's competency framework requires SAICA-accredited universities[1] to ensure that each pervasive skill is addressed in their academic programmes and that evidence of this should be provided to SAICA (SAICA, 2014).

Competency can be viewed as the ability to execute a task in 'the real world'. SAICA's competency framework defines 'competency' as 'the particular tasks that CAs perform while applying, or bringing to bear, the pervasive qualities and skills that are characteristic of CAs to the level of proficiency defined as appropriate by the profession' (SAICA, 2014:16). In the National Qualifications Framework set by the South African Qualifications Authority (SAQA), the term 'applied competence' is divided into four elements: (i) foundational competence (embracing the intellectual/academic skills of knowledge together with analysis); (ii) synthesis and evaluation (including information processing and problem-solving); (iii) practical competence (including the concept of operational context); and (iv) reflexive competence (incorporating learner autonomy) (SAQA, 2012).

Knowing the learning outcomes to be achieved at the higher education level set by both SAICA and SAQA, accounting educators at SAICA-accredited universities need to develop and apply competency-based teaching methods that will successfully incorporate pervasive skills development within undergraduate accounting curricula. However, accounting educators are continuously challenged as to which teaching methods to apply and which design variables to incorporate in those methods in order to achieve the required outcomes (De Villiers, 2010; Barac and Du Plessis, 2014; Strauss-Keevy, 2014; Van Romburgh and Van der Merwe, 2015).

7.2 Teaching methods in accounting education to develop pervasive skills

Choosing the appropriate teaching methods for a specific accounting module or programme is no easy task, because the impacts of various design variables need to be considered. The choice of design variables should support and be aligned with the overall learning objectives (Bonner, 1999). The first step is to select the appropriate teaching approach. For the pervasive skills and competencies that accounting students require, Fouché (2013) suggests a learner-centred approach because it involves active learning by students and provides a hands-on experience throughout the learning process. Today's students prefer a responsive learning environment in which they can be more actively involved in the learning process and obtain immediate feedback (Sugar and Takacs, 1999). The design variables underlying the teaching method and approach should fit with the learner profile and accommodate various learning styles and preferences (Boyce *et al*, 2001; Visser *et al*, 2006). Students born after 1982 are part of Generation Y (Wessels and Steenkamp, 2009) and have been characterised as typically confident, independent, individualistic, self-reliant and entrepreneurial (Martin, 2005). Generation Y students are likely to be socially active, collaborative, team-oriented and used to having structure in their lives (Shih and Allen, 2007). Various researchers have therefore proposed that educators make more use of active-learning techniques to increase the creativity, innovation and analytical skills of students (Adler and Milne, 1997; Milne and McConnell, 2001; Tate and Grein, 2009). The learner-centred approach encapsulates a wide range of active learning methods such as interactive learning, cooperative learning, problem-based learning, experience-based methods (including interventions such as case studies, simulations, games, role-plays and field experiences), project-based learning and other methods using different teaching approaches. These teaching approaches should also promote deep learning rather than surface learning: deep learning is promoted when educators endeavour to motivate and provide various stimulating learning situations (Lynch, 2001). Because the learning objective

under review is to expose accounting students to the development of a wide range of pervasive skills, accounting educators need to select not just one but multiple active-learning teaching methods (Bonner, 1999).

Internationally, various studies have investigated teaching methods in which pervasive skills are best developed during undergraduate courses (Adler and Milne, 1997; Gammie *et al*, 2002; Kern, 2002; Ballantine and McCourt Larres, 2009; Jackling and De Lange, 2009). Findings from these studies showed that the relevance of course content needs to be questioned and that accounting educators need to revisit their pedagogy (Ashbaugh and Johnstone, 2000; Boyce *et al*, 2001; Kern, 2002; Tempone and Martin, 2003). Strauss-Keevy (2015) recommends that academics should create practical collaborative learning experiences which replicate real working environments, where students can be active participants in the learning process. Collaborative learning requires students to be placed in smaller groups and to work jointly on tasks (Ballantine and McCourt Larres, 2009). Therefore, the most important design variable underlying collaborative learning is 'teamwork' or 'working in groups'. In the South African accounting education context, Stainbank (2003; 2005 & 2009), Van der Merwe (2013) and De Villiers and Fouché (2015) respectively conducted group projects and business simulation assignments so that accounting students could acquire professional skills. These studies suggest that more such assignments should be given because students seem to enjoy them and they have been found to be beneficial and valuable in professional skills development.

The ideal group size for effective pervasive skills development remains questionable and authors vary in their opinions. Some suggest that five team members are the most effective (Sullivan, 1996), while others prefer four(Oakley *et al*, 2004) and yet others favour between three and six members in a group (Miglietti, 2002; Gillies, 2003). With regard to group composition, Van der Laan Smith and Spindle (2007) found that, within a cooperative learning environment, self-selected groups may increase the effectiveness of cooperative learning because business students perceive this type of group as more conductive to individual learning. However, Lejk *et al* (1999) warn that, although self-selection is attractive to students, it does not guarantee the heterogeneity and diversity of perspectives within a group which is required within an effective cooperative learning environment.

Strauss-Keevy (2015) further identifies a gap in the use of collaborative learning exercises by South African accounting educators compared to their global counterparts. She emphasises both the need for lecturers to work together to find successful methods for developing pervasive skills and also that research should be extended to examine the

effectiveness of other methods, including their underlying design variables, in developing pervasive skills in accounting students.

7.3 Research objective and contribution

The primary objective of this study was to evaluate and analyse the design variables of a newly developed teaching intervention, 'The Amazing Tax Race', intended to develop in South African accounting students the pervasive skills specified in SAICA's competency framework. Through qualitative research, each design variable was evaluated to ascertain whether it contributed to or constrained pervasive skills development. The evaluations were based on perceptions gathered from focus group interviews with third-year accounting students at a SAICA-accredited university who had taken part in the Amazing Tax Race. The study contributes to the body of knowledge on the design variables to be considered in developing competency-based teaching methods. The findings will assist accounting educators and researchers in evaluating design variables in their own applied competency-based teaching methods.

The remainder of the paper is structured as follows. First, the teaching intervention and its design variables are described. Then the research design and method are explained, followed by a summary of the results of the focus group interviews. Conclusions are drawn and recommendations made based on the key findings. Finally, suggestions for future research are highlighted and the limitations of the study are set out.

7.4 The teaching intervention and its design variables

The author established the concept of *The Amazing Tax Race* (referred to in this article as 'the teaching intervention') in 2011 and has since presented it to final-year undergraduate chartered accountancy students over four consecutive years. The intervention takes the form of a race against time in which student teams (10 teams of eight students) participate in tax-related activities hosted at 13 'stations' located in different places across the university campus. Examples of activities hosted at the stations include a tax-related monopoly game, a 'Fringe Idols' game, in which teams need to create and perform a song illustrating the tax implications of specific fringe benefits, and a wheelbarrow race in which teams have to obtain private and business kilometre cards in order to perform a travel allowance calculation. The design of the tax intervention is based on the principles of active learning theory (Ritzko and Robinson, 2006), in which gamification is applied as a vehicle to promote active learning. Students need to complete various activities in an active learning

environment where game-based mechanics are used to engage them, motivate action, promote learning and solve problems (Kapp, 2012). Students can choose, according to their personality type and preferred learning styles, to be involved in the teaching intervention either as a participant or as an acting member of a planning and organising committee. A set of rules for the race is distributed to participating teams a week before it begins. However, participants do not know what activities they will be required to perform on the day of the race. The committee (in this case, 28 students) is responsible for developing tax-related activities for the different stations, keeping the application of pervasive skills in mind. Activities have to be presented at a committee meeting to obtain feedback from all members (thus, achieving peer assessment) and ultimate approval of technical correctness and practical feasibility by the author. Although the integration of tax knowledge in these activities is important, the overall focus remains on the exposure to and the development of pervasive skills.

The participating teams all start at one central point where an ice-breaker activity is hosted to obtain the first clue card leading each team to their first station. From then on, teams rotate between 13 stations (which are between 400 and 800 metres apart), which requires running. Clue cards comprise a combination of tax-related crossword puzzles, tax riddles incorporated with tax case law names, and tax calculations to be performed, and the answers indicate a specific campus building or room number. The clue indicating the next station can be obtained only after the successful completion of the activity at the previous station. To provide for faster moving teams, each station has to be able to accommodate two teams simultaneously.

To decrypt clues and complete activities successfully, teams need to apply their tax knowledge by working together and communicating effectively. This requires strategic and critical thinking while acting in an ethical and professional manner, all under time constraints. The team reaching the finish line first is crowned the winner. In the current study, employer companies (accounting, auditing and advisory firms) were approached to sponsor stations and assist committee members in hosting the activities. Sponsorships entailed prizes for the top three teams, best team spirit, best team war cry, most creative team name, best team dress and for individuals demonstrating outstanding leadership qualities.

Participation in the teaching intervention or acting on the organising committee was completely voluntary. The teaching intervention was hosted as an extracurricular activity which did not impact the normal teaching–learning assessment of students. Participants were also informed that they did not need to academically prepare for the intervention.

7.5 Research design and method

7.5.1 Overall research design and method

Action research following a phenomenological approach was conducted to evaluate the effectiveness of the design variables of the teaching intervention (Healy and McCutcheon, 2010; Mills, 2011). Because action research involves a systematic process of inquiry that is more closely aligned with qualitative approaches to research (Ary *et al*, 2009), the research method applied in this study was qualitative in nature. Data were obtained by conducting focus group interviews with third-year accounting students who participated in the teaching intervention. Perceptions gathered were used to evaluate the effectiveness of the design variables applied. Field (2000) indicates that qualitative data collected through focus group interviews has proven to be the richest source of information and is recognised as an effective method in education and training research.

7.5.2 Data collection and ethical considerations

The focus group interviews were conducted within 2 weeks after the intervention was hosted with those students who volunteered to participate. Ten interviews were scheduled, one for each of the student teams that took part in the intervention. The author acted as facilitator because he did not lecture the specific students involved and, in this way, ensured independence and anonymity. All interviews were held in the same boardroom at the university where the research was conducted and lasted between 50 and 60 minutes.

To avoid the possibility of prepared answers, students were not given questions in advance. To ensure continuous flow of relevant conversation the facilitator introduced a series of pre-determined discussion points aligned with the research objective. He used follow-up questions and requested interviewees to provide examples to confirm theory-in-action application (Kane *et al*, 2002). After eight of the teams had been interviewed, further interviewing was cancelled as data saturation had been achieved (Davies, 2007).

Ethical clearance was obtained from the university at which the research was conducted. Participation in the research was voluntary and all findings reported on an aggregate and anonymous basis. All interviews were voice recorded (with permission granted by interviewees) after which they were transcribed for further analysis.

7.5.3 Data analysis

Transcript data were analysed using the Atlas.ti (version 7.1.4) software, following a deductive coding approach (Saldaňa, 2013) where emerging themes enabled theory building (Friese, 2012).

7.6 Focus group results: findings and discussion

7.6.1 Focus group interviewees

The sample population comprised 80 third-year accounting students who had participated in the teaching intervention. Forty six of these 80 students took part in the focus group interviews (representing 58% coverage and a fair spread of gender - 18 men and 28 women).

7.6.2 Evaluation of design variables

The themes that emerged pertaining to the various design variables are summarised below. Some noteworthy quotations from individual students are also provided. It should be noted that the design variables are not discussed in any particular order and that some of the quotations are interrelated. Therefore, the results should also be interpreted in this context.

7.6.2.1 Team size and selection for the intervention

Third-year accounting students were informed about the teaching intervention and invited to participate. Teams were allowed to select members and entered via email on a first-come-first-serve basis. The first 10 teams that successfully submitted an entry and the first 28 students who indicated that they wanted to act on the committee were selected for participation.

Team size

Although the literature suggests smaller teams, ideally with three or four members to achieve sufficient diversity of opinion, experiences and learning styles within an effective working group (Gillies, 2003; Oakley *et al*, 2004), the large class sizes (especially in accounting degree programmes) remain a challenge to educators, as smaller groups result in too many groups to control in a single teaching intervention. To accommodate more students, as already stated, eight members per team were allowed to participate and additional students were appointed to the committee. Oakley *et al* (2004) suggest that teams with five or more members may inhibit the less forthright students from expressing their opinion. However, the

fact that in this case team members knew one another might have compensated for this potential problem (see also below under the section '*Self-selected versus assigned teams'*). Students indicated that a team of 8 members worked fairly well and even suggested that a team of 10 members could also be appropriate. However, some did point out that not all activities were effectively designed to accommodate eight team members - for example:

'Eight were a bit pushing it for me. We just like had one piece of paper and eight heads against each other, it was a bit difficult. I think less team members will be a little easier'.

'At some of the activities we were perhaps too many people, because if something had to be calculated only one person could write with two or three others standing next to that person to assist.'

The larger teams, on the other hand, did have the benefit of more individual strengths to draw from in executing various activities. They also encouraged strategy and time management skills because group members were able to divide tasks:

'Like at the game where we had to create a song and a dance about fringe benefits, we did not stagnate. Two of us immediately started to write the song while the others worked out the dance. We also divided the group into people who can and cannot sing.'

'Yes, whatever you are good at, there you helped out and made a contribution.'

Self-selected versus assigned teams

Students felt comfortable about functioning in an environment where they knew their team members. Self-selected teams contributed to pervasive skills development as students said they could freely express opinions and not hold back due to shyness or not knowing the people they were dealing with. Noteworthy comments include:

'I feel that being in a comfortable environment contributes significantly to the success to learn these skills, because if you are not in a comfortable environment and you must now suddenly function within a group you don't know, some people's leadership could be overpowering and then there won't be good team work.'

'For me it was a lot easier to talk to them because it was my friends, and it is easier for me to be myself, where if it was strange people, I would have been more reserved.'

Considering that the nature of the intervention is a race against time, the fact that participants already knew one another supported the effective application of strategy, problem-solving and time management skills. Team members were well aware of one another's strengths and weaknesses which made it easier to assign tasks in the effective execution of various activities. Participating with unfamiliar team members would not be as effective, and could even cause additional conflict within teams, because there is no time to

get to know one another while being under the pressure of the competition. Some of the students' comments reflected this view, such as:

'I think it will take longer if you don't know your team. I mean, we knew each other very well, that person is good at this, that person is good at that. So we could therefore plan a strategy.'

'I think in comparison to other assignments where there is usually a relaxed environment, with the Amazing Tax Race you are under pressure. So someone can quickly snap at you and then you will think, okay, I know him, just give him a second, he will get over it. So I think when you are under pressure it definitely helps if you know the other people.'

Students generally welcomed the fact that they could choose between either participating or acting on the committee. They pointed out that if the teams had been assigned beforehand it would have felt like another assignment they were forced to do, and so would have detracted from the fun element and the natural and spontaneous character of the teaching intervention:

'I think with assigned teams people will begin to see it as another assignment and not as something you actually want to do, but rather as something you are forced to do.'

'I think that if the team knows each other, it is just better. It just makes it more fun.'

However, some students did suggest that assigned teams could be beneficial as they force one to meet new people. Also, assigned teams comprising members of different cultures and native languages could contribute to improved communication skills, relationship building and cultural integration.

7.6.2.2 Logistical layout

The three logistical layout variables - the number of stations, the distances between stations and the element of physical activity - are closely aligned because they directly impact one another and are therefore grouped together for analysis and evaluation. As the intervention constitutes a race against time with 13 stations (one ice-breaker activity and 12 tax-related activities) located in different places across the university campus, the participants were challenged on a physical level by being required to run and execute some physical activities at some stations. In an attempt to support and enhance team work skills, the rules stipulated that individual members were not allowed to run ahead of the team and that all teams had to move together as a group at all times.

Number of stations

In general, students felt that the number of stations was sufficient and did not suggest more or fewer. For example:

'Although we were tired we never felt like there were too many stations.'

'I was actually surprised when I realised that we were already at station 10 and that we only had like two left. So I think the number of stations were sufficient.'

Distances between stations

Students had mixed opinions about the distances between stations. Fit students said it was not a problem for them, while the less fit students found it quite challenging:

'I think the distances between the stations were fair. You had plenty of time at a station to rest before you had to run to the next station.'

'To the subway and back was quite rough, but generally the distances were fair.'

Physical element

Students said they did not expect the intervention to be so physically challenging and it made them realise how unfit they really were. Some said that they got frustrated with team members who could not keep up, a reaction which revealed to them that they needed to be more understanding and patient towards those team members. It also, they said, helped them to develop their 'leadership' and 'influencing others' skills because they had to motivate the members who were having difficulty. Some students commented that being tired had actually contributed to better skills development because it is more difficult to think on one's feet, develop strategies and motivate others when one is tired. Comments on these topics included:

'Beforehand I never thought that it would require so much running.'

'I just wanted to like die! But thinking about it now, if you only had to walk, it would have been boring.'

'I realised that you are only as strong as your weakest member.'

'But I also think the running was good. In the real world you are under stress and under pressure, so now you are tired and you still need to think, it makes it more similar to reality.'

7.6.2.3 Time span and overall duration

The intervention took between 2.5 and 3 hours to complete. Students indicated that the time passed quickly because they were enjoying themselves. However, some suggested that the race should not be longer as it would then be too physically challenging. Responses included:

'I think it was appropriate, because we did not realize what time it was until we got to the finish line and then we were just like, oh, it's lunchtime already.'

'I think it was just right, although I still wanted to run after that last station I think other people were starting to get tired.'

7.6.2.4 Timing of intervention in the academic year

The intervention was hosted during September, just after the spring-break in South Africa and close to the end of the accounting students' third year. Although the main focus was on pervasive skills development, the intervention required students to apply their technical knowledge to complete the activities at each station. Thus, although they were not required to prepare for the intervention academically, a basic understanding and awareness of topics covered in the syllabus were prerequisites for participation. Johnstone and Biggs (1998) suggest that problem-based learning should be implemented only after basic technical accounting knowledge has been acquired. Students thought the timing of the intervention was acceptable for three reasons: (i) by the time it was held most of the topics had been covered during formal contact sessions; (ii) it was hosted during a week in which no other tests were scheduled; and (iii) because it was spring, the weather was suitable for the running required. Comments included:

'I think the timing was right, because you sort of needed the knowledge to participate.'

'It was better near the end because at the beginning of the year we technically knew nothing about tax. Also, it was not before tests.'

'Especially if you also look at the season, it's definitely the right time, because it was not that hot.'

7.6.2.5 Level of difficulty and content

Students felt that there was a good balance between technical and non-technical elements in the activities and that each activity significantly contributed to pervasive skills development.

Difficulty

The overall level of difficulty was perceived to be intermediate and fair. Students found some activities more challenging than others and felt that the technical content of activities should not be too difficult because it would detract from the fun and pervasive skills development component of the intervention:

'To be honest I thought the games were going to be like really lame. But for me it was like really such interesting activities in which I actually wanted to participate. You could

really see it was not just something they quickly thought about the day before the race. It was really very well planned and everything was very precise.'

'I think the level was right because I think any average student who performs at an average level would have been able to do it.'

'It was well balanced. At some places it was harder than others.'

'It was doable without studying for it. We did not prepare. We just went into it with what we already knew.'

Practical application

Because the activities had required them to apply their technical knowledge practically, students felt that their understanding of certain theoretical concepts had been enhanced:

'For me the experience was so valuable. Like, you experienced the tax at every station.'

'Everything was not just like usually only on paper. You could actually see it happening.'

'You learn the technical stuff too. Like, you will now never really forget it, because you will remember it in the way that you applied it.'

Content: exposure to pervasive skills versus technical skills

The majority of students indicated that pervasive skills carried more weight than technical skills in the intervention:

'You already learned the theory in class, but here you had to actually go and apply it physically. So I would say the soft skills took precedence.'

'I feel you needed the soft skills to apply the theory. With many of the things we had like three different opinions about the situation. Then one said, but no, quickly read here, we missed this information. So for me it was to communicate, and for her it was to listen. So you definitely needed your soft skills to actually apply the theory. So I think soft skills were definitely more important.'

'I actually wondered how they are going to test our competencies in the Amazing Tax Race, and for me it was portrayed brilliantly. I would say it is the perfect way in which to give students the opportunity to apply their knowledge practically and to develop skills.'

7.6.2.6 Rules and the element of surprise

Rules

Participants received a set of general rules 1 week before the intervention informing them about the purpose and overall structure of the race, but no other details about the type of activities that they would be required to undertake. Students on the committee were also asked not to discuss with others the activities they had developed. There was thus an

'element of surprise' variable in the overall design of the intervention. Students' comments on this aspect of the intervention included:

'I think the rules just provided a bit more structure to the entire race so that everybody knew what was expected of them.'

'The rules were very simple and clear. It removed some uncertainties that we had.'

'The rules told us exactly what we can and cannot do, but still it did not give everything away, so it was like a surprise every time.'

Element of surprise

Students indicated that the 'element of surprise' variable contributed to their pervasive skills development. Because they did not know what to expect, they could not plan or formulate a strategy beforehand. They had to act in the moment, which supported the skills of problem-solving, thinking critically on one's feet, applying time management, taking the lead, influencing others and communicating effectively. The element of surprise also contributed to the overall fun and excitement of the intervention. Noteworthy comments included:

'That was the whole point. You had to think on the spot, how will I now resolve this? You couldn't plan for it in advance.'

'You need to think on your feet. They put you in a situation in which you have never been before and now suddenly you are forced to think.'

'This event is like putting you out of your comfort zone. It teaches you that it's okay to relax a little and to have fun. And it's exciting not to know what's going to happen next.'

7.6.2.7 Effect of competition and time constraints

Students indicated that the competition element and the time constraints under which they had to perform the various activities supported the development of their time management skills and also helped them to think critically on their feet and solve problems under pressure. However, they also felt that being pressed for time contributed to their missing important information provided at certain stations, which negatively affected the proper completion of activities because their actions were rushed. Noteworthy comments included:

'I think it is positive as it teaches and forces you to manage, to effectively communicate and to listen very carefully within a short period of time.'

'I think it's beneficial as we never actually have the opportunity to think so quickly with others. Like in a test you're on your own, but now everyone can quickly think together to get to a solution. Nowhere else do we get that kind of exposure.'

'I think it's a positive experience because not only in your field of study, but also in practice you will be required to work under pressure and you will have a lot of deadlines.'

7.6.2.8 Impact of assessment

Mysliwiec (2005) highlights that educators have an obligation to provide a supportive environment where learners can learn by making mistakes and correcting them. Students indicated that, because the intervention was not assessed, a relaxed environment was created in which they could freely develop their pervasive skills without fear of being penalised for making a mistake. They thought that, if their demonstration of various pervasive skills had been assessed, some would have faked their actions just to earn marks and that the development of personal and interpersonal skills would not have occurred naturally. Noteworthy comments included:

'I think the fact that no marks were awarded, promoted it, because then you can actually say what you really want to say without worrying about your team getting penalized for it.'

'I think you have much more freedom to experiment, to think and to act in different ways, and to raise your opinion than when you are being assessed. I think that if you know you are being assessed you will be much more conservative and careful about what you do and say and will maybe not think about things in the same way that you would have if you were just allowed to freely think about it.'

'If you are assessed I think you will not act naturally like you would normally do. People will fake it.'

7.6.2.9 Team building elements

Before the event, teams were required to choose a creative team name, to prepare a team war cry to be performed at the kick-off station and to wear something unique portraying the name (all of which had to be tax related) and told that prizes would be awarded for the best. Asked whether these design variables were necessary and had contributed to pervasive skills development, the students said that these aspects of the competition had contributed to team spirit, relationship building, team motivation and healthy competition between teams during the build-up to the race. Noteworthy comments included:

'I think it was necessary because it helped everyone to come together. It made everything so much more exciting and made us look forward to the tax race.'

'I think the purpose of our war cry was to help the team to get to know each other a bit better beforehand so that we could be aware on how to complement each other's strengths and weaknesses.'

'It promoted communication and team work before the race because we had to consider and take everyone's opinions into account the whole time.'

7.7 Limitations

It is acknowledged that the research was subject to certain limitations as is the case with any empirical study. The study tested the perceptions pertaining to the effectiveness of design variables either contributing to or constraining pervasive skills development, but did not measure the actual benefit derived or effect of the constraint identified. The generalisability of the results could be limited because focus group interviews were confined to the students of only one South African SAICA-accredited university. Also, focus group participants comprised volunteers. This self-selection of individuals who were willing to be interviewed could have constituted students being most positive about the course which may have impacted the overall positive responses obtained. This is, however, not perceived as a major obstacle since the goals were exploratory and aimed at theory generation. In addition, owing to the subjective and evaluative nature of qualitative research techniques, such as using focus group interviews as research method, there is no guarantee that the same themes would emerge when interview transcripts are analysed by another person. The researcher did however take great care in ensuring that the themes identified were as precise and complete as possible.

7.8 Key findings, conclusion and recommendations

Figure 7.1 contains a framework of design variables to be considered for developing a teaching intervention. These variables, as implemented in the teaching intervention under review, are now discussed, together with recommendations for effective implementation.

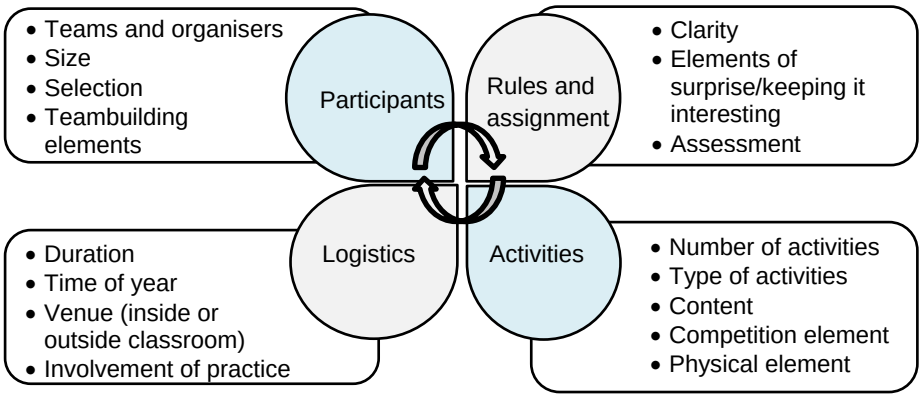

Figure 7.1: Design variables framework for teaching interventions
(***Source***: Author's compilation)

First, in respect of team size and selection, the intervention was beneficial in that it allowed for more students to participate per team while effective pervasive skills development still

occurred in line with other interventions in the literature for which fewer members per team are suggested. Therefore, the format of this teaching intervention could serve as a solution for accounting educators who face the challenge of pervasive skills development for large classes. However, the design of some activities proved to be not sufficiently effective in ensuring that all team members were properly involved. It is, therefore, recommended that careful consideration be given to the design of activities to ensure active participation by all team members. The variable of self-selected teams was perceived to be positive because familiarity with the other team members encouraged introvert-type personalities to participate and made for a relaxed environment in which pervasive skills could be freely and naturally developed. Self-selected teams also contributed to better problem-solving and strategising skills because team members knew one another's strengths and weaknesses.

Second, the variables relating to the logistical layout of the race were evaluated. Considering the distances between stations and participants' being required to run, the number of stations (13) was seen as sufficient. With more stations, the overall intervention might have taken too long to complete and proven too physically challenging for some participants. Thirteen stations allowed sufficient opportunity for an effective combination of a variety of pervasive skills with a variety of technical topics covered in the module-related syllabus. The physical aspect resulted in participants' being tired and supported skills development such as leadership, motivating and influencing others because team members who were struggling to keep up had to be motivated. Being forced to think critically, strategise and act while being tired helped to simulate an environment close to reality: professionals often need to continue to perform effectively when tired and working under pressure.

The third design variable was the timing of the intervention. As the teaching intervention was physically challenging, the timing in the academic year was a crucial aspect. It is recommended that weather conditions (such as heat and possible rain) be considered because they could negatively influence participants' learning experience. Hosting the intervention closer to the end of a semester or academic year (in case of a year module) was found to be more beneficial because students first needed to cover the majority of the technical content in the classroom before being able to apply it practically in the intervention. Not requiring students to prepare academically for the intervention placed more emphasis on pervasive skills development than on technical skills development. Furthermore, it is recommended that the level of difficulty of technical content incorporated in activities should not be too complex but rather should concentrate on basic principles: this will ensure that the main focus of activities remains on applying and developing pervasive skills.

Another variable considered was the provision of rules beforehand. The rules were found to be beneficial in that they clarified uncertainties and informed students on what actions were allowed during the race. The rules were generic and provided no detailed information on the activities to be performed. Thus, the element of surprise supported pervasive skills development because it forced the unprepared participants to act in the moment. The fact that the intervention was presented as a race against time in a competitive format proved beneficial because it contributed to the development of effective time management skills and forced students to strategise, think on their feet and make quick decisions under time constraints. However, the students felt that the fast pace of the race negatively impacted proper pervasive skills development because their actions were rushed. Still, they were not allowed to move on to the next station until a specific activity had been successfully completed. Students felt that rushed actions resulted in unnecessary mistakes which had cost them valuable time, and so they realised they needed to calm themselves when under pressure to remain productive while applying effective time management.

With regard to assessment, participants were not assessed on their actions during the intervention but, as noted above, had to complete each activity successfully before they could move on to the next station. The absence of assessment positively contributed to a relaxed environment in which students could naturally and freely develop pervasive skills without faking their actions.

Overall, the design variables applied in the teaching intervention under review were found to be effective in developing pervasive skills in accounting students. Educators might take note of these variables in the design of their own and similar interventions aimed at pervasive skills development in higher education. Future research might focus on interviews with the accounting educators who observed the intervention, employer companies involved in manning the stations and students who acted on the organising committee to gain additional qualitative perspectives on the effectiveness of the design variables in contributing to pervasive skills development.

Note

[1] A ‘SAICA-accredited university’ constitutes a programme accredited by SAICA and means that: (i) the academic unit has put in place the appropriate resources that, if employed effectively, should enable it to deliver the programme at the required standards and levels of quality; and (ii) the programme meets SAICA’s requirements in terms of the standards of learning and teaching (SAICA, 2016).

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CHAPTER 8

REFLECTIONS, CONCLUSIONS AND RECOMMENDATIONS

"Follow effective action with quiet reflection. From the quiet reflection will come even more effective action"

- Peter Drucker -

Chapter 8

Reflections, conclusions and recommendations

8.1 Introduction

The need for accounting students to demonstrate competency upon entering the profession is widely advocated. Competency reflects the ability to execute tasks in the real world in an effective, meaningful and contributing manner. Thus, for accounting students to demonstrate true competency, they must be able to apply knowledge, and for this they have to be equipped with the required pervasive skills and qualities. Consequently, accounting students need to be exposed to pervasive skills at the higher education level by means of learning experiences providing the opportunity to apply core technical knowledge by demonstrating pervasive skills. To achieve this, innovative teaching methods must be applied at the higher accounting education level. However, accounting educators and academic programmes are continuously faced with challenges regarding which teaching methods and strategies to apply to successfully incorporate pervasive skills into higher education accounting curricula.

This study developed a teaching intervention to expose accounting students to pervasive skills. The development process comprised three parts, namely the (i) *design*; (ii) *implementation*; and (iii) *evaluation* of the teaching intervention.

The purpose of this chapter is to conclude and make recommendations on whether the developed teaching intervention could be applied as an effective teaching tool to expose accounting students to the development of pervasive skills as part of accounting curricula at a higher education level. Conclusions and recommendations are based on the combined findings and evaluations of the research as set out in chapters 2 to 7 of this thesis. The developed teaching intervention was evaluated from a variety of angles. Findings related to the development process (i–iii mentioned above) were used to evaluate the teaching intervention in its two formats, namely *The Amazing Tax Race* and *The Tax Amazing Race*, by means of perceptions gathered from various role-players in the accounting education environment, namely accounting students, educators and employers. The evaluation of the two formats served to prove the teaching intervention's ability to be applied as a tool to support and promote pervasive skills development when presented to students at either a single university or to students from multiple universities on a national level.

The remainder of this chapter is structured as follows: First, the secondary research objectives, together with their tertiary research objectives (where relevant) are revisited in order to report on the way in which each was addressed. This is followed by a summary of the results and key findings related to each of these objectives. Hereafter, the overall primary objective of the study is reflected and concluded on. This is followed by proving the hypothesis, making recommendations and stating the contributions of this thesis. Lastly, areas for further development and research are highlighted.

8.2 Revisiting the secondary research objectives, results and key findings

In order to conclude on the primary research objective and main aim of this study (see 8.3), the secondary research objectives (as formulated in chapter 1, see 1.5) together with their underlying tertiary research objectives (where relevant) are firstly revisited in order to indicate how each was addressed. Subsequently, the results and key findings linked to each objective are reported and conclusions are drawn.

Table 8.1 summarises the secondary research objectives, together with their tertiary research objectives (where relevant), and indicates the way in which each was addressed.

Table 8.1: Research objectives addressed

Research objective			***Description of the way in which it was addressed***
No	***Type***	***Formulation***	
i	Secondary objective	To explore, inspect and review various elements pertaining to pervasive skills development existing in the literature in order to establish a theoretical framework on which the design of the teaching intervention could be based	Performed a review of local and international literature in respect of the following key elements: the learning outcome; the meaning of “pervasive skills”; the learner profile; teaching methodology (paradigms, approaches and methods); previous pedagogical approaches; and learning theory elements supporting pervasive

			skills development in an accounting education context; reported in chapter 2 (see 2.2 and 2.3, pages 23 to 56).
ii	Secondary objective	To describe the overall design and implementation of the teaching intervention (in both its formats) and to indicate the main differences between the designs of *The Amazing Tax Race* and *The Tax Amazing Race*	Described the designed teaching intervention in its two formats. Implemented the first format (*The Amazing Tax Race*) at a single South African SAICA-accredited university (NWU), and implemented the second format (*The Tax Amazing Race*) in two regions of South Africa (north and south) on a national level as part of the annual National Tax Student Conferences hosted by SAIT; reported in chapter 2 (see 2.5, page 58), and supported by annexures A to P which indicate design elements such as the rules, clue cards, rotation schedules and maps, and describe the activities of each design format.
iii	Secondary objective	To map the key elements of the established theoretical framework against the overall design and implementation of the developed teaching intervention	Compiled conceptual frameworks (see tables 2.8 and 2.9, pages 66 to 76) and mapped the overall design and implementation of the developed teaching intervention against the key elements of the theoretical framework and learning theory elements; reported in chapter 2.

iv	Secondary objective	To explore the methodological design and methods for application in the sciences of accountancy and education to evaluate and analyse the usefulness of a teaching intervention developed to expose accounting students to pervasive skills	Explored various literature relating to methodological design and methods to adequately and sufficiently evaluate and analyse the developed teaching intervention. All methodological elements elected for application, specifically in each chapter and/or article (see table 3.5, page 124), as well as for the study overall, were described and motivated in detail; reported in chapter 3.
v	Secondary objective	To take stock of and to evaluate, from three different perspectives (students, educators and employers), the current state of pervasive skills development at the higher education level of accounting students at a South African SAICA-accredited university	Conducted a review of literature pertaining to progress made in respect of pervasive skills development in the South African accounting education context since the introduction of the competency-based approach by SAICA in 2010 (see 4.2, page 139). Collected and compared the perceptions of accounting students, educators and employers by means of questionnaires, statistical analysis, and focus group interviews; reported in chapter 4 (article 1).
	Tertiary objective	To establish the level of awareness and perceived importance of pervasive skills development at the higher education level by each of the	Compared perceptions of accounting students, educators and employers by means of questionnaires and statistical

		three groups of role-players operating in the accounting education environment	analysis. Conducted focus group interviews with accounting students and educators; reported in chapter 4 (article 1).
	Tertiary objective	To determine whether South African accounting students perceive themselves to be competent, based on self-assessment and reflection upon the level of their exposure to the development of pervasive skills in undergraduate accounting degree modules, to possess the pervasive skills at the end of their third year of studies as required by SAICA's Competency Framework	Statistically analysed perceptions of accounting students collected by means of questionnaires. Qualitatively analysed focus group transcripts of interviews conducted with accounting students. Perceptions pertained to the level of their exposure to pervasive skills in undergraduate accounting degree modules; reported in chapter 4 (article 1).
	Tertiary objective	To determine what employers (accounting, auditing and advisory firms) perceive their role and responsibilities to be with regard to pervasive skills development of accounting students at the higher education level	Reported on statistically analysed perceptions collected by means of questionnaires distributed to employers; reported in chapter 4 (article 1).
vi	Secondary objective	To determine the usefulness of an innovative tax intervention in encouraging the application of pervasive skills in final-year undergraduate accounting students	Collected and statistically analysed perceptions of three groups of role-players, namely accounting student participants, accounting students who acted on the planning and organising committee, and staff from accounting-related employer companies involved. Qualitatively analysed focus

			group transcripts of interviews conducted with participating students; reported in chapter 5 (article 2).
	Tertiary objective	To determine whether the teaching intervention encouraged students to apply pervasive skills	Statistically analysed perceptions collected by means of questionnaires distributed to participating students and students who acted on the planning and organising committee; reported in chapter 5 (article 2).
	Tertiary objective	To determine which pervasive skills were most and least prominent in the teaching intervention	Qualitatively analysed focus group transcripts of interviews conducted with participating students and statistically analysed perceptions collected by means of questionnaires distributed to staff of employer companies; reported in chapter 5 (article 2).
	Tertiary objective	To establish the main perceived benefits and main perceived constraints with regard to being part of the teaching intervention	Statistically analysed perceptions of participating students, students who acted on the planning and organising committee and staff from employer companies – all collected by means of questionnaires; reported in chapter 5 (article 2).
vii	Secondary objective	To evaluate the usefulness of a tax-related intervention aimed at	Statistically analysed the perceptions of students who

		pervasive skills development hosted on a national level (in two regions) with tax students from various universities across South Africa during the 2015 Tax Student Conferences held by SAIT	participated in the nationally hosted teaching intervention. Compared the results between the northern and the southern region and reported on the results in aggregate by using a combination of factor analysis, descriptive statistics and an analysis of open-ended questions; reported in chapter 6 (article 3).
	Tertiary objective	To determine which pervasive skills students applied during their participation in the teaching intervention	Performed a factor analysis on perceptions collected by means of questionnaires distributed to all participating students. Performed a t-test analysis comparing the application of pervasive skills in the northern region to that of the southern region; reported in chapter 6 (article 3).
	Tertiary objective	To determine the pervasive skills to which the tax students were exposed in the intervention	Performed a factor analysis on perceptions collected by means of questionnaires distributed to all participating students. Performed a t-test analysis comparing the exposure to pervasive skills in the northern region to that of the southern region; reported in chapter 6 (article 3).
	Tertiary objective	To establish the main perceived benefits and the main perceived constraints as a result of	Analysed and compared perceptions collected by means of open-ended questions in a

		participation in the teaching intervention on a national level	questionnaire distributed to participating students in the northern and the southern region; reported in chapter 6 (article 3).
viii	Secondary objective	To critically evaluate and analyse the design variables of a newly developed teaching intervention to expose South African accounting students to the development of pervasive skills required in terms of SAICA's Competency Framework	Analysed focus group transcripts of interviews conducted with students who participated in the teaching intervention in its format of *The Amazing Tax Race* to determine the effectiveness of the teaching intervention's design variables supporting pervasive skills development; reported in chapter 7 (article 4).

The first two parts of the development process of the teaching intervention (i.e. design and implementation) were achieved by addressing *secondary research objectives i to iii,* and *v* (as indicated in table 8.1), while the third part (i.e. the evaluation) was achieved by addressing *secondary research objectives iv, vi* to *viii* and their *tertiary research objectives* (where relevant) (also indicated in table 8.1). The results and key findings related to each of the research objectives as stated in table 8.1 are briefly highlighted and summarised in sections 8.2.1 to 8.2.6 to follow.

8.2.1 Theoretical framework for developing a teaching intervention to expose accounting students to pervasive skills

In chapter 2 a theoretical framework was established (see 2.4, page 56) that provided a sound platform from which to guide the design and implementation of the teaching intervention (*addressing secondary research objective i listed in table 8.1*). This framework enhanced the researcher's chances of developing a teaching intervention that will successfully expose accounting students to pervasive skills.

The theoretical framework that was established could be used by accounting educators and trainers to design and implement their own teaching interventions aimed at exposing accounting students to pervasive skills. The key elements of this theoretical framework comprised the following:

- The main learning objective of the teaching intervention, namely to develop pervasive skills, should be clearly stated and communicated;
- The actions to be performed in the teaching intervention to demonstrate the various pervasive skills should be clearly defined. These actions should drive and direct the design of activities that participants would be required to execute in the teaching intervention;
- Activities incorporated in the teaching intervention need to create opportunities that will encourage, motivate and support the demonstration of the broader spectrum of the required pervasive skills set;
- The teaching intervention should create a relaxed environment in which pervasive skills could be freely and naturally developed (without fake and pretentious actions) and should provide learners the opportunity to work with and to learn from their peers;
- The teaching intervention should incorporate technology, simulate reality, and be interactive, creative, exciting, fun, innovative and stimulating to accommodate the learner profile and needs of the Generation Y-type student;
- The teaching intervention should accommodate different personalities and their learning preferences;
- The teaching intervention's teaching approach should be learner-centred;
- The teaching intervention's method of instruction should be inductive in nature;
- The teaching intervention should incorporate a combination and a wide variety of active learning methods;
- Activities incorporated in the teaching intervention should combine the application of pervasive skills with a broad spectrum of technical content; and
- The overall teaching intervention should incorporate practical application and real-world experiences to make learning relevant, practical and interesting.

Based on the established theoretical framework and all its key elements, a teaching intervention was designed, implemented and compared (*addressing secondary research objective ii listed in table 8.1*) and mapped against these key elements (*addressing secondary research objective iii listed in table 8.1*) for both its formats (i.e. *The Amazing Tax Race* and *The Tax Amazing Race*). The aforementioned actions (i.e. the designing,

implementation, comparison and mapping) were described in detail (see 2.5, page 58 and 2.6, page 65) and are briefly summarised in the following paragraphs.

The teaching intervention was designed and implemented in two different formats to expose accounting students to pervasive skills at a single university (*The Amazing Tax Race*) and students from various universities at a national level (*The Tax Amazing Race*). The overall concept, design and format of the two interventions were majorly the same, but some adjustments had to be made to the design and format of the *The Amazing Tax Race* for it to be hosted on a national level (see table 2.7, page 64).

The teaching intervention was designed to be outcomes-oriented and employed a student-centred approach. This approach was inquiry-based and combined various active and experiential learning methods to encourage students to be actively (physically and emotionally) involved throughout the learning process. The teaching intervention created a problem-based interactive reality-learning environment where the practical application of knowledge was motivated by the application and demonstration of pervasive skills. Apart from the fact that the teaching intervention was structured in the form of a race against time, the learning environment was relaxed with safe conditions in which students were allowed to freely express themselves and to make mistakes. This was further enhanced by the fact that there was no formal assessment. In the activities, specific problems needed to be resolved in order to successfully complete each activity. This served as an indicative measure that the learning objectives had been achieved before a team was allowed to move on to their next activity. Thus, informal and peer assessment were achieved.

Inductive methods of instruction were used to promote self-directed learning. The incorporation of various active learning methods into a single intervention accommodated various leaning styles and learning preferences and created multiple opportunities for various pervasive skills to be applied and demonstrated; thus, covering the full spectrum of the required pervasive skills set. Learning theory elements of the four scientific disciplinal domains underlying pervasive skills development in an accounting education context were also incorporated in the design of the teaching intervention (see table 2.9, page 74).

8.2.2 Methodological design and methods to evaluate a teaching intervention in the accountancy and educational sciences

Chapter 3 provided a holistic exploration of various methodological designs and methods in order to elect methodological elements that would adequately evaluate and analyse the

developed teaching intervention (*addressing secondary research objective iv*). The following methodological elements were found to be most suitable for conducting the overall research relating to pervasive skills development in an accounting educational domain:

The overall research was positioned within the *sociological* paradigm. A combined philosophical framework of *positivism* and *interpretivism* was employed because the researcher needed to describe and predict underlying *phenomena* based on human experiences. *Action research* was conducted, taking a holistic view of *phenomena* based on the *epistemological* decision to include all the evidence drawn from a *parallel-convergent mixed-method* research design. The survey strategy comprised structured questionnaires rendering *quantitative* data, supplemented by *qualitative* methods which included focus group interviews conducted with different role-players (accounting students and accounting educators). This was further supplemented by the researcher's personal experiences and field notes as *action researcher*. The *time horizon* of the research was mainly *cross-sectional*, with some underlying *longitudinal* elements. Findings were grounded by *triangulating* them with evidence gathered from the literature. The *grounded theory* strategy enabled knowledge to be *inductively* developed based on systematic data collection (surveying occurred first, followed by interviewing).

In addition, to ensure the *credibility* and *rigour* of the research, specifically with regard to *qualitative* data analysis, all material and data were organised in a plausible framework by searching for logical patterns in the results with the aid of recognised CAQDAS, namely ATLAS.ti (version 7.1.4, 2014). *Quantitative* data were captured and analysed by means of SPSS (release 21.0.0, 2014). To ensure the correct interpretation and reporting of all statistical data analysis, all statistical findings and conclusions were reviewed and discussed with an independent qualified statistician after the results had been compiled and formulated. Both these data analysis procedures *inductively* contributed to the research findings and conclusions. The researcher also implemented specific measures to ensure that the research was conducted in an *ethical* manner.

The specific research methodologies applied per research article in this thesis are indicated in chapters 4 to 7 (see 4.4, page 141; 5.5, page 173; 6.5, page 206; and 7.5, page 235) and are also summarised in table 3.5 (see chapter 3, page 124).

8.2.3 Taking stock of South African accounting students' pervasive skills development: Are we making progress?

The level of awareness and perceived importance of pervasive skills development was determined from three different perspectives (i.e. students, educators and employers) (*addressing the first tertiary research objective supporting secondary research objective v listed in table 8.1*). It was found that students were aware of and did perceive pervasive skills development as an important aspect of their higher education accounting curricula. However, the quantitative results relating to students' level of awareness of pervasive skills requirements were expected to be much higher considering the fact that the evaluation was conducted among CA(SA) students at a SAICA-accredited university where students are supposed to be fully informed as to the requirements and expectations of them as CA(SA) candidates. It is, thus, concluded that there is definitely room for improvement in raising student awareness of the pervasive skills development requirements, of the importance of these skills and of how they are to be incorporated into the accounting curricula at the higher education level.

From an educator's perspective, it was quite alarming to find that accounting educators are either unaware that they should be incorporating pervasive skills into their modules and curricula as required in terms of SAICA's Competency Framework or aware of the requirement, but not actively responsive to it. It was further found that, despite the prescriptions contained in the SAICA Competency Framework, accounting educators only perceived the development of six of the twelve required pervasive skills to be their responsibility, namely *ethical awareness, time management*, *critical thinking, problem-solving*, *communication (writing)* and *strategic thinking.* It is, therefore, concluded that higher education accounting curricula are not adequately designed to ensure the effective incorporation and development of the full spectrum of the required pervasive skills set. Consequently, students enter the profession without being adequately equipped with the pervasive skills which are imperative for functioning effectively in the professional environment.

The level of students' exposure to pervasive skills in undergraduate models was determined, as well as their level of possessing the required pervasive skills near the end of their third year of studies (*addressing the second tertiary research objective supporting secondary research objective v listed in table 8.1)*. The findings showed that these levels of exposure were moderate to high. However, students indicated that their exposure mainly constituted being made aware of the importance of pervasive skills, rather than having to actively

incorporate and apply them in course modules. It is, therefore, concluded that accounting students are still not being adequately exposed to sufficient opportunities to develop pervasive skills at the higher education level. The results also indicated a definite under-emphasis on and need for the development of *leadership* skills. Therefore, the active incorporation of pervasive skills development into accounting-related course modules is still in need of improvement.

It was positive to find that accounting-related employer companies perceived themselves as having a role to play and a responsibility to fulfil in developing pervasive skills in accounting students at the higher education level (*addressing the third tertiary research objective supporting secondary research objective v listed in table 8.1)*. Employers especially value the development of *teamwork*, *communication (verbal)* and *strategic thinking* in graduates at the higher education level before they enter the formal workplace. Employers suggested becoming involved through methods such as *simulated client situations*, *mock interviews*, *subject-integrated group projects* and *guest lectures*.

In conclusion, although progress have been made with regard to pervasive skills development at the higher education level in South Africa, it was clear from the results (*addressing secondary research objective v listed in table 8.1*) that numerous challenges are prevailing and that there is still a need for improving the overall awareness and responsiveness towards pervasive skills development in the South African accounting education environment.

8.2.4 Developing pervasive skills: Usefulness of a tax intervention

The findings of this study (chapter 5; article 2) relate to the evaluation of the teaching intervention presented in its format of *The Amazing Tax Race*. In respect of the teaching intervention's ability to encourage students to apply pervasive skills (*addressing secondary research objective vi and its first tertiary research objective listed in table 8.1*), the majority of the students who both participated and acted on the planning and organising committee indicated that they had to apply all the pervasive skills as required in terms of the SAICA Competency Framework. Two significant differences were identified when the quantitative findings related to the application of pervasive skills from these two groups of students were compared:

- Firstly, the results indicated that committee members learned more from the way that participants and fellow committee members interpreted different concepts than participants did. This could be ascribed to the fact that the intervention provided a two-

folded opportunity for committee members to learn from peers, namely (i) during the planning stage prior to the intervention (learning from fellow committee members); and (ii) during the intervention itself (learning from participating students);

- Secondly, the results indicated that committee members developed interpersonal skills to a greater extent than participants did. This could be explained by the fact that committee members had to interact on a personal level not only with other committee members, but also with all the participants who visited their stations, the organiser (researcher), and the staff from the employer companies who assisted in manning the stations.

The results of both the quantitative (questionnaires) and qualitative (focus group transcripts) analysis indicated that *teamwork* was the most prominent pervasive skill present in the teaching intervention as perceived by both students and staff of employer companies. Although the order differed, the top four skills identified by the two groups (students and employers) corresponded, namely (1) *teamwork*; (2) *communication (listening)*; (3) *problem-solving*; and (4) *communication (verbal*) indicated by student interviewees, and (1) *teamwork*; (2) *communication (listening)*; (3) *communication (verbal)* and *time management*; and (4) *problem-solving*, indicated by staff from employer companies. In addition, the qualitative and quantitative data analysis respectively indicated that eleven (reported by student interviewees) and nine (reported by staff of employer companies) out of the twelve pervasive skills required in terms of the SAICA Competency Framework were prominently present in the teaching intervention. This served as proof that the teaching intervention was successful in incorporating and exposing students to a comprehensive range of the required pervasive skills set. The results (quantitative findings supported by qualitative analysis) showed that participants perceived the following four pervasive skills to be the least prominent in the teaching intervention: (1) *communication (writing)*; (2) *professionalism*; (3) *ethical awareness*; and (4) *leadership* (*addressing the second tertiary research objective supporting secondary research objective vi as listed in table 8.1*).

In respect of the main benefits and constraints of the teaching intervention (*addressing the third tertiary research objective supporting secondary research objective vi listed in table 8.1)* the results from the analyses of the open-ended questions in the questionnaire indicated that all three groups (student participants, student committee members and staff of employer companies) perceived *teamwork skills development* as the teaching intervention's greatest benefit. In addition, the results indicated that the intervention was also perceived to be largely beneficial in developing technical (hard) skills, such as obtaining a better understanding of tax theory and tax concepts due to practical application. The *physical aspect* (the race required running) was reported by student participants as the teaching

intervention's main constraint. However, the focus group interviews revealed that the latter supported the development of the skills of *leadership* and *influencing others* because tired team members who struggled to keep up had to be motivated. Committee members reported the teaching intervention as being "too time-consuming", which they considered to be the major constraint (to plan all the activities took a great deal of time). On the other hand, staff from employer companies indicated as major constraint the fact that activities occurred under time constraints, resulting in teams' being rushed and missing important information provided to fully comprehend and execute activities.

In conclusion, all three groups (student participants, student committee members and staff of employer companies) indicated that the teaching intervention overall positively contributed towards pervasive skills development. Students indicated that they would recommend the teaching intervention to other students to obtain exposure to pervasive skills.

8.2.5 Nationally hosted tax intervention: South African students' perceptions of its usefulness to develop pervasive skills

The findings of this study (chapter 6; article 3) related to the evaluation of the teaching intervention presented in its format of *The Tax Amazing Race*. This article compared the findings from the two geographic regions in which the teaching intervention was hosted (northern and southern region) by validating the findings through the repetition of the teaching intervention from one region to the next. It also reported on the findings of the two regions in aggregate. This repetitive evaluation and testing are synonymous with the cyclic nature of action research.

To determine which pervasive skills the teaching intervention required students to apply (*addressing the first tertiary research objective supporting secondary research objective vii listed in table 8.1*), four factors were extracted from the exploratory factor analysis performed on the aggregated data set, namely *leadership* (factor 1), *influencing others* (factor 2), *strategic and critical thinking* (factor 3), and *communication* (factor 4). Based on the results of the mean values, *communication* was found to be the main pervasive skill applied by students during their participation in the teaching intervention.

In respect of determining the pervasive skills to which the teaching intervention exposed the students (thus, providing opportunities in which specific pervasive skills could be demonstrated) (*addressing the second tertiary research objective supporting secondary research objective vii listed in table 8.1*), two factors, labelled as *personal skills (factor 1)* and

(ii) *interpersonal skills (factor 2)*, were extracted from an exploratory factor analysis performed on the combined data set. Factor 1 comprised six items (pervasive skills), while factor 2 comprised four items (pervasive skills). This served as proof that the teaching intervention was successful in exposing students to the broader spectrum of the required pervasive skills set, as ten of the twelve required pervasive skills loaded in total under factors 1 and 2 in aggregate.

Findings related to the teaching intervention's main perceived benefits and constraints (*addressing the third tertiary research objective supporting secondary research objective vii listed in table 8.1*) indicated that the overall majority of participants perceived *teamwork skills development* to be the teaching intervention's main benefit. Other benefits included *learning while having fun*; *obtaining a better understanding of tax concepts due to integrated learning opportunities where technical knowledge was applied by demonstrating pervasive skills; enhancement of self-confidence*; and *positive contribution to relationship building*. The overall main perceived constraints reported were *too physically challenging; difficulty level of the activities was sometimes too high; overall lack of logistical control was sometimes experienced.*

In conclusion, students overall indicated a positive experience regarding the teaching intervention and perceived the intervention to be useful in developing their pervasive skills (*addressing secondary research objective vii listed in table 8.1*).

8.2.6 Qualitative evaluation of design variables of a teaching intervention to expose accounting students to pervasive skills

The findings of this study (chapter 7; article 4) related to the qualitative evaluation of the design variables of the teaching intervention presented in its format of *The Amazing Tax Race* (*addressing secondary research objective viii listed in table 8.1*). The following findings were reported in respect of each design variable:

- *Participants: Team size*

The teaching intervention was found to be beneficial in that it allowed for more students to participate per team (eight individuals per team), while effective pervasive skills development still occurred when compared to other interventions in the literature where fewer members per team are suggested. Therefore, the format of this teaching intervention could serve as a solution for accounting educators who face the challenge of pervasive skills development in

large classes. It was, however, noted that the design of some activities was not always effective in actively involving all team members.

- *Participants: Selection of teams*

The variable of self-selected teams was perceived to be positive because it encouraged introvert-type personalities to participate. With self-selection, team members knew one another and a relaxed environment was created in which pervasive skills could be freely and naturally developed. Self-selected teams also contributed to better problem-solving and strategising skills because team members knew one another's strengths and weaknesses.

- *Logistics: Number of stations and distances between stations*

The participants indicated a positive view with regard to the fact that the teaching intervention was a race against time where participants were required to run. The participants also viewed the number of stations (13) and the distances between stations to be sufficient. Participants indicated that, with more stations, the overall intervention might have taken too long to complete and might have been too physically challenging for some participants. The thirteen stations were perceived to allow for sufficient opportunity to effectively combine a variety of pervasive skills with a variety of technical topics covered in the module-related syllabus.

- *Activities: Physical element*

The physical aspect, which resulted in participants' becoming tired, was found to support the development of pervasive skills such as *leadership* and *motivating and influencing others* due to the fact that team members who were struggling to keep up had to be motivated. It was further found that being forced to think critically, strategise and act while being tired, contributed to simulating an environment closer to reality where professionals need to effectively perform even when tired and working under pressurised conditions.

- *Logistics: Time of the year*

Because the teaching intervention was physically challenging, the time of hosting it in the academic year had to be carefully considered. It has been determined that negative weather conditions (such as heat and rain) negatively influence participants' learning experience. Also, the fact that the teaching intervention was hosted near the end of the academic calendar year was found to be beneficial in that students had already been exposed to the majority of the technical content and topics of the syllabus during formal contact sessions, tests and assignments. This was found to support pervasive skills development, reflecting

the elements of *mastery learning*, and to promote the development of the higher-order skills after the lower-orders skills had been attained as proposed by Bloom's revised Taxonomy (see 2.3.4, page 54).

- *Activities: Content and level of difficulty*

Competency encompasses the application of knowledge through the demonstration of pervasive skills. Thus, pervasive skills development was found to be supported by the prerequisite of participants to have a basic understanding and knowledge of technical concepts. However, it was established that exposure to technical content by means of formal contact sessions, tests and assignments prior to the intervention was sufficient in preparing students to participate in the teaching intervention. The fact that students were not required to study or academically prepare for the teaching intervention emphasised the development of pervasive skills rather than technical skills. In addition, the level of difficulty of technical content incorporated in activities was found to be not too complex in that they only focused on basic principles. In this way, the main focus of activities remained on applying and demonstrating pervasive skills.

- *Rules and assignment: Rules*

The rules provided to participants prior to the teaching intervention proved to be beneficial in that they clarified uncertainties and informed students on what actions were allowed during the race.

- *Rules and assignment: Elements of surprise/keeping it interesting*

The rules were generic and provided no detailed information on activities to be performed, thus, ensuring an *element of surprise*. This supported pervasive skills development because it forced the unprepared participants to act in the moment.

- *Activities: Competition element*

The fact that the intervention was presented as a race against time in a competition format was found to be beneficial in that it contributed to the development of effective *time management* skills and forced students to *strategise*, *think on their feet* and *make quick decisions* under time constraints. However, students indicated that the fast pace of the race negatively impacted proper pervasive skills development because their actions were rushed. Still, participants were not allowed to move on to the next station if a specific activity had not been completed successfully. Students indicated that rushed actions resulted in unnecessary mistakes which cost them valuable time. It is, therefore, evident that the latter

contributed to making students realise that, although they had to act under time constraints, they still needed to calm themselves in order to remain productive while applying effective time management.

- *Rules and assignment: Assessment*

Participants were not formally assessed on their actions during participation in the teaching intervention but had to apply informal and peer assessment (such as the successful completion of an activity before being allowed to move to the next station). This aspect positively contributed towards creating a relaxed environment in which students had the opportunity to naturally and freely develop their pervasive skills without the need for faked actions. This, in turn, supported pervasive skills development, because pervasive skills need to be developed naturally and spontaneously.

- *Participants: Team-building elements*

The use of the design variables, such as requiring teams to choose a creative team name and team song, prepare a team war cry and wear something unique (team dress) portraying the team's name, was found to positively contribute towards skills development aspects such as *relationship building*, *conflict handling*, *creative thinking* and *creating a sense of healthy competition* between teams and overall *excitement*.

- *Rules and assignment: Use of language*

Students seemed to have benefitted from using a combination of languages as method of instructions (both in terms of clue cards and information provided at each station) rather than a complete set of bilingual information. In this way they learned to deal with different languages, which also supported the development of their overall *communication* and *interpersonal* skills. This was also found to better portray and to be more closely aligned with the reality of the formal workplace where students need to be able to deal with both Afrikaans and English documentation and clients.

8.3 Reflecting upon and concluding on the overall primary research objective

The overall primary research objective that this study aimed to achieve was:

To develop a teaching intervention that could be incorporated as part of the higher education accounting curricula to effectively expose accounting students to pervasive skills.

To achieve this objective the first step was to base the design and the implementation of the teaching intervention on the key elements of the theoretical framework which was established from the robust literature review performed in chapter 2 (pages 22 to 93). The next step was to explore and select the most appropriate methodological elements to adequately evaluate and analyse the teaching intervention, as performed in chapter 3 (pages 94 to 135). Subsequently, the empirical findings were obtained by employing an overall *parallel-convergent mixed methodology* research design in the research studies, as set out in chapters 4 to 7 (pages 136 to 253), after which recommendations were identified, as set out in this chapter (see 8.5, page 274). By reflecting upon the latter, *secondary research objective ix* (see 1.5, page 8) is addressed and supports the achievement of the primary research objective of this thesis.

Based on these findings, it can be concluded that the teaching intervention developed in this thesis could be incorporated as part of higher education accounting curricula to effectively expose accounting students to pervasive skills. It is, therefore, concluded that the primary research objective of this study was achieved.

The contribution of this thesis, specifically with regard to its findings, conclusions, recommendations and new developments, to the field of accounting education is highlighted and argued in section 8.6 (page 276).

8.4 Proving the hypothesis

The hypothesis tested in this study was formulated as follows:

The development (i.e. the design, implementation and evaluation) of a new teaching intervention will expose accounting students to pervasive skills[1] *and will positively contribute to accounting education pedagogy in respect of pervasive skills development at the higher education level* [2]*.*

[1]The first part of the hypothesis was accepted due to the fact that the results of the evaluation of the teaching intervention in both its formats (see article 2, pages 164 to 196; and article 3, pages 197 to 227) indicated that the teaching intervention was successful in exposing accounting students to pervasive skills.

[2]The second part of the hypothesis was also accepted because the developed teaching intervention is regarded as a first and one-of-its-kind type of intervention that was hosted to students not only at a single university, but also to students from seven different universities across South Africa. Hence, the teaching intervention made a positive contribution in respect of pervasive skills development at the higher education level.

Based on these findings, it is noted that both the elements of the hypothesis were addressed in this study. From the above discussion, it can be concluded that the hypothesis tested in this study was proven correct and can be accepted.

8.5 Recommendations

Recommendations are made in two broad categories and are indicated in the section to follow.

8.5.1 Recommendations related to pervasive skills development in accounting education in general

- It is recommended that accounting educators and programmes clearly articulate the importance of pervasive skills development and indicate the methods by which they are to be embedded in the various accounting-related degree modules. This can be achieved by means of teaching–learning strategy information sessions, distribution of document hand-outs, electronic distribution of emails and uploads on Learning Management Systems such as Sakai or Blackboard, and by incorporating the skills in the formulation and setting of learning outcomes to be included in study guides and study-related material. This communication should clearly indicate, motivate, explain and emphasise the crucial role that the effective demonstration of pervasive skills plays in the practical application of technical knowledge;
- Based on the findings (see 4.6, page 156) that employers are willing to become involved and perceive themselves as having a role to play in developing pervasive skills in accounting students at the higher education level, it is recommended that universities and accounting-related employer companies partner to overcome pervasive skills development shortages prevailing at this level. It is submitted that synergies in such partnerships will contribute to the accounting education pedagogy of pervasive skills development of South African accounting students;
- The literature suggests that the majority of accounting educators and trainers at the higher education level are professionally trained accountants and/or auditors who do not

perceive themselves as being experts in pervasive skills development (Shakir, 2009:313). Therefore, it is recommended that accounting departments at universities, SAICA and accounting-related employer companies liaise to find methods to motivate (and even fund) these educators and trainers to obtain the necessary skills needed to develop (i.e. to design, implement and evaluate) teaching interventions that are effective in incorporating pervasive skills into higher accounting education curricula; and

- The findings of the first research article (chapter 4) highlighted an under-emphasis on the development of leadership skills and qualities in accounting students. It is, therefore, recommended that accounting educators take cognisance of this fact when developing teaching interventions aimed at pervasive skills development.

8.5.2 Recommendations related to the teaching intervention and its design variables

- The evaluation of the teaching intervention (in both its formats) indicated its ability to successfully incorporate and expose students to the full spectrum of the required pervasive skills set. It is, thus, recommended that accounting educators and trainers develop (i.e. design, implement and evaluate) teaching interventions aimed at the full spectrum of the required pervasive skills set instead of at a single or a limited number of pervasive skills. This could be achieved by integrating a wide variety of active and experiential learning methods into a single teaching intervention, meaning that fewer teaching interventions need to be developed. In addition, a single teaching intervention could more easily be incorporated into accounting curricula, which are already under pressure due to syllabus overload and limited contact time available in university timetables;
- Student participants pointed out several issues in the teaching intervention in its format of *The Tax Amazing Race* on a national level. These included (i) *a lack of logistical control on the side of the employer companies who hosted and manned the activities presented at the various stations*; and (ii) *a high level of difficulty of content incorporated in activities by employer companies*. For this reason, the recommendation is made that the employer companies liaise more closely with the organiser when conducting the overall planning of a teaching intervention to be hosted on a national level in future. This could contribute to overall improved logistical control because the organising stakeholders would be more informed on detailed aspects pertaining to the execution of a teaching intervention to be presented on a national level;
- It is recommended that accounting educators make use of the *design variables framework* as established in chapter 7 (see figure 7.1, page 245) when developing

teaching interventions aimed at the development of pervasive skills. The framework may contribute to evaluating the way in which various design variables would either contribute to or strain pervasive skills development; and

- During the evaluation of the design variable *team size* (see 8.2.6, page 269), it was noted that the design of some activities were not always effective in ensuring that all team members were actively involved. Based on this finding, it is recommended that careful consideration be given when designing activities for the teaching intervention to ensure that all team members would be engaged actively.

8.6 Contributions

This thesis made the following contributions:

- The study established a **new** theoretical framework in chapter 2 (see 2.4, page 56) that educators and trainers in the accounting education environment could apply to develop teaching interventions aimed at incorporating pervasive skills into higher accounting education curricula. Based on an extensive review of various literature, numerous key elements were formulated which enabled the construction of the theoretical framework. The theoretical framework could serve as a sound platform from which each key element will guide and inform the design of teaching interventions to enhance their chances of successfully exposing accounting students to the development of pervasive skills;
- Chapter 3 (starting on page 94) contributed to the literature by providing a guideline to the accounting education researcher in respect of the most suitable methodological design and methods, namely the methodological elements including the research *philosophies/ paradigms*, *approaches*, *strategies*, *choices*, *time horizons*, *techniques* and *procedures*. These elements can be applied in the accountancy and education sciences to evaluate and analyse a teaching intervention aimed at pervasive skills development. It is submitted that this chapter provided a holistic view of the different research methodological elements available as well as a better understanding of what each of these elements entail. The chapter further motivated the selection of each methodological element for conducting research in respect of pervasive skills development in an accounting education context;
- A **new** teaching tool was developed in this thesis and positively contributed to pervasive skills development in the field of accounting at the higher education level. The teaching intervention is original and innovative and has proven to positively contribute towards successfully exposing accounting students to pervasive skills. Its contribution is enhanced by its proven ability to be hosted not only at a single higher education institution, but also on a national level to students from various South African higher education institutions.

Apart from the fact that it was found to be useful in developing pervasive skills in accounting students, the intervention contributed to purposefully enhancing students' understanding of technical tax knowledge and concepts. In addition, this intervention was the first-of-its-kind, tax-related teaching intervention to be hosted in South Africa on a national level to various universities;

- The study contributed to the body of knowledge pertaining to pervasive skills development within an accounting education context by establishing a **new** framework of design variables in chapter 7 (see 7.7, page 244). This framework could be applied by accounting educators when considering various design variables to be incorporated into the design of teaching interventions to expose accounting students to pervasive skills. It was indicated how each design variable applied in the teaching intervention either contributed to or strained pervasive skills development;
- **New** data-gathering instruments (questionnaires) were developed and tested, which other accounting education researchers can apply to evaluate the effectiveness of their own teaching interventions aimed at pervasive skills development (see annexure Q, annexure R, annexure S, annexure T, and annexure U);
- Based on the findings, recommendations were made regarding action steps to be taken to enhance the development of pervasive skills in accounting students at the higher education level (see 8.5, page 274); and
- Areas for further development and research were identified which may contribute to pervasive skills development in the field of accounting education (see 8.8, page 282).

Pervasive skills are universal and not subject specific. Consequently, it could be developed independently from any domain of knowledge (Barrie, 2004; Boyce, Williams, Kelly & Yee, 2001). The researcher is, therefore, of the opinion that the overall structure and design variables of the teaching intervention (in both its formats) developed in this thesis could be applied not only in accounting education, but in any field of study to develop pervasive skills. In the accounting education context the technical content of any accounting-related module, such as financial accounting, auditing, management accounting, financial management, strategy and taxation could be applied in the various activities of the teaching intervention. However, it is stressed that the overall design of the teaching intervention should remain focused on the exposure to pervasive skills development and that technical content should not be too complex or incorporated in such a manner that it will overpower pervasive skills development. Hence, the flexibility of the teaching intervention to be adapted to any subject-specific field of knowledge further enhances the contribution of this study.

In addition, the study determined the current state and progress made in terms of pervasive skills development at the higher accounting education level in a South African context (see 2.2.5, page 41 and chapter 4, starting on page 136). The prevailing challenges, limitations and gaps were highlighted and the design of the teaching intervention was moulded in an attempt to address these. It is, therefore, argued that this thesis also contributes to addressing the following challenges, limitations and gaps highlighted in the accounting education literature pertaining to the development of pervasive skills:

- It is clear from the literature that the development of pervasive skills in other similar teaching interventions is primarily subordinate to the enhancement of students' understanding of technical content and concepts. In contrast, the teaching intervention in this thesis was developed (i.e. designed, implemented and evaluated) with the main aim and learning objective to enhance and promote pervasive skills;
- Where other teaching interventions usually struggle to accommodate students with different personalities and learning preferences, the teaching intervention developed in this thesis (in its form of *The Amazing Tax Race*) successfully overcame this stumbling block. In this intervention students were allowed to elect, based on their personality and preferred learning style, to be part of the intervention either as a participating team member (more closely aligned with extrovert personality types) or as an acting member of the planning and organising committee (more closely aligned with introvert personality types);
- Where it is challenging to achieve a good mixture of both higher-order and lower-order skills in a single teaching intervention, the teaching intervention developed in this thesis succeeded by combining pervasive skills and technical skills into various problems to be resolved during a wide variety of activities. Basic knowledge of technical tax concepts and principles (obtained during formal lectures, test and assignments before the teaching intervention) was a prerequisite for participation in the teaching intervention. Thus, students were required to use the lower-order skills of *remembering*, *understanding* and *applying* in order to develop the higher-order skills of *analysing*, *evaluating* and *creating* (see 2.3.4, page 54);
- Where teaching interventions usually only use one or a limited number of active learning methods to support pervasive skills development, the teaching intervention developed in this thesis employed a wide variety of active learning methods including the *inquiry-based method*, *interactive learning*, *cooperative learning*, *problem-based learning* and a wide variety of *experience-based methods* such as *mini-case studies*, *games*, *simulations* and *role-plays* (see annexure E and annexure P where all the activities are explicitly described and explained). The wide variety of active learning methods also

accommodated various learning styles and preferences and addressed the needs of the Generation Y-type student who is socially active, collaborative, team-oriented, likes to multi-task and prefers variety, fun, innovation and excitement (see 2.2.3, page 34);

- Time to design and execute teaching interventions aimed at pervasive skills development is limited due syllabus overload and limited contact time available in university timetables, among other things. In this regard, the teaching intervention developed in this thesis is beneficial in that it incorporated and targeted the full spectrum of the required pervasive skills set into one single teaching intervention. Thus, instead of employing many teaching interventions, each aimed at targeting a specific or a limited number of pervasive skills within a limited time framework, a few single interventions that successfully expose students to the full spectrum of the required pervasive skills set should be used. In addition, this intervention was hosted as an *outside the normal classroom environment* activity where students were required to interact with their environment within a *reality learning* setting;
- A gap in accounting education literature was highlighted, namely the fact that very few teaching interventions are being developed and researched in the subject-specific field of taxation. The teaching intervention developed in this thesis was specifically tax-related and served to contribute to the limited body of knowledge available in the literature in this respect;
- Although the importance of incorporating pervasive skills development as part of higher accounting education and training is widely advocated by practice and professional accounting bodies, it was found that different role-players' (i.e. accounting students' and educators') sensitivity to, level of awareness and perceived level of importance of pervasive skills development are still in need of improvement. The teaching intervention raised renewed awareness of the importance of pervasive skills development as part of higher accounting education and training, not only among accounting students of the NWU Potchefstroom campus, but also among tax students from seven different universities across South Africa;
- The challenges were highlighted in respect of large student numbers and uncertainty regarding the use of groups and what group sizes are both effective and controllable. To accommodate as many students as possible, the design of the teaching intervention (in its format of *The Amazing Tax Race*) allowed students to either participate in the intervention or to act on the planning and organising committee. Also, teams comprised eight members in the format of *The Amazing Tax Race*, while teams comprised between six and ten members in the format of *The Tax Amazing Race*. Although these team sizes were larger than suggested by the literature (which provided contradicting reports in

general), these team sizes were perceived to be effective where activities were appropriately designed to accommodate and involve all team members. (Also see the detailed results on the qualitative analysis of *team size and selection* under 8.2.6, page 269.);

- As the development of pervasive skills is inherently difficult to measure, the assessment of these skills also remain problematic. Because pervasive skills are supposed to be developed naturally, formal assessment is not the ideal way of assessing these skills. Furthermore, formal assessment might actually hamper pervasive skills development in that it creates an environment in which the assessed are placed under pressure to demonstrate pervasive skills, which could, in fact, encourage them to fake actions. This problem was resolved in the design of the teaching intervention through the use of informal and peer assessment as follows:

  The Amazing Tax Race

  - Peer assessment was achieved where committee members had to evaluate and assess one another's developed and designed activities during a formal committee meeting (brainstorming session); and
  - Peer assessment was achieved where a participating team first had to successfully complete a specific activity at a specific station, as assessed by the committee members manning that station, before they were allowed to obtain their next clue leading them to their next station.

  The Tax Amazing Race

  - Informal assessment of each participating team occurred at every station as specific employer companies who manned and presented the activities had to assess the successful completion of each activity before they were allowed to hand the team their next clue leading them to their next station;
- The hosting of the developed teaching intervention in its format of *The Tax Amazing Race* on a national level was beneficial in that it created an opportunity for tax students studying at universities across South Africa to be exposed to and to develop pervasive skills. This, to a certain extent, released pressure from tax educators at universities who are already under pressure to design, develop and implement their own interventions, to now apply the same or similar concept and/or to encourage their own students to participate in the nationally hosted teaching intervention.

8.7 Limitations of the study

It is acknowledged that the research conducted in this thesis, like any other research, was subject to certain limitations. Limitations pertaining to the study overall are discussed in the

section to follow, together with an indication on how the researcher attempted to address these limitations.

- *The possibility of sampling bias was present, which could limit the generalisability of the findings*

  Sampling bias was possible due to the fact that students were allowed to either participate in the activities of the teaching intervention or to act on the planning and organising committee of the intervention. Therefore, the quantitative samples could not be classified as random samples, but as availability samples. However, for the evaluation of the teaching intervention in its format of *The Amazing Tax Race*, perceptions were gathered from multiple perspectives (namely from students who participated, students who acted on the planning an organising committee, and staff from employer companies) which could have compensated for sampling bias. Also, for the teaching intervention in its format of *The Tax Amazing Race*, the evaluation was conducted in two different regions (northern and southern region) gaining perceptions of students from seven different universities across South Africa. This could also increase the extent to which the results may be generalised. Hence, the findings could be useful not only for tax educators and trainers at these universities, but also to accounting educators, professional accounting bodies and employers in respect of the future design of teaching interventions aimed at pervasive skills development in the field of accounting education and training.

- *Focus group interviews were conducted as research method and were only confined to the accounting students and educators of a single university*

  The study employed a *parallel-convergent mixed-methods research design* in which the validity and the reliability of the results of the quantitative analysis were not only confirmed by means of several statistical measures, but also informed by the findings of a qualitative data analysis. Although the results of the focus group interviews were confined to only accounting students and educators of a single university (involved in the *The Amazing Tax Race*), they yielded valuable insights into the findings of the quantitative analysis. Although this could also limit the generalisability of the results, it is, however, not perceived as a major obstacle since the research objective was exploratory in nature and was aimed at theory generation.

  Owing to the subjective and evaluative nature of qualitative research techniques, such as using focus group interviews as research method, there is no guarantee that the same themes would emerge when interview transcripts are analysed by another person.

However, the researcher took great care in ensuring that the themes identified were as precise and complete as possible. The following measures were implemented by the researcher to avoid bias and ambiguity (as far as possible) in the qualitative data analysis process:

- Participation in focus group interviews were voluntary and occurred on open invitation;
- All quotes in Afrikaans were meticulously translated into English and were reviewed by an independent person as a measure to ensure that the true meaning was retained;
- Transcripts were attentively read by the researcher several times;
- Data analysis was performed by using the CAQDAS tool, ATLAS.ti (version 7.1.4, 2014), to content analyse the focus group interview transcripts; and
- Precision and careful judgement were applied when the final themes were formulated and when quotes were extracted using a deductive coding approach.

- *Difficultly in precisely measuring and assessing pervasive skills development*
  Pervasive skills are intangible and inherently embedded within one's true personality, human nature and ability, which make it difficult to be measured or assessed with precision. Therefore, although this thesis tested the teaching intervention's ability to expose accounting students to pervasive skills, it did not measure the actual benefit derived. Also, the teaching intervention (in both its formats) was conducted as an extra-curricular activity which did not impact the normal teaching–learning assessment of the students involved. To prevent faked actions, it was decided not to incorporate formal assessment into the design of the teaching intervention. However, elements of assessment were incorporated into the design by means of peer assessment and informal assessment (see table 2.8, page 66).

Specific limitations related to the evaluation of the teaching intervention in its two formats are indicated in chapters 5 to 7 (see 5.8, page 188; 6.8, page 221; and 7.8, page 247).

8.8 Areas for further development and research

Some areas requiring further development and research were identified in this thesis and may contribute to the robustness of future accounting education research pertaining to the development of pervasive skills.

The identified *areas for further development and research* include the following:

- Future studies should focus on developing reliable assessment instruments to adequately assess pervasive skills development in students at the higher education level. These

assessment instruments should be supplemented with detailed assessment criteria in order to accurately measure and determine the actual benefit derived from participation in teaching interventions aimed at pervasive skills development;

- Methods should be developed to motivate and equip accounting educators, such as professional accountants and auditors with no background in education, with the necessary skills to re-curriculate accounting degree modules and programmes to create sufficient opportunities to expose graduates to pervasive skills development;
- It is recommended that SAICA further develop their Competency Framework to clearly define the meaning of each of the required pervasive skills. This will better inform accounting educators at the higher education level of the type of pervasive skills that should be mastered. This, in turn, will contribute to improved formulations of learning outcomes with regard to pervasive skills development. In addition, it will ease the design and development process of teaching interventions because different design variables could be selected with greater care and consideration. Ultimately, this could enhance the chances of achieving specific learning outcomes regarding pervasive skills development;
- The SAICA Competency Framework (2014:17) states that, as part of the on-going accreditation and monitoring of academic programmes presented by SAICA-accredited universities, the academic providers are required to explain how the various pervasive skills are addressed within the academic programme, and if not, to explain and to provide a full motivation on why certain skills have been excluded. It is, however, unclear as to how academic providers should motivate these exclusions and what criteria SAICA would apply to either accept or reject these motivated exclusions. Therefore, the recommendation is made that SAICA develop clearer guidelines to accounting educators and employers regarding which pervasive skills should be developed at the higher education level as opposed to those that should be developed during formal employment (i.e. the period of working under a training contract signed with a SAICA-accredited training-officer employer company);
- The literature clearly indicates a need for the development, design and evaluation of teaching interventions in which pervasive skills are incorporated into single accounting-related degree modules as well as where course modules are integrated. Integrated course modules will simulate pervasive skills development in an environment closer to reality, as accounting students will be required to demonstrate the required pervasive skills set in a complex integrated environment in the actual formal workplace;
- The evaluation of the teaching intervention developed in this thesis was limited to the perceptions of self-selected groups of individuals who volunteered to participate. Future research evaluations could be conducted where the teaching intervention is repeated, but

where participants do have the freedom to self-select their team members, but where team composition is predetermined by the organiser based on specific pre-determined criteria that would be more similar in simulating the actual work place environment;

- Further research in respect of the development of the teaching intervention could also be conducted in terms of an in-depth qualitative evaluation of the perceptions of the students who acted on the planning and organising committee. An investigation of the detailed processes followed and the student committee members' experiences of executing their responsibilities to develop the various tax-related activities could be valuable to inform the replication of the teaching intervention in future; and
- Based on the findings of the study conducted in article 1 (chapter 4), it is evident that accounting educators did not perceive the full pervasive skills set as required by SAICA to be their responsibility and indicated that some of the pervasive skills would be better developed in practice. Also, differences were noted with regard to various pervasive skills perceived to be important and expected to be developed at the higher education level. Cognisance should be taken of these differences in the expectations of accounting students, educators and employers regarding specific pervasive skills. These differences should be carefully considered and methods should be investigated in order to narrow and manage these expectation gaps. It is recommended that research findings on expectation gaps be clearly communicated to SAICA and that SAICA liaise with the various role-players in an attempt to close the expectation gaps. The latter could serve as the basis for drafting a document that provides clearer guidelines to the role-players, especially accounting educators and employers, with regard to their roles and responsibilities. These guidelines should specify these roles and responsibilities not with regard to the overall pervasive skills development as currently addressed in the SAICA Competency Framework, but instead with regard to specific pervasive skills which should be developed in accounting students either at the higher education level or in the formal workplace.

8.9 References

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