The role of self-efficacy factors, individual characteristics and WIL participation on accounting near-graduate students' employment outcomes

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A thesis submitted in total fulfilment of the requirements for the degree of
Doctor of Philosophy

College of Business
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June 2018

Abstract

The issue of graduate employment has long been a focus in research, particularly in accounting education. Increasingly, higher education institutions promote this aspect to help them attract and retain high-quality students and maintain their competitive advantage in the market place. Given its importance, the present research analyses the association between the three self-efficacy factors of the general self-efficacy scale (GSES): *initiative*, *effort* and *persistence* on accounting near-graduate employment outcomes. Currently, no studies in accounting education have analysed this association in this context, so this research constitutes a contribution to the literature. Furthermore, there is limited research on the association of overall general self-efficacy (GSE) with accounting student employment outcomes.

In addition to the three-factor GSES structure, the present study also includes students' individual characteristics (i.e., *gender, age, residency, study mode* and *language*), and *WIL* participation as potential factors impacting near-graduate accounting students' employment outcomes. Furthermore, the study also examines the potential association between the three factors of the GSES with students' participation in WIL programs during their degree course.

The three-factor self-efficacy construct, based on a trait-like method, was adopted instead of the overall GSES structure, as the former approach enables a deeper analysis of the GSE concept via the employment of separate independent variables. Consequently, the importance of the individual factors and their impact on employment and WIL participation is clearly and distinctively revealed.

The study sample consisted of 337 near-graduate accounting students from Victoria University and Swinburne University of Technology, both based in Melbourne, Australia. The research employed logistic regression, as well as Lasso and R-glmulti statistical techniques, to examine the main research questions. In addition, Mann-Whitney U tests and Pearson chi-square tests were conducted to examine the association between accounting students' individual characteristics (*gender, age, residency, study mode* and *language*) and the three factors of GSES (*initiative*, *effort* and *persistence*).

The study results indicate that two out of the three GSES factors (specifically, *initiative* and *persistence*) showed a significant relationship with the employment outcomes of

near-graduate accounting students. The study results also confirmed prior research findings, which found that individual characteristics (i.e., *language*, *study mode*, *residency* and *age*) were significantly associated with employment outcomes. Furthermore, the results showed no significant association between the three self-efficacy factors and students' WIL participation.

The results of this study provide some important implications for accounting higher education with regard to improving the employment outcomes of accounting near-graduates. These include: (i) developing closer links with industry to improve student familiarity with workplace requirements; (ii) incorporating WIL programs into the accounting curriculum, such as in a professional degree program; (iii) tailoring parts of the curriculum, where possible, in order to improve student self-efficacy; (iv) promoting WIL and providing wider opportunities to access the program; and (v) examining the need for higher education reform to improve international student access to WIL participation during degree courses.

Declaration

I, Lioubov Satchakova, declare that the PhD thesis entitled “The role of self-efficacy factors, individual characteristics and WIL participation on accounting near-graduate students’ employment outcomes” is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature: Date: 18 June 2018

Lioubov Satchakova

Dedications

I dedicate this thesis to

my dear father Abram Yadgarov (who died in 1971)

and

my beloved mother Raya Abramova-Yakubova,

both extraordinary teachers and incredible parents,

to whom I owe everything in my life.

Acknowledgements

I would like to express my deepest gratitude to my principal supervisor Dr Riccardo Natoli for his utmost professional and invaluable support and patience during this difficult and challenging journey. Dr Natoli's guidance and encouragement deserves my highest appreciation.

I would like to thank Professor Beverley Jackling, my former principal supervisor, for her tremendously supportive and motivating guidance and the encouraging interest up to the completion stage of the research. Thank you.

I also would like to acknowledge Professor Brian Phillips, Dr Thu-Huong Nguyen, Dr Vladimir Gabriel and Dr Maria Prokofieva for providing valuable support at the initial stage of this study. And I would like to specifically acknowledge Dr Neil Diamond for his professional support with statistical techniques. I am very grateful to you all.

Most of all, I would like to thank my dearest family, my husband Slava and my children and grandchildren, for their endless patience and supportive encouragement.

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List of Abbreviations

-2LL	-2 Log Likelihood
AIC	Akaike's Information Criterion
ALTC	Australian Learning and Teaching Council
ANOVA	Analysis of Variance
AT	Assessment Tasks
BIC	Bayesian Information Criterion
BIL	Business Integrated Learning
CAANZ	Chartered Accountants of Australia and New Zealand
CBI	Confederation of British Industry
CFA	Confirmatory Factor Analysis
CPA Australia	Certified Practising Accountants in Australia
EFA	Exploratory Factor Analysis
EPV	Events Per Variable
ESB	English Speaking Background
GSE	General Self-efficacy
GSES	General Self-efficacy Scale
HE	Higher Education
ICAA	Institute of Chartered Accountants in Australia
IES	International Education Standards
KMO	Kaiser-Meyer-Olkin
NESB	Non-English Speaking Background
NGSES	New General Self-efficacy Scale
OR	Odds Ratio
PCA	Principal Component Analysis
SCT	Social Cognitive Theory
SES	Student Experience Survey
SPSS	Statistical Package for the Social Sciences
SSE	Specific Self-efficacy
WIL	Work-integrated Learning

Chapter 1: Introduction

1.1 Background to the study

The continued growth in the demand for qualified accounting professionals highlights the importance of appropriate accounting education to fulfil this need (Albrecht & Sack 2000; Knight & Yorke 2004; Jones & Abrahams 2007; Andrews & Russell 2012). The objectives of educational institutions, in terms of professional, government, business and community need for Australian accounting graduates, was also highlighted in the Mathew's (1990) review and in later studies (Holmes 2013; Australian Learning and Teaching Council [ALTC] 2010; Watty 2005).

While the notion of the accounting profession is linked with an educational qualification, the role of higher education (HE) as an adjunct to the accounting profession has been constantly questioned (Mathews 1990; Albrecht & Sack 2000; Evans 2008). However, over the last decades a noticeable change has occurred within universities. They have transitioned from being providers of traditional academic content (i.e., providing technical skills) to also becoming potential suppliers of work-ready graduates. Although doubt has been raised about the ability of universities to prepare work-ready graduates to meet industry expectations (Cranmer 2006; Bui & Porter 2010), they remain important in preparing students for employment.

Employment outcomes for accounting students are influenced by the demand from accounting firms for graduates with particular abilities and attributes. The demand for quality graduates from employers along with professional accreditation requirements necessitate ongoing changes to university curriculum programs (e.g., incorporating class learning and work-placements).

Studies by Jackson (2013), Andrews and Russell (2012), and Bui and Porter (2010) have looked at the main factors that impact graduate employment outcomes in accounting from key stakeholder perspectives. Some factors that have been demonstrated to have a strong influence on students' employment prospects include students' mode of study (full-time or part-time), as well as students' individual characteristics, such as language background, residency status, gender, and age. In addition, students might possess various levels of self-efficacy, which can impact their employment prospects. According to Bosscher and Smit (1998), and Sherer et al. (1982), the self-efficacy of students can be a contributing factor to successfully achieving desired goals, specifically the sub-factors of the general

self-efficacy scale (GSES): initiative, effort and persistence. Consequently, student self-efficacy could impact accounting near-graduates' employment outcomes.

The HE sector faces challenges to equip different cohorts of students with the appropriate abilities expected from graduates at the commencement of their professional employment (Atkins 1999; Bui & Porter 2010; Cranmer 2006). One way in which HE institutions can bridge any expectation gaps (Bui & Porter 2010) is to equip students with work-related expertise via work-integrated learning (WIL)[1] programs in partnership with industry representatives (Candy & Crebert 1991; Bui & Porter 2010; Jackson 2014b).

1.1.1 Universities' role in preparing students for work

The important role of universities in preparing students for professional employment has been emphasised in the literature for many decades (Bridgstock 2009; Bridges 2000; Candy & Crebert 1991). Universities are urged to supply accounting graduates with characteristics that meet the needs of industry (Gracia 2010; Paisey & Paisey 2010; Crebert et al. 2004a; Stoner & Milner 2010). Consequently, universities are expected to have equipped their graduates with the qualities and characteristics expected for professional employment; thus, students are expected to be work-ready even before graduation (Bui & Porter 2010; Cranmer 2006).

Educational organisations face challenges to integrate the learning process in different programs within university curriculum. The design of the learning material is based on assessment of the degree to which the programs will contribute to the creation of a meaningful learning experience and, in particular, in assisting students to meet identified learning objectives (Jones & Abrahams 2007). These are meant to be applicable to their future professional experience. Engagement with industry is expected to enable universities to use specific learning and assessment activities that are beneficial to stakeholders, including students, academics and professional partner organisations (Woodley & Johnston 2010). Such partnerships would assist in developing attributes that accounting graduates are required to possess when commencing their professional employment.

[1] Work-integrated learning (WIL) could also be called industry-based learning, industry placement, internship, sandwich courses or any other programs that relate to workplace training. While the programs have different terms, they have a similar objective – to provide work-related training for students during their university degree course. The terms 'work integrated learning' and 'work integrated training' are used interchangeably throughout the thesis.

Hence, to meet industry standards, Australian universities are striving to find the best way of preparing work-ready students for workplace demands, while dealing with the challenges associated with the individual characteristics of university students (Nelson et al. 2008; Demagalhaes et al. 2011). Due to a shift in focus from the traditional lifelong learning policies of academia to 'learning for the job' (Stoner & Milner 2010), some universities now offer courses that combine academic study with work experience (Metrejean et al. 2008). These often involve work placements or other work-related training, commonly known as WIL.

1.1.2 Work-integrated learning (WIL)

WIL courses are expected to provide benefits for students to narrow the gap or 'discontinuity' between learning at university and learning 'by doing' in the workplace. These programs aim to inform students about the professional working environment, such as making them aware of expectations in the workplace, and are supposed to encourage the development of relevant generic skills and the importance of ongoing learning. Ideally, students would obtain a more informed idea of the workplace and improve their employability prospects by building up networks, thus, increasing their chances of finding successful employment upon graduation (Andrews & Russell 2012). Furthermore, WIL experience is expected to improve students' confidence and self-beliefs, specifically, the components of initiative, effort and persistence (Bosscher & Smit 1998). Hence, WIL contributes to the students' future successful employment outcomes (Reddan 2016)

However, as Cranmer (2006) states, there are mixed findings on the usefulness of the WIL approach in degree courses. Cranmer's reservations were echoed in works by Freudenberg et al. (2010b), and Jackson (2014a). As a result, the extent to which WIL programs are implemented in degree courses is uneven. For example, participation rates in student work placement varied significantly in different countries in Europe[2]. While the degree of participation in WIL varies, Atwood (2010) found that 96% of employers preferred a particular mindset from graduates that was appropriate for the development of career-relevant skills. Despite its drawbacks, the concept of preparing vocationally-oriented programs persists in HE. It seems common practice for universities to offer

[2] In Italy - 22%, England – 30%, France – 84%, and the Netherlands – 87%. The low number of placements in the UK reflected a loss of interest in sandwich courses, with enrolments dropping from 10.5% to 6.5% over the last ten years (Atwood 2010).

'sandwich' courses, which are usually offered in the middle or towards the end of the degree course.

There are also different approaches to timing for those training within the degree program. For example, some universities incorporate its workplace training at the very beginning of its degree program, suggesting that tailoring degree studies towards the employers' expectations at the earliest stage of students' university studies is the best approach. However, according to Biggs and Tang (2007), there could be a risk of narrowing the scope of the students' skills, characteristics and attributes when the design of training is restricted by selected employers/partners. Others, such as Fisher-Yoshida et al. (2009), believe that education should evolve through students' life and incorporate appropriate attitudes and self-beliefs.

In their bid to improve the employment outcomes of accounting students, Cranmer (2006), Bui and Porter (2010), and Tymon (2011) questioned the validity of employers' demand for work-ready professionals, particularly whether these expectations are justified. While many studies admit the importance of WIL in preparing students for the real work environment (Harvey et al. 1997; Crebert et al. 2004b), there is also a gap in understanding how the effectiveness of the program is measured and valued by different stakeholders (Smith 2012).

1.1.3 Self-efficacy

There are two types of self-efficacy: general and specific. General self-efficacy (GSE) is based on trait-like constructs predetermined by personal characteristics; specific self-efficacy (SSE) assumes state-like qualities that are influenced by particular circumstances in specific situations. SSE is very task specific, while the focus of GSE is on intention and outcome expectations (Chen et al. 2001). Since the present research is focused on employment outcomes, GSE is adopted for this study, specifically, the three factor GSES construct that incorporates initiative, effort and persistence.

As indicated earlier, the three factors of the GSES (initiative, effort and persistence) are viewed as important contributing factors for achieving desired outcomes (Bosscher & Smit 1998; Sherer et al. 1982). In the context of the present research, these desired outcomes are associated with the employment outcomes of accounting near-graduate students. Despite the importance of these GSES factors to achieving desired outcomes, however, analysis of initiative, effort and persistence has not been pursued in the

accounting education area – either generally or with respect to employment outcomes of near-graduates.

The three factor construct allows for the impact of each individual factor to be analysed independently of each other. Such an approach enables a more in-depth exploration of the potential association between self-efficacy and accounting near-graduates' employment outcomes, as well as WIL participation. This is discussed in greater depth in Chapter 4, Sections 4.5.4 and 4.6.4.

1.2 Key definition of the research

Table 1 below provides definitions of key concepts utilised throughout this thesis.

Table 1: Definitions of key concepts

Concept[3]	Description
Accounting near-graduate	An accounting student who has completed greater than 50 percent of their accounting degree course.
Employability	Set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy (Yorke & Knight 2004, p. 7).
Employment	An employment outcome as a measure of achievement in the labour market (e.g., secured employment/obtained full-time employment) (Jackson 2013, p.3).
Generic skills	Capabilities required by graduate accountants for employability and career advancement (Abayadeera & Watty 2016, p. 149).
Individual student characteristics	Comprises student demographic factors such as gender, age, language background, residency, and mode of study. Each of the categorical factors is measured as a binary categorical variable with values 0 for 'No', and 1 for 'Yes'; except for age, which is measured as a scaled variable (see Chapter 3, Section 3.10)
Self-efficacy	Self-efficacy refers to people's judgements of their capabilities to organise and execute courses of action required to attend designated types of performances (Bandura 1986, p. 391).
Technical skills	Specific skills that are relevant to accounting professional practices; they refer to ability of a person to do a job, rather than what he or she has been taught (Brown & McCartney 1995, p. 43).
WIL	Educational programs that combine and integrate learning and its workplace application, regardless of whether this integration occurs in industry, or whether it is real or stimulated (Atchison et al. 2002, p. 3).

[3] The concepts 'accounting near-graduate' and 'individual student characteristics' are operational definitions used for the purposes of the present research.

1.3 Research problem

Although there is high demand for qualified graduates, accounting students face challenges in finding professional employment at or near completion of their degree. The shortage of qualified graduates for professional accounting jobs has caused some changes in Australian immigration policies, endeavouring to make an accounting qualification more attractive by offering a permanent residency incentive for international students. However, despite the policies, the shortage of adequately qualified accounting graduates still remains (Birrell & Healy 2010; Bui & Porter 2010). There are many reasons for this, which may include individual differences as well as a lack of student preparedness for work. Firstly, different expectations exist in the eyes of various stakeholders (Bui & Porter 2010) regarding accounting graduates' job readiness, which assumes the existence of different attributes and skills. The professional accounting bodies' (Certified Practising Accountants [CPA] Australia and the Institute of Chartered Accountants in Australia [ICAA]) provide guidance for these expectations, which are incorporated into university graduate capabilities. Nevertheless, the question arises as to what extent students' individual characteristics, as well as their self-efficacy, and participation in WIL, might affect near-graduates' employment prospects when approaching transition from university to professional employment.

The findings and implications from previous research (e.g. Jackson 2014a, 2014b; Freudenberg 2010a, 2011) were taken into account in this study, and thoroughly reviewed and considered. The aim of the present study was to deepen and broaden current perspectives, and consequently contribute to the body of knowledge on this topic. Specifically, the review of existing literature indicated a gap in the field regarding GSE in relation to the employment outcomes of accounting near-graduate students. To the best of the researcher's knowledge, no research has examined the association of the three-factor GSE, based on a trait-like construct, with the employment outcomes of near-graduate students. In addition, the three factors (initiative, effort and persistence) have not been used as separate independent variables in relation to participation in WIL programs. Furthermore, no studies have analysed the employment outcomes of accounting students as they approach graduation. This is an important consideration since, as Little (2003) indicates, the employment problem is more within the transition into the labour market rather than any longer term mismatch of skills.

Consequently, the contribution to the academic literature is two-fold. The first contribution occurs via the examination of whether there is an association between students' self-efficacy factors (specifically, initiative, effort and persistence) on the employment outcomes of accounting near-graduates. The second contribution consists of the testing of the relationship between students' self-efficacy factors (initiative, effort and persistence) and students' participation in WIL.

The contribution to the literature identified above yield the fundamental research problem that this thesis aims to address, which is:

To assess whether there is any significant association between near-graduate accounting students' self-efficacy factors, individual characteristics, and participation in WIL training on their employment outcomes.

1.4 Research questions

As a result of the identified main research problem discussed above, three specific research questions arose:

RQ1: Is there any association between accounting near-graduate students' individual characteristics and the self-efficacy components of the GSES?

RQ2: What are the factors that influence the employment outcomes of accounting near-graduate students?

RQ3: Do self-efficacy factors influence accounting near-graduate students' participation in WIL?

Hence, the objectives pursued to answer the research questions are:

1) To examine the relationship between the individual characteristics and self-efficacy of accounting near-graduates.

To achieve this, the present study analysed a 12-item GSE construct via a principal component factor analysis to confirm the three-factor construct: initiative, effort and persistence (Bosscher & Smit 1998; Sherer et al. 1982). The self-efficacy construct was then tested against the grouping of students based on the following categorical variables: *(i) gender, (ii) residency, (iii) language, (iv) age* and *(v) study mode.* The selection of these variables is justified later in the thesis.

2) To estimate the relationship between *employment* and the following independent variables: accounting students self-efficacy factors (*initiative, effort* and *persistence*) as well as *gender, residency, language, age, study mode* and *WIL* participation.

To achieve this, the present research examined the above variables via the application of statistical techniques comprising a logistic regression model, as well as Lasso[4] and R-glmulti analysis.

3) To estimate the association between *WIL* participation and accounting students' self-efficacy factors (*initiative, effort* and *persistence*) to identify whether their self-efficacy influences their involvement in WIL.

To achieve this, the present research examined the three self-efficacy factors and WIL participation via a logistic regression model for WIL, along with Lasso and R-glmulti analysis.

Thus, with respect to achieving these objectives, the present research adopted a quantitative approach in investigating the association between the aforementioned variables. An overview of the research method is provided below.

1.5 Overview of research method

To examine empirically the association between variables related to the employment outcomes of accounting near-graduates, this study collected data from two Melbourne-based universities. The final sample included the responses of 337 participants. The data collection was via questionnaire and obtained students' perceptions of their self-efficacy using GSES measurements (Sherer et al. 1982; Bosscher & Smit 1998). Students' demographic characteristics and participation in WIL programs were also obtained.

The study sample included 337 near-graduate accounting students from Victoria University (VU) and Swinburne University of Technology, both based in Melbourne, Australia. The sample data was tested using a principal component analysis (PCA), and a Mann-Whitney U test and Pearson chi-square for tests of association (RQ1), as well as the logistic regression models, and the Lasso and the R-glmulti statistical tools (RQ2 and RQ3). The latter two statistical techniques were designed to provide rigour and robustness to the findings of the logistic regression model (Field 2009). For example, the Lasso

[4] Lasso refers to the least absolute shrinkage and selection operator regression method.

includes a regression analysis method that performs both variable selection and regularisation in order to enhance the prediction accuracy and interpretability of the statistical model it produces (Tibshirani 1996). The research methods employed in the present study, as well as the process of data collection, coding, and cleaning related to preparation of data for statistical analysis, is discussed in detail in Chapter 3.

1.6 Statement of significance

Only a few accounting education studies on employment outcomes have focused on self-efficacy as a factor contributing to employment. The present study distinguishes itself by using the three-factor structure of GSES, which is based on a trait-like construct, to allow greater insight into the motivational traits of near-graduate accounting students' behaviour (Chen et al. 2001). Thus, this study is the first to examine self-efficacy on accounting employment outcomes using a three-factor GSES structure. The limitations of aforementioned studies have resulted in a significant gap between foundation theories and practical applicability in this area. This study contributes to the academic literature by providing theoretical support for the inclusion of a three-factor GSES (initiative, effort and persistence), as well as empirical evidence of its association with the employment outcomes of accounting near-graduate students. The three-factor GSES is also employed for the first time to analyse the association between accounting students' initiative, effort and persistence with their participation in WIL training programs. The use of a three-factor approach, instead of the overall single structure of the GSES, provides more depth to the self-efficacy concept, since each of the factors is used separately as an independent variable. Consequently, their importance and impact on the dependent outcomes in the research problem (employment outcomes and WIL participation) are clearly and unambiguously revealed.

As mentioned previously, prior studies have not focused on the employment outcomes of accounting near-graduate students. However, since the employment problem seems to be within the *transition* into the labour market (Little 2003), then it is an important period to assess. The findings of this study are important for accounting HE institutions, which view themselves as suppliers of future accounting employees, as they provide insight into the factors that influence the employment outcomes of near-graduate accounting students.

1.7 Organisation of the thesis

This chapter gives an overview of the importance of employment outcomes to the HE sector, as well as their role in producing work-ready students. A brief overview of self-efficacy and WIL was also provided to set the research context. The research problem was identified and specific research questions and objectives delineated.

Chapter 2 provides an in-depth review of the main issues relating to the thesis topic and justifies the employment of a theoretical framework that incorporates social-cognitive theory underpinning the three-factor GSES. Chapter 3 incorporates the conceptual framework that was developed to encompass the associations between individual characteristics, WIL and self-efficacy with the employment outcomes of the sample data. In addition, it presents and justifies the research methods used in this study and outlines the data collection method employed. The chapter also explains the measurement values used for the variables with reference to relevant previous research studies. Chapter 4 presents the results of the analysis, which are then discussed in detail. Chapter 5 consists of a summary of the findings based on the research questions in this study and their implications, as well as the study limitations and suggestions for further research.

Chapter 2: Literature review

2.1 Introduction

The previous chapter introduced the subject matter of this thesis and articulated its objectives. The current chapter discusses the key concepts and theoretical issues and reviews the literature to examine self-efficacy theories and factors that might impact on the employment outcomes of accounting near-graduates.

The organisation of this chapter is as follows. Initially, the concepts of employability and employment are reviewed via stakeholder perspectives, including a brief review of the scope of skills that accounting students are expected to possess as a result of obtaining a degree. A review of self-efficacy is then undertaken, which examines the development and measurement of the concept, with particular focus on the GSES. This includes a justification for its selection for the study's sample data. In addition, an overview of prior research is provided on the association between self-efficacy and: (i) students' individual characteristics; (ii) students' WIL participation; and (iii) students' employment prospects. This is followed by a review of the literature on the association of individual characteristics, such as gender, residency, age, language and study mode, with employment outcomes. Section 2.5 examines WIL, specifically, university approaches to WIL training and an identification of the benefits for key WIL stakeholders. The final section presents a summary of this chapter.

2.2 Employment and employability

A review of previous studies indicates that the terms employability and employment are used interchangeably in the research literature (Bernston et al. 2008; Surridge 2009; Jackson 2014a). According to Knight and Yorke (2004, p. 25) and Surridge (2009, p. 472), the notion of employability involves, but is not limited to, the following aspects: possession of a vocational degree; possession of key skills; formal work experience; good use of non-formal work-experience or voluntary work; skillful career planning and interview techniques.

The definition of employability formulated by the Confederation of British Industry (CBI 2011) comprises a set of attributes, skills and knowledge that all labour market participants should possess. These will make them effective in the workplace for the benefit of stakeholders, including students themselves, employers and the wider community. Hence, employability assumes a long-term quality, with accounting

graduates able to perform their jobs to the satisfaction of employer expectations (Bernston et al. 2008).

The employability criteria, as a measurement of the quality of education, have also been reviewed by the Australian Learning and Teaching Council (ALTC). The ALTC report, produced in December 2010, focused on benchmarking partnerships with a view to developing the required level of employability in Australian university graduates. The report suggested more effective partnership engagements with industry players to improve student employability. It also developed a set of graduate employability indicators, which incorporated a range of skills and attributes from the perception of different stakeholders - graduates, employers and academics. The report confirmed that, in the past, the focus of the accounting profession and educators was on refining the list of skills, usually described as generic and transferrable. Such an approach gave an impression that the skills could be developed once and for all, in isolation from each other (Hager & Hodkinson 2009; Yorke 2006; Oliver 2010). However, the development of skills and attribute, of which self-efficacy is one part, is an ongoing process.

According to Knight and Yorke (2004), employability derives from complex learning that goes beyond the transferability of skills and attributes. Therefore, employability is viewed as a multifaceted process of learning for life (Harvey 1999), rather than merely the attributes of graduates. Furthermore, Scott et al. (2008) suggested that possession of generic or job-specific skills is necessary, but it is not sufficient for effective performance at a professional level. This is because employers also expect a high level of personal emotional intelligence (Goleman 1995). Thus, the employable candidates are assumed to possess knowledge, skills and attributes relevant to the job requirements of an accounting professional.

The professional bodies' accreditation guidelines (CPA Australia & ICAA[5] 2012) are used by higher education institutions as a framework to help provide graduates with capabilities comprising technical and generic skills. According to Kumar (2007), a systematic approach is required to improve graduate employability by enhancing graduates' attributes. Tomlinson (2012) also insisted on the need to broaden the concept

[5] Since 2014 ICAA was renamed Chartered Accountants Australia and New Zealand (CAANZ).

of graduate employability beyond the skills-list approach established by the accounting profession and policy-makers.

According to Jackson (2016), Holmes (2013) and Tomlinson (2012), graduate identity formation assists in producing employable and high functioning graduates. Furthermore, an evolving graduate identity is required to successfully engage with potential employers and is essential for accounting graduates' employability (Jackson 2013). Research findings provide evidence of a positive correlation between accounting students' graduate identity and their success in the labour market (Tomlinson 2012; Jackson 2016).

Additionally, Hinchliffe and Jolly (2011) addressed the concept of graduate identity in the context of developing a framework for student employability. They suggested that graduate identity is based not only on employers' requirements of skills and attributes, but also on employers' perceptions of the graduates' experiences, and what employers expect from graduates. According to Hinchliffe and Jolly (2011), the four types of experience are: 1) the extent to which the graduate engages with values, including ethics, social and organisational values; 2) the graduates' intellect delivered through discipline related study; 3) their performance, that is the graduate's ability to deliver results; and 4) their interpersonal skills, including generic skills, which consists of evidence of engagement experience with others in different contexts. This suggests that, typically, the graduate would need to be aware of their own identity across these four sets of experiences.

However, while defining the attributes and the extent to which employment matters to the various stakeholder groups are complex issues, Tymon (2011) and Cranmer (2006) raised further questions as to whether universities are the right place to develop these attributes. Moreover, researchers argue that the focus of education should be on the process of developing graduate identity, rather than simply the possession of certain attributes (Hinchliffe & Jolly 2011).

According to Jackson (2016), the manner in which employability is defined represents a paradigm shift in the conceptualisation of graduate employability. It is argued that (CBI 2011, p. 1316 cited in Jackson 2016):

> *… employability now includes a set of skills and competencies. In particular, personal attributes that can be summed up as a positive attitude are critical to being employable. A positive attitude encapsulates characteristics such as*

> *willingness to take part and openness to new activities and ideas … it underpins and links together the other key capabilities.*

Accordingly, Tomlinson (2012, p. 425) highlighted the positive relationship between students' attributes and their employability, where "graduate success and overall efficacy in the labour market is likely to depend on the extent to which students' can establish positive identities". Although literature suggests that employers prefer proactive students with well-developed personal attributes, as Cranmer (2006) points out, the extent to which these attributes could be developed in university is debatable, since the development of personal attributes is recognised as a slow and long-term process.

Furthermore, it has been recognised by human development science that most personal attributes and qualities are predominantly formed in early childhood (Bandura et al. 2008). Consequently, it is a difficult task to change accounting graduates' personal qualities during their university course.

As mentioned previously, earlier studies have used the term employability for employment outcomes. Here, employability assumes being able to find employment by possessing the characteristics, skills, and attributes relevant to employers' expectations. Employment, however, assumes finding a job, or being employed. Thus, there is not a clear-cut distinction between the two concepts, with studies often discussing employability by referring to employment outcomes (e.g. Hazenberg et al. 2015; Cranmer 2006; Demagalhaes et al. 2011).

In light of this, the present research uses the concept of employment, which is measured as a binary variable of employment outcomes (1 for secured employment and 0 for not secured employment). The present research focuses on specifically identifying contributing factors such as students' individual characteristics, self-efficacy factors and WIL participation on accounting near-graduates' employment.

2.2.1 Stakeholder perspectives

A review of the literature shows that different stakeholders have different perceptions of employment attributes. However, there is common agreement between them that educators have failed in preparing work-ready graduates. To help rectify this, universities are striving to incorporate graduate attributes into the curriculum in order to meet the requirements of the profession and industry. The nature and scope of the attributes and

skills required for successful employment are continually debated as different stakeholders adopt different views.

According to the International Federation of Accountants' Revised International Education Standard (IES 5 2011), titled 'Practical Experience Requirements for Aspiring Professional Accountants', professional accountants should gain practical experience before their qualification. The Professional Accreditation Guidelines for Higher Education programs from the accounting professional bodies, including the ICAA and CPA in Australia, expect graduates from diverse backgrounds to possess a range of abilities, in addition to personal attributes and interpersonal skills.

It is important to note that the composition of attributes is being continually reviewed and updated. For example, Jackson (2014b) limited the range of required skills to 10 criteria, calling these employment skills. CPA Australia and the ICAA reviewed the multidimensional grading to only five in their International Accreditation Guidelines for Australian Accounting degrees (ICAA & CPA Australia 2012). The guidelines took into account Hancock et al.'s recommendations, summarising the extensive range of desired graduate attributes into five areas: judgement, knowledge, application skills, communication and teamwork, and self-management (Hancock et al. 2009). However, students experience a "reality shock" when they first enter the workplace (Bui & Porter 2010, p. 37). This suggests that the graduate attributes attained might not be adequate upon commencing employment.

The issue is, however, complicated, as some agree that skills and attributes may not be the most critical features that employers expect from accounting graduates. For example, Kim et al. (1993) and Tymon (2011) found that the criteria most highly rated by employers in recruiting accounting graduates are job interest and motivation, which are reflected in a student's self-efficacy.

Like other industries, the role of an accountant is continually changing to reflect developments in the workplace (Blewitt 2003; Jones & Abrahams 2007; Jackson 2014b). Accountants are expected to adopt the employer-driven values of an organisation, leading and accepting change to enhance the profitability and sustainability of the business (Jackson & Lapsley 2003). The Business Council of Australia (2011) emphasised that higher education is one of the main determinants of economic success, as most employment positions (56%) require diploma and degree qualifications. Therefore, the

effectiveness and relevance of higher education and training is becoming more important since workplaces change significantly in response to changes in the national and global economy.

According to Bui and Porter (2010), employers of large accounting firms believe that although universities should have a focus on conceptual and theoretical knowledge, particular importance should be placed on developing analytical, critical and creative thinking skills, as well as oral presentation and writing skills. With respect to technical accounting skills, these could best be achieved by firms via practical training.

In contrast, medium and small accounting firms expect graduates to possess both good technical skills and good interpersonal skills. The research literature shows that all employers, regardless of the size of the firm, prefer graduates with a set of well-developed skills and attributes (Leggett et al. 2004; Crebert et al. 2004b; Keneley & Jackling 2011). This has led to a common view in the academic literature that strong disciplinary knowledge is no longer sufficient to guarantee a new graduate accounting employment (Harvey 1999; ACNielsen Research Services 2000; Crebert et al. 2004a; Pitman & Broomhall 2010). Consequently, employers believe in the importance of higher education institutions delivering graduate attributes (Bui & Porter 2010; Stoner & Milner 2010).

Furthermore, Metrejean et al. (2008) examined the perception of recruiters of American accounting students, with respect to whether they saw any differences between students with undergraduate degrees compared to those with a master's degree in accounting. The researchers found that the students' qualification level was not a critical factor. However, they confirmed the results observed earlier by Hardin and Stocks (1995), that an important criterion for recruiters is career aspiration. Evans (2008) shared a view adopted by accounting professional bodies in the United Kingdom (UK), which is that knowledge and skills acquisition in a university is an important step in their professionalisation project.

In addition, employers overwhelmingly emphasise the need for graduates to be able to perform in the workplace (Crebert et al. 2004a). Graduates are expected to be confident communicators, good team players, critical thinkers, and problem solvers. In addition, they should have the ability to respond to changes and adjust to varying environments. Moreover, as Crebert et al. (2004a) noted, it is inevitable that, over time, the list of required skills and attributes will grow longer and more complicated.

Several studies, such as Atkins (1999) and Bennett et al. (2000), found that employer group attitudes to universities are influenced strongly by highly context-bound interpretations of desirable graduate attributes or capabilities. Other studies show that it is unrealistic for a university to guarantee that its graduates will possess all the desirable generic skills and attributes defined in a university's policy. Arguably, it is reasonable to expect that a university should guarantee that its students have the opportunity to learn and develop attributes during their undergraduate study (Crebert et al. 2004b). Whether these attributes are in line with the expectations of employers is another question.

Among the important findings of Crebert et al. (2004b) is the fact that almost 80% of the graduates studied agreed that they had the opportunity to develop work-related skills while studying in university. However, students still expressed the need for work placement, greater practical focus in undergraduate courses, more oral presentations, written assignments, leadership training and case studies. Furthermore, Crebert et al. (2004b) add that the majority of graduates felt that teachers made them aware of the importance of graduate attributes and required abilities.

Similarly, the empirical evidence obtained by Simons et al. (1995) and Ameen et al. (2000), showed that accounting students overall demonstrate higher communication skills than other business course students. The cognitive abilities of accounting students are also perceived to be higher than those of students of other disciplines (Sander & Reding 1993), despite the indication that small firms prefer students of average intelligence who are "hard-working and tolerant to repetitive work assignments" (Bui & Porter 2010, p. 35).

Academics, on the other hand, perceive the industry and accounting professions' expectations as unrealistic and somewhat unjustified (Watty 2005; Jones & Abrahams 2007). Here, accounting firms are seen by academics as too demanding in their requirements of graduate competencies (Bui & Porter 2010).

Many studies provide evidence of contrasting views among stakeholders. For example, Jones and Abrahams (2007) argued that accounting practitioners emphasise the importance of strong discipline-based skills and the behavioral attitudes of graduates, whereas from an employer's point of view, the high quality of well-developed analytical and interpersonal abilities is as important. In contrast, arguably, academics place a greater emphasis on students' grades and ability to learn.

Furthermore, the key finding in Bui and Porter (2010) was the identification of a significant gap in the types and level of skills expected from graduates by employers and accounting educators. The research showed that most educators believe in developing thinking skills and intellectual capabilities in students, although employers did not view analytical and thinking abilities as the most important. Instead, employers placed high value on student personalities that accord with their workplace culture and demonstrate potential for continuous learning. This implies the importance of students' personal characteristics, including self-efficacy, from the perspective of employers.

Researchers however share the view that practical accounting training is much better provided and taught within the firm, rather than at university, and it is a reasonable expectation for HE to provide work-related training at the actual workplace (Bui & Porter 2010; Smith et al. 2010). Such an approach enables accounting students to gain work-related expertise and to improve their required skills and attributes.

Further, Jackson (2013) studied factors that influenced the employment outcomes of Australian graduates using national data gathered in 2011, via a logistic regression model. Jackson found that the employers' concept of employment assumes technical expertise, proficient generic skills and a well-formed graduate identity. The study concluded that employment assumes more than employer choices, but it questions whether it includes the condition of the labour market and whether there are job opportunities for graduates.

Moreover, as Bui and Porter (2010) revealed, practicing accounting educators seem to be prone towards the practitioners' expectations when teaching. This, in turn, implies that the broader use of practitioners could lead to reducing the expectation gap between academic and accounting professional points of view in terms of the quality of accounting graduates.

2.2.2 Performance expectation gap

Studies suggest that the gap between education and practice is widening, and this requires more substantive curricular changes in university programs (Bowden & Masters 1993; Yap 1997; Hancock et al. 2009). Cowdroy et al. (2002), however, stressed that the main challenge for universities is to demonstrate the relevance and educational quality to the increasing range of stakeholders, who have conflicting expectations in the name of accountability. For example, in the United States (US), CPA examinations constitute a

part of the university program; in Australia, at most, universities offer selected subjects accredited by CPA Australia or other professional accounting bodies.

The separation of the professional qualification from education has led to the expectation gap between the profession and education (Bui & Porter 2010; Stanley 1992). Such a gap is identified in the works of Albrecht and Sack (2000), Garraway (2006), Geary et al. (2010), and Bui and Porter (2010). Furthermore, it is believed that the gap is growing due to the difference between "what accountants do and what accounting educators teach" (Albrecht & Sack 2000, p. 2).

According to Crebert et al. (2004a), the reason for this gap arises from a difference in perceptions about the purpose of a university education. Even within employer groups there are different views on universities' role in preparing graduates for the demands of a job, since large firms prefer to teach graduates 'on the job' during their professional employment. Typically, employers view universities as places for the development of students' academic knowledge, while students view universities as entities that develop their skills and abilities.

Thus, Bui and Porter (2010), in their exploratory study of the expectation performance gap in accounting education, used a holistic approach to examine the gap between the competencies - aggregate of knowledge, skills and attitudes – as perceived by students, employers and academics. They confirmed the previous findings from Humphrey et al. (2003) on the differences within employer expectations, with small firms wanting technical skills, while big firms do not. As mentioned earlier, big firms prefer to hire accounting graduates with developed soft skills and strong self-beliefs, which constitute self-efficacy. As Bui and Porter (2010) highlighted, this issue is complicated because of the discrepancies in perceptions among different stakeholders, making the expectation and perception gap widen even further.

2.2.3 Skills and employment

There is substantial prior research on the development of student skills, both technical and generic, and the relevance of skills to employment outcomes (Andrews & Russell 2012; Bennett et al. 2000; Bridgstock 2009; CBI 2011; Clanchy & Ballard 1995; Holmes 2002).

Research studies sponsored by professional accounting bodies in countries such as Australia (Birkett 1993), New Zealand, and the UK (ICAEW 1996), have identified the

desired skills and attributes suitable for accounting professionals. Overwhelmingly, the studies have highlighted technical skills, as well as many behavioural and cognitive skills and attributes as being essential.

However, as Mathews (1990), and Brown and McCartney (1995) pointed out, the possession of technical skills is not sufficient for job success in accounting. Consequently, professional accounting bodies have lobbied for the fostering of other skills in university teaching programs.

As a result, in the last decade, Australian universities have attempted to embed soft skills as part of their accounting curriculum. For instance, graduates are expected to demonstrate the ability to articulate and explain their views in a convincing verbal form (Keneley & Jackling 2011). Similar conclusions were reached by American and UK researchers (Accounting Education Change Commission 1990; CBI 2011), who have emphasised a need to develop a broad based set of communication and interpersonal skills. Yet, Bridgstock (2009) has claimed that the concept of generic skills is too narrow. He emphasised that these need to be defined in the context of lifelong learning skills, allowing graduates to adapt to the changing requirements of the labour market during their lifetime.

Additionally, Stoner and Milner (2010) explored the development of students' life learning skills. They found that their development in the early stage of the degree program is complicated by a lack of confidence in students; however, the need to target their development throughout the whole degree course was emphasised. The study highlighted the importance of providing a learning environment that is relevant to students, to keep them motivated and engaged, as their development is as an essential part of the educational experience. However, Stoner and Milner (2010) did not explore the concept of self-efficacy or social cognitive theory.

Some studies have questioned the importance of skills in preparing students for professional jobs. These claim that it is not skills that are important for students' positive employment outcomes, but other factors, which are outside of university reach (Cranmer 2006; Stoner & Milner 2010; Tomlinson 2012). Moreover, some studies support the view that the problem of employment outcomes is not so much in deficiency of skills, but rather in transition into the labour market (Little 2003; Crebert et al. 2004b; Jackson 2016).

Many studies found that a WIL program can help improve employment prospects (Freudenberg et al. 2010a; Patrick et al. 2008; Smith 2012). Freudenberg et al. (2011) and Smith (2012) found that students with WIL experience during their degree programs are deemed to be better equipped with the required skills for professional employment (i.e., generic skills). Thus, by incorporating WIL into the present research, the notion of generic skill development is captured.

Yet, as to be expected, there are mixed results in the prior literature on the usefulness and potential of WIL training in contributing to students' employability (Crebert et al. 2004a; Cranmer 2006). This is, in part, due to the fact that there are other factors that affect student employment outcomes besides WIL participation.

2.2.4 Brief overview of prior studies

A review of prior studies is provided in more detail in the following sections. However, a brief summary of the main studies that analysed the variables related to the current study, albeit from a range of different contexts, are presented in Table 2 below.

Table 2: Summary of the main studies relevant to the current research variables

	Variables investigated in relation to the present research										
	Gender	**Residence**	**Age**	**Language**	**Study-mode**	**WIL**	**Employment**	**Overall Self-efficacy**	**Initiative**	**Effort**	**Persistence**
Stoner and Milner (2010)			X	X	X		X				
Jackson (2013)	X	X		X	X	X	X	X			
Jackson (2014a)	X	X	X		X		X				
Jackson (2014b)	X		X			X	X				
Submaraniam and Freudenberg (2007)						X		X			
Freudenberg et al. (2011)	X		X			X					
Freudenberg et al. (2010a)						X	X	X			
Freudenberg et al. (2010b)						X	X	X			
Crebert et al. (2004a)						X	X				
Crebert et al. (2004b)	X		X				X				
Tymon (2011)							X	X			
Gracia (2010)						X		X			
Purdie et al. (2013)						X		X			
Cranmer (2006)						X	X				
James and Otsuka (2008)		X	X	X			X				
Birrell and Healy (2010)		X									
Bosscher and Smit (1998)								X	X	X	X
Sherer et al. (1982)							X	X			
Demagalhaes et al. (2011)							X	X			
Guan et al. (2013)							X	X			
Smith and Betz (2000)							X	X			
Smith (2012)						X	X				
Zullig et al. (2011)	X	X	X					X			
Ma et al. (2015)	X							X			
Vantieghem and Van Houtte (2015)	X							X			
Carpara et al. (2011)			X								
Whitesel (2015)			X					X			
Kozar et al. (2015)					X			X			
Bolton (2012)					X			X			
Yilmaz (2012)				X				X			
Lopez (2014)	X							X			
D'lima et al. (2014)	X	X		X				X			
Sugahara et al. (2010)				X		X		X			
Lin and Betz (2009)		X						X			
Bandura (1997)			X				X	X			
Coates and Edwards (2011)				X			X				
Jackling et al. (2012)		X		X			X				

As Table 2 above clearly illustrates, there is lack of research in GSE using a three-factor structure based on a trait-like construct. Furthermore, while providing evidence on a range of factors that might influence the job attainment of graduates from different degree

courses (i.e., business, art, agriculture), Jackson (2014a) highlighted the need for more research in discipline areas involving student individual characteristics and other factors, emphasising the lack of empirical evidence in Australia. In addition, most studies examined individual characteristics in association with the employment of graduates who had already entered the workforce.

Conversely, the present research examines the influence of three groups of variables (individual characteristics, self-efficacy factors and WIL) on accounting near-graduates' employment outcomes, as they transition to the labour market (Little 2003). The self-efficacy construct, which is analysed via a three-factor structure, provides more depth into the self-efficacy aspect of securing employment as accounting students approach the completion of their degree course. Hence, this research examines different factors in relation to accounting near-graduate students' employment outcomes. The first group of factors is the three-factor GSE (Bosscher & Smit 1998; Sherer et al. 1982), which has not been used in accounting education in relation to employment outcomes. This concept is discussed in the following sections.

2.3 Self-efficacy

According to Tymon (2011), Bandura (1997), and Smith and Betz (2000), students with a proactive personality develop better capabilities and are more successful in terms of employment outcomes. Such capabilities comply with the self-efficacy concept (Bandura 1977, 1982, 1997), which assumes "beliefs in one's capabilities to mobilise the motivation, cognitive resources, and courses of action needed to meet given situation demands" (Wood & Bandura 1989, p. 408).

2.3.1 Self-efficacy theory

Self-efficacy theory holds a view that one's beliefs, thoughts and feelings about individual capabilities influence the self-control of one's actions (Bandura 1977, 1986), leading to the desired outcome. For the present research, this equates to securing employment. This theory originated from social cognitive theory (SCT) (Bandura 1986), which is used as a foundation theoretical concept of this research, underpinning the conceptual framework developed for this study (see Figure 1). According to SCT, people learn from observing others, hence, social learning is influenced by the interaction of three determinants: personal factors, environmental factors and people's behaviour.

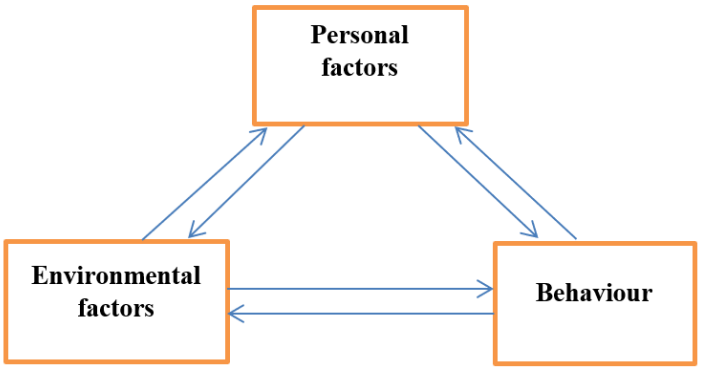

Figure 1: Social cognitive theory

Source: Adapted from Bandura, 1986

Personal factors comprise individual factors (e.g., age, gender, individual beliefs) that can influence an individual's behaviour. Environmental factors comprise the different influences of specific environments in which a person is situated (e.g., in a university classroom, at work placement training). Behaviour is represented by the way a person acts or conducts themselves, especially toward others (e.g., confident, shy, persistent, and/or willing to learn).

According to Bandura (1986), SCT is based on social learning, which incorporates peoples' behaviour and the environment in which they sit. Following concepts of SCT, in almost every situation, the behaviour of a person is influenced by the actions observed in others, and this represents social learning.

As a result of social learning, a person is driven by motivation and self-regulation and therefore modifies his/her behaviour to achieve the desired outcome (Bandura 1986). Thus, for example, students who strive to obtain successful employment outcomes on completion of their degrees, will be driven by the behaviour of their successful peers, and will attempt to imitate the actions of those who gained employment.

Social learning is known as acquisition of knowledge through cognitive processes of information. It recognises the role of cognitive processes in human motivation and action (Bandura 1986; Smith 2002). In other words, while the environment is a very important influence on a person's thoughts and actions, the cognitive processes very much depend on the capabilities and qualities of that person. For example, on the one hand, the majority of students' knowledge and behaviours are generated from the university environment in which they studied for a number of years while obtaining their qualification. However,

on the other hand, with a changing environment – when transitioning from university to employment - students will process and act upon available information differently depending on their unique personal characteristics. In SCT, the influences of the three components (personal, environmental and behaviour) may be of different strength, depending on the challenges of the environment, and an individual's personality. For a university student, most of their learning occurs in a university environment resulting in graduate outcomes for students on completion of their degree and professional qualifications (Bui & Porter 2010; Demagalhaes et al. 2011).

With the changing environment, when students prepare to commence employment, the interaction of individual capabilities and the environment have a greater impact on students' behaviour and, accordingly, lead to different employment outcomes. For example, the student who appears comfortable and confident in a job interview, is in a better position to obtain employment and be successful in the transition to employment, as compared to someone who is shy, not confident, avoids eye contact and shows apparent language deficiencies (Thong 2017; Jackling et al. 2012; Lin & Betz 2009).

In line with SCT, the behaviour of an individual depends on that person's self-efficacy; therefore the concept of self-efficacy is a cornerstone. The level of an individual's self-efficacy affects how a person approaches challenges. An individual with a high level of self-efficacy is more likely to overcome challenges by approaching them with the intention of understanding and resolving; an individual with low self-efficacy is afraid of challenges and will try to avoid them (Bandura 1986).

Self-efficacy involves the belief that a person is able to organise and effectively execute actions to produce desired outcomes (Bandura 1997; Green & Crick 1998). Therefore, self-efficacy has an impact on people's perceptions of self-control, and how they realise the level of their accomplishments (Sherer et al. 1982). Moreover, self-efficacy theory emphasises the solid link between beliefs regarding a specific behaviour and the actual performance of that behaviour. Self-efficacy theory emphasises that personal expectations are the main determinants of behavioural change; and the past experience and ascription of successful outcomes result in different levels of generalised self-efficacy expectations (Sherer et al. 1982).

Subramaniam and Freudenberg (2007), Gist and Mitchel (1992), and Bandura (1997) confirm that the perception of self-efficacy can be the determinant of an individual's

actions in a particular situation. These studies found that individual self-efficacy is positively correlated with individual performance and satisfaction. SCT states that self-efficacy is developed not only from self, but also from wider experiences, implying that the social environment is an important component of this theory. Researchers agree that self-efficacy represents an individual's personal perception of external social factors (Bandura 1977; Gist & Mitchel 1992).

In addition, according to Smith and Betz (2000), social self-efficacy is defined as an individual's confidence in his/her ability to engage in social interactions necessary for maintaining interpersonal relationships and achieving desired outcomes. Researchers also found that an individual's perception of lower self-efficacy is not inhibited in a team environment when the team is performing well (Chowdhury et al. 2002). It could be argued that self-efficacy is a dynamic growing process that could be improved through positive reinforcement. Accordingly, Gist and Mitchel (1992) proposed that self-efficacy can be developed via learning, experience and feedback.

Hazenberg et al. (2015) went further, arguing that the development of self-efficacy is an ongoing two-way process: self-efficacy beliefs shape engagement in experiences (educational and practical), and such experiences in turn re-shape the self-efficacy beliefs. This confirms the view that self-efficacy is dynamic and can be further developed during life experience. Furthermore, Smith and Worsfold (2014) claimed that training courses foster self-efficacy and the development of the skills needed to work in a team environment, thus assisting in improving students' job-readiness. Additionally, positive learning experiences improve students' levels of self-efficacy and enhance their employment prospects.

Drawing from a considerable stream of basic research and SCT, self-efficacy envisages various work-related outcomes, such as job attitude (Saks 1995; Chen et al. 2004), training proficiency (Chen et al. 2004; Judge et al. 1997), and job performance (Stajkovic & Luthans 1998). Studies found that the level of self-efficacy also determines academic achievements, choice of career opportunities and career expertise (Bandura 1997).

The behaviour of people is an important component of social learning, as well as the environment and the personal attributes and qualities of the person. Prior literature provides evidence that personality development occurs in a social environment (Mischel & Shoda 1995; Kanfer et al. 2001). Therefore, the role of the social environment is

significant. Consequently, the role of universities in preparing students to cope with post-graduate challenges, such as finding employment, could be very important.

In addition to the social environment, students' personal attributes contribute to behavioural outcomes, thus affecting their employment prospects. A person's self-efficacy constitutes beliefs in one's capabilities, and is linked to concepts of personality.

2.3.2 Meta concepts of self-efficacy

The concept of personality is extensively researched in the theory of human psychology and further developed in theories of organisational management. Psychological theories refer to concepts of so-called trait and state, which are used to analyse people's personalities in the context of social behaviour (Chen et al. 2001).

Trait is defined as a relatively constant, permanent individual characteristic that makes a person unique (e.g., being shy, outgoing, friendly, and confident). Accordingly, trait is considered a relatively stable personal characteristic, one that a person is born with. It is believed that traits are inherited through our genes or developed in very early childhood. People possess qualities (traits) that predetermine their behaviour, motivating them to act in certain ways (Bandura 1986). By contrast, state describes a temporary change in someone's personality, a reaction to a change in the environment or circumstances. Examples of state could be: being depressed, angry, anxious, or happy. Different situations are considered influential in motivating and affecting a person's behaviour. It is argued that state characteristics are influenced more by circumstances than by personal qualities.

While relatively clearly defined, the two concepts of personality are not as straightforward and unambiguous. Both terms can be mutually reciprocal in different scenarios. For example an outgoing person can be shy and reserved around unknown people, and vice versa. This emphasises the importance of environment in affecting people's behaviour, and confirms the SCT view of the interrelationships between personality, environment, and behaviour (Bandura 1986).

Following the distinction in their definitions, states and traits are two conflicting ways to think about personality. The controversy of trait and state characteristics is apparent when considering the important question posed by Reiss (2000): Is one's personality consistent across different situations and contexts? Trait theorists would most likely answer this question with a positive, while state theorists would be more likely to say 'not always'

(Chen et al. 2004). The two conflicting theory groups assess the role of personality in changing behaviour differently.

SCT discloses that personality is influenced by environmental conditions that affect the behaviour of a person. Psychologists argue that the actions of a person are predetermined by the state he/she is in, while confirming the influence of the traits they are born with. Traits remain relatively constant throughout people lives; therefore, it could be argued that it is traits that enable individuals to react in a specific way across different situations. The approach of focusing on traits provides the benefit of being able to analyse and explain the behaviour of people across a wide range of situations and contexts (Chen et al. 2001; Schütte et al. 2018). On the other hand, when focusing on states, the explanation of behaviour could be provided at a particular moment, which may not be consistent across different circumstances. It could be argued that such an approach could lead to misleading conclusions about personality. The roles of environment and personality are influential determinants of human behaviour (SCT) (Bandura 1986). However, any change in the magnitudes of influence can lead to a distortion of perceived personality.

As with any conflicting point of view, the most valid approach seems to be a balance between the two concepts of personality. As already indicated, following this philosophy, psychologists claim that personality is a combination of both state and individual traits. Accordingly, they conclude that behaviour in a given situation is influenced by social factors as much as by the traits of the people involved, affecting their self-efficacy and confidence.

However, while compromise is used in defining peoples' personalities in a psychological context, the two conflicting concepts in human psychology, trait and state, have caused some confusion in the definition of self-efficacy. As such, the two personality concepts have led to the discussion of two distinct types of self-efficacy in the literature, as indicated in Chapter 1: GSE and SSE (Chen et al. 2001; Subramaniam & Freudenberg 2007).

2.3.3 General self-efficacy and specific self-efficacy

Both GSE and SSE are believed to add to understanding the motivations and behaviour of people (Chen & Gully 1997), regardless of the underlying concept of personality as discussed above.

According to Bandura (1997), GSE is a universal construct, and depicts a basic belief that is inherent to every human being, regardless of cultural differences. The literature suggests that, technically, GSE is considered a motivational trait (Bandura 1997; Shelton 1990; Sherer et al. 1982) that drives a person's behaviour. This suggests that the behaviour of a person is relatively stable across different situations and is not influenced by changing circumstances. For example, a student who is a confident high-achiever academically is expected to be as confident when performing in a recruitment interview.

By contrast, SSE is considered a motivational state (Eden 1996; Gardner & Pierce 1998; Judge et al. 1997). This suggests that a person, while confident within the university environment, will behave differently in a changed environment (e.g., at a job interview), and the changed behaviour is considered to be due to the motivational state of personality.

While these two examples are somewhat simplistic, the important distinction is predetermined by the distinct motivational drives that affect a person's behaviour. In such cases, where a person's individual qualities are prevailing in motivating this person's behaviour (e.g., being confident regardless of unfavourable consequences), the motivational traits are considered, hence, representing GSE. In contrast, the SSE assumes the state-like qualities that are influenced by particular circumstances in specific situations (Chen et al. 2001). An example could be: a person being honest and open because they are confident in the particular task they are currently performing.

Early studies have focussed narrowly on task-specific or state-like constructs that are SSE measures (Gist & Mitchell 1992; Lee & Bobko 1994). However, over time studies have moved gradually to trait-like generality measurements, or GSE (Gardner & Pierce 1998; Judge et al. 2000; Chen et al. 2004). Emphasising the trait as a constant personal quality an individual possesses, the literature shows that GSE appears from the aggregation of previous experience (Chen et al. 2004; Shelton 1990). GSE accumulates with the experiences of success and failures throughout different specific tasks and situations. As stated by Chen et al. (2001, p. 63), the "accumulation of successes in life, as well as persistent positive … experiences, verbal persuasion and psychological states, augment general self-efficacy". Despite the assumption that traits remain relatively constant in different situations, Gilst and Mitchel (1992) also supported Chen et al. (2001) by emphasising, as indicated earlier, that GSE is a 'growing process' that can be developed and improved with related experiences.

Although there is seemingly a clear distinction in their definitions, the concept of GSE versus SSE is debated in the literature, exposing conflicting views. For example, summarising the different self-efficacies, Shelton (1990) pointed out that Bandura (1977) explained self-efficacy as being situationally specific, while it could also be regarded as a global construct or personality trait.

Shelton (1990) found that GSE is defined as the composite of successes and failures that are attributed to the self, implying that is it a combination of both elements – trait and state. Shelton's study also emphasised that it is GSE that is used to explain why some people have a more confident approach to life and why, regardless of a task's difficulty, they will be more persistent in pursuing mastery. In accordance with that view, Zhang and Schwarzer (1995) found that men scored higher, on average, in GSE compared to women. The study linked GSE to the trait-like characteristics of different personalities founded on gender differences.

Luszczynska et al. (2005) explained the difference between the two types of self-efficacy, arguing that GSE is the belief in one's competence to cope with a broad range of stressful or challenging demands, whereas SSE is constrained to a particular task at hand. They concluded that GSE represents a universal construct that creates meaningful relations with other social cognitive variables, such as intentions and outcome expectations.

Much discussion in the literature is around the concept of self-efficacy and self-esteem, trying to draw a line between them. Studies by Chen et al. (2004) and Judge et al. (2000), demonstrated a positive correlation between GSE and self-esteem. Furthermore, positive correlations are found between GSE and learning goal orientation (Chen et al. 2001). Positive correlations are also revealed between GSE and other motivational traits, including the need for achievement and success (Eden et al. 2000).

Regardless of the proximity of trait and state and their interchangeable characteristics, most of the studies structure their measuring systems of self-efficacy based on trait-like elements, as traits are assumed to remain constant in different situations. Personality traits represent the overall profile or combination of traits that characterise the unique nature of a person (French et al. 2008). Chen et al. (2001, p. 65) stated, "establishing the stability of any GSE measure is crucial given the GSE has been conceptualised as a stable, trait–like construct".

2.3.4 Methods used to measure self-efficacy

Self-efficacy theory emphasises the strong relationship between beliefs regarding a specific behaviour and the actual performance of that behaviour. The literature review revealed various self-efficacy measurement systems used in behavioural and social science research. Some of those systems appear to be more popular than others. The most common measuring systems are selected and briefly discussed below.

In his SCT, Bandura (1977, 1986, 1997) measured self-efficacy beliefs against three criteria: level of magnitude (difficulty of task); strength (certainty of success in difficult task performance); and generality (incorporating both the extent of magnitude and strength across the tasks and situations).

Based on previous findings (Bandura 1986; Chowdhury et al. 2002; Gist 1987; Wood & Bandura 1989), researchers proposed a framework for the development and measurement of self-efficacy levels. This framework consists of four categories of experiences believed to lead to the development of self-efficacy: mastery experience; modelling; social persuasion; and judgement of one's own psychological states. Mastery experience is considered to be the most effective in terms of self-efficacy development, boosting a student's confidence when he/she is given an opportunity to master a concept or practice their skills (Chowdhury et al. 2002). Studies confirm that modelling improves self-efficacy via observation of others and social comparison (Tucker & McCarthy 2001). Verbal persuasion, such as encouragement and positive feedback, can improve self-efficacy, while an individual's self-judgement and modified individual psychological state also have a positive impact on self-efficacy development (Wood & Bandura 1989).

Although proposed as a framework for the development of self-efficacy, this model can nonetheless provide some insight into the measurement of the level of self-efficacy. For example, the GSES was used by Hazenberg et al. (2015) to evaluate the effectiveness of a quasi-experimental intervention program to measure the employment outcomes of a group of unemployed graduates in the UK. The results of the study indicated a higher level of GSE in graduates after their participation in the intervention program, emphasising the relationship between the outcome and the individual participant's psychological state of mind, including their confidence and motivation.

Furthermore, the studies by Hazenberg et al. (2015), and Yorke and Knight (2004) identified four main areas through which to measure improved employment outcomes,

confirming that self-efficacy beliefs constitute a significant component of employment status. The three remaining areas are: subject specific knowledge or 'understanding'; the 'skills' applicable in different contexts; and 'metacognition', consisting of learning capabilities and self-regulatory control and behaviour.

While different measuring systems were exposed throughout the review of prior studies in this research, the measuring system selected for the purpose of this study was a GSES (Sherer et al. 1982; Bosscher & Smit 1998). This was used to explore the self-efficacy components within it, in order to investigate their influence (if any) on the employment outcomes of the near-graduate students in the sample data. The following section discusses the development of the selected self-efficacy measuring tool, as revealed by a further review of the literature.

2.3.5 Development of the general self-efficacy scale

Following Bandura's concept of self-efficacy, Jerusalem and Schwarzer (1992) developed a 10–item psychometric scale known as the GSES. The GSES was used to assess the optimistic self-beliefs of participants that helped them cope with different challenging tasks in real-life situations. This scale has also been used by Luszczynska and Schwarzer (2005), and particularly in the medical/psychological fields, to measure the role of self-efficacy in the successful recovery of patients.

The distinctive feature of Jerusalem and Schwarzer's (1992) scale is the underpinning theory of personal agency (i.e., the belief that one's actions are crucial for a successful outcome). This theory implies that the degree of perceived self-efficacy has an influence on one's behaviour, and therefore it could be used constructively for the achievement of a desired result (e.g., successful recovery of ill patients).

In turn, Sherer et al. (1982) developed a GSES consisting of 17 items. Woodruff and Cashman (1993) then developed a factor structure based on this 17-item scale. This identified three aspects underlying the magnitude of human behaviour: (i) willingness to initiate behaviour - identified as 'initiative'; (ii) willingness to expend efforts in sustaining the behaviour – identified as 'effort'; and (iii) persistence to overcome challenge – identified as 'persistence'.

The GSES attracted the attention of various researchers, with further studies removing five of the 17 items due to "low correlations and ambiguous wordings" (Bosscher & Smit 1998, p. 340). However, Chen et al (2001) reviewed and reconstructed the original scale

back to 17 items (Sherer et al. 1982), redesigning the system into what became known as the new general self-efficacy scale (NGSES). This was developed to extend the 'narrow focus' on task-specific or state-like boundaries in the self-efficacy measurements (Bandura 1997; Gist & Mitchell 1992; Lee & Bobko 1994). Ultimately, the redesigned NGSES included only eight items instead of 17, providing, it was argued, better validity and therefore a more useful measure for organisational research (Chen et al. 2001). A five-point Likert-type scale was applied, similar to that used in Sherer's (1982) model (from strongly disagree to strongly agree).

The NGSES (Chen et al. 2001) was adopted by Subramaniam and Freudenberg (2007) in their study of 35 final-year accounting students who participated in a simulated WIL program, which comprised workshops, seminars and networking sessions aimed at enhancing student understanding of an accounting professional's job. However, while using Chen et al.'s (2001) model of eight generalised self-efficacy items for motivational variables, such as goal orientation and performance, Subramaniam and Freudenberg (2007) included an additional eight self-developed task-specific items in their research instrument to enhance the measuring system for the purpose of their study. They justified the design of the extra variables by explaining their need to test student confidence in selecting an accounting career. Yet, while revealing significant perceived improvement in GSE items (Chen 2001), no significant differences were found in task-specific items, when ranking the perceived improvement (i.e., by gender).

The literature review shows that in search of the most appropriate way of measuring self-efficacy, researchers continually question the concept of self-efficacy and the implications of interpretations. For example, researchers could not agree on whether GSE is constructively different from self-esteem (Chen et al. 2004; Stanley & Murphy 1997). Furthermore, there is an argument that the GSE measures "bear little or no relation either to efficacy beliefs related to particular activity domains or to behaviour" (Bandura 1997, p. 42). The arguments of self-efficacy and self-esteem representing two different conceptual notions (Chen 2004) are based on defining self-esteem as an overall affective evaluation of an individual's own value or worth (Blascovich & Tomaka 1991).

Nonetheless, self-efficacy concepts with either of the two self-efficacy scales (GSE or SSE) have been used extensively in SCT, resulting in flourishing empirical research. Researchers provide conflicting evidence on the conceptualisation of GSE and SSE. They

apply the three-component constructs to both methods, justifying it differently, with different explanations of state and trait concepts of personality.

Regardless of the two concepts being distinct, Chen (2004) found that the validity of both scales positively correlates with so-called achievement related to demographic variables, as well as educational levels (Sherer et al. 1982), or job search perspectives (Cable and Judge 1996; Hazenberg et al. 2015), and duration and level of training (Tharenou et al. 1994).

The development of GSES involved changes in self-efficacy items in terms of their quantity and contents. The distinctive feature of Sherer's (1982) GSES was in identifying the three sub-scales (initiative, effort and persistence) and dividing the 12 items accordingly. Sherer's model has been tested in many studies and has proved to be successful. Some researchers applied the scale in their studies using confirmatory factor analysis (CFA) (Bosscher & Smit 1998), others used the sub-scales in their exploratory study (Woodruff & Cashman 1993), but they all confirmed the validity of the measuring system. The GSES (Sherer et al. 1982) is found to be reliable when applied to organisational management research (Cable & Judge 1996, Smith & Foti 1998).

The 12-item GSES is interpreted as a unidimensional broad construct, which is in accordance with the aim of the scale (i.e., to tap into general expectations of self-efficacy) (Bosscher & Smit 1998). Although the GSES measuring system is based on a unidimensional system (Eden 1996), its multifactorial structure incorporates three empirical factors: the self-perception of behaviour initiative, effort and persistence (Bosscher & Smit 1998; Sherer et al. 1982). This allows insight into the motivational traits of human behaviour.

As indicated, the GSES consists of three factors (initiative, effort and persistence) (Bosscher & Smit 1998; Sherer et al. 1982) and the role of each of these factors is analysed separately. For example, initiative as a separate factor has been examined in behavioural science (Ghitulescu 2013; Hartog & Belschak 2007), medical fields (Redfern et al. 2010; Schutte et al. 2018); organisation and management (Bolino & Turnley 2005; Salanova & Schaufeli 2008), and education (Allen 1999; Markman et al. 2008). The above studies addressed the role of initiative as a predictor of human behaviour in improving performance outcomes, whether in an educational or well-being context. According to Parker et al. (2010), the initiative factor is an activated positive affective state of the

individual, which impacts commitment to work and study (Wihler et al. 2017), as well as motivation for adaptability to changed circumstances (Ghitulescu 2013).

Studies by Wihler et al. (2017), Redfern et al. (2010), and Ghitulescu (2013) confirmed a significant association between personal initiative and desired outcomes (i.e. work-place performance and career development), as well as academic performance (Allen 1999). Parker et al. (2010) emphasised that a proactive goal process leads to success, thus, individuals who possess higher levels of initiative are more likely to overcome difficult challenges. Moreover, it is assumed that people with higher initiative levels appear to be more successful in making progress toward achieving change, including transition from education to professional employment (Berntson et al. 2008).

Prior studies have treated the persistence factor as separate and distinct, where individual motivations and performance achievements are assessed. Hence, an individual's strong desire for success can be seen as an important component of a person's motivation, such as in completing a degree or obtaining professional employment (Allen 1999; Redfern et al. 2010). Allen (1999) studied the empirical link between college students' motivation and persistence, as well as structural relationships between students' background factors and academic performance, by analysing minorities and non-minorities in the study's sample data. The study found that motivation did not impact academic performance for either racial subgroup in the study sample. However, a significant motivational effect on persistence was found for minorities, with the subgroup of students with a high level of motivation showing a higher level of persistence in their second year of study.

Furthermore, Allen and Nora (1995) investigated the goal commitment as it affects the persistence process. They used confirmative analysis to decompose the construct of the goal commitment into four factors: (i) goal importance; (ii) specificity; (iii) purpose; and (iv) goal in general. The study established the predictive validity of each factor on different outcomes as it related to students' persistence. This confirmed the significant and direct relationship between the goal commitment and students' intent to persist and their actual persistence behaviour. The relationship of persistence with performance was also examined in other studies (Pascarella et al. 1980; Markman et al. 2008), in which strong dependency was found between enhanced persistence and better performance.

To the best of the researcher's knowledge, the literature review revealed that the three-factor self-efficacy construct has not been employed previously with respect to

accounting studies. Moreover, the review established that the three-factor self-efficacy construct has not been examined in association with employment outcomes, and WIL in the area of accounting education.

This study, therefore, contributes to previous research by analysing the association of the three factors of self-efficacy (initiative, effort and persistence) with individual characteristics of students in the sample data (RQ1). In addition, it was used as part of a logistic regression model on employment (RQ2) and WIL (RQ3).

Therefore, in conceiving a measuring instrument for students' self-efficacy, the present research did not consider using the task-specific items, but applied instead the GSE, which is based on the trait-like construct. Furthermore, instead of the 12-item GSES (Bosscher & Smit 1998; Sherer et al. 1982), the three separate components within the scale (initiative, effort and persistence) were used in this study as independent variables in the employment and WIL logistic regression models. Such an approach enables a deeper analysis of self-efficacy and provides statistical evidence for understanding the construct of self-efficacy among students in the sample data, and the contribution (if any) of each factor to the research objectives.

2.3.6 GSES in the education area

The concepts of self-efficacy have been extensively used as a theoretical background in various areas of research involving human and organisational behaviour (Sherer et al. 1982; Chen et al. 2001; Betz & Klein 1996). This includes research into organisational management (Chen et al. 2001), in the area of health and psychology research (Luszczynska et al. 2005), and in studies of education (Bandura 1997; Smith & Foti 1998; Subramaniam & Freudenberg 2007). It is believed that self-efficacy impacts people's perceived control, making a difference in an individual's career choice, performance and success. The self-efficacy concept helps to understand and interpret the behaviour of individuals.

Sherer et al. (1982) suggested that, in an educational context, the GSES seems the most appropriate tool for measuring belief in one's abilities. Furthermore, Bosscher and Smit (1998) assessed the sub-scales and found internal consistency and homogeneity in the GSES with its three factors: initiative, effort and persistence. The GSES model displayed a good fit, which reinforced the notion that it could be used as a unidimensional broad construct to capture self-efficacy expectations of different groups of people.

Previous studies have emphasised the need for further research in an educational context (Subramaniam & Freudenberg 2007; Hazenberg et al. 2015; Jackson 2016). As indicated earlier, the three factor construct allows for a more in-depth analysis of each component of self-efficacy. The impact of each individual factor can therefore be revealed independent of each other, providing a better understanding of the self-efficacy concept and the role of each factor in achieving the desired outcomes (i.e., students' employment outcomes and participation in WIL).

The following sections present a review of prior research into the association between self-efficacy and students' individual characteristics (the objective of RQ1), self-efficacy and employment (the objective of RQ2), and self-efficacy and WIL participation (the objective of RQ3). To begin with, students' demographic characteristics are reviewed based on their potential association with student trait-based GSE.

2.3.7 Individual characteristics and self-efficacy

As mentioned above, Bandura (1986, p. 391) defined self-efficacy as "people's judgments of their capabilities to organise and execute courses of action required to attend designated types of performances". According to Smith (2002), perceived self-efficacy is defined as an individual's self-knowledge of his or her possessed abilities to initiate necessary action to achieve situation-specific goals; self-knowledge is linked to an individual's self-esteem, or self-concept. However, it is self-efficacy that has the greatest impact on a person's beliefs in individual mastery of outcome expectations (Bandura 1986).

Many studies have analysed the association of self-efficacy with various factors, including demographic characteristics, and found either positive or negative correlations between peoples' individual characteristics and their self-beliefs (Jackson 2016; Berntson et al. 2008; Cheng & Chiou 2010). Studies have been conducted in different areas of research in a broad context of education, involving different outcomes, such as academic performance and motivation for career choice. Moreover, since self-efficacy has been proven to be relevant to an individual's functioning and health (Changrong et al. 2014), the literature review included findings in the area of medical and psychological studies. In such studies, the associations between self-efficacy and people's well-being were examined, and the individual characteristics of patients, such as age, gender, language, and other factors, were considered. The following subsections provide an overview of

publications that have examined the association of self-efficacy with peoples' individual characteristics, including gender, residency, age, language and study mode.

2.3.7.1 Gender and self-efficacy

Much research is devoted to studying the association of gender with self-efficacy. However, the results are far from being conclusive. For example, Zullig et al. (2011) evaluated the self-efficacy of risk behaviour among high school students based on gender difference. Sample data were collected from 4,061 public school adolescences, and analysis of variance (ANOVA) techniques were employed. This showed that female students had significantly higher levels of self-efficacy compared to male students. However, a study by Ma et al. (2015) tested whether self-efficacy mediates the relationship between gender and subjective well-being among surveyed Chinese students and concluded that girls had lower GSE. Vantienghem et al. (2015) studied Belgian students' self-efficacy with reference to academic performance and found that male students' academic self-efficacy was lower than that of female students. Thus, it could be suggested that gender difference has little association with self-efficacy. Furthermore, Lopez (2014) researched the changes in self-efficacy among Hispanic American students in a highly selective institution and found that gender differences exist among Latino students during the first year of studies. The study indicated that male students had higher self-efficacy at the start of the year, while female students had lower levels. Nonetheless, at the end of the year the interaction effect reduced the difference in self-efficacy of both male and female students, confirming the inconsistency of the association.

Conversely, D'lima et al. (2014), in their study of ethnic and gender differences in the self-efficacy of first year college students, found a significant gap in students' self-efficacy due to gender differences. Although the self-efficacy of students increased over the semester, the male students' self-efficacy levels were higher than those of the female students, at both at the beginning and the end of the semester.

Furthermore, Vieira and Grantham (2011) investigated the roles of self-efficacy and gender in predicting university students' motivation for setting difficult goals. The results of the study suggested that male students will engage in setting challenging goals only if they perceive themselves as self-efficacious, while the female students are inspired by tasks. That is, if the tasks are important, regardless of their difficulty, female students will set the challenges.

Gender differences in self-efficacy and academic performance among a broader scale of students, including marketing, accounting, IT, management, mathematics and statistics, were also investigated by Busch (1995). Busch surveyed 154 second year college students to assess their self-efficacy in the units they studied. The results of the study reported lower levels of self-efficacy in female students for computing and marketing, but higher levels in statistics, compared to the self-efficacy in male students. Thus, again, no significant gender differences in academic performance were revealed.

The association between self-efficacy and gender was also examined by Submaraniam and Freudenberg (2007), using the GSE and SSE scales. They found that male students showed higher levels of self-efficacy when compared to female students. In fact the gender category resulted in the highest discrepancy of self-efficacy in relation to the total sample and within other categories of students. The study, however, had a relatively small sample size (n=35) represented by only one university, therefore, the results cannot said to be completely reliable. More evidence was supplied by Jackson (2013, 2014b), who found that gender showed no effect on the desired outcome, implying that the self-beliefs of students were not significantly different due to gender.

Studies on the association of self-efficacy and gender also include other aspects of people interactions, in a broader social context. For example, Chu and Abdulla (2014) researched the self-efficacy beliefs of 278 female police officers in Dubai, and found that professional role confidence significantly correlates with positive self-appraisal. For example, most of the sampled police women believed that female police officers can be as efficient as male officers in doing police work. Hence, no significant association of self-efficacy with gender difference in the police force was found.

Furthermore, in the medical field, Sato and Sumi (2015) investigated factors related to the self-efficacy of Japanese men and women undergoing chemotherapy, applying multiple regression analysis. The results of the study showed that both genders' self-efficacy was influenced similarly by their negative emotions. The study also indicated the dependency of self-efficacy on physical functioning, as the patients with reduced levels of physical function showed lower levels of self-efficacy. Similarly, gender difference did not show any significance in relation to self-efficacy in Chinese patients with cancer (Changrong et al. 2014).

The mixed results demonstrate that the association between gender and self-efficacy can be context dependent. As a result, males and females can have different self-efficacy levels depending on the situation. Hence, the present research analysed and statistically tested the association of these variables in the sample data. Specifically, the three self-efficacy factors (initiative, effort and persistence) were tested with relation to gender.

2.3.7.2 Residence and self-efficacy

A review of the literature suggests that residency appears to have a more positive correlation with self-efficacy. For example, studies by James and Otsuka (2008) and Jackson (2013, 2014b), revealed a significant negative association between students' residency and self-efficacy. The results showed that international students seem to be less confident as a result of number of factors, such as their status in the country, cultural differences, different learning approaches, and other challenges that international students face in their non-native country of residence.

For instance, in a US study, Zullig et al. (2011) found that the self-efficacy of black and Asian students was significantly lower than that of white students. Similarly, D'lima et al. (2014) reported that the self-efficacy levels of American Caucasian students were significantly higher when compared to those of African-American and Asian-American students. While these two studies did not explicitly analyse different residency status, their findings could suggest that the different origins of students surveyed implied cultural differences that might also be applicable to students of different residency status. Thus, these studies are somewhat relevant in providing evidence on levels of self-efficacy due to different backgrounds.

Lin and Betz (2009) investigated factors related to the social self-efficacy of 203 Chinese and Taiwanese international students in the US. Their findings were further extended to the length of their stay in the foreign country (i.e., the US). The researchers, while emphasising a negative relationship between students' residency and self-efficacy due to language challenges, indicated a positive association between the international students' length of residence and their self-efficacy. Therefore, the evidence suggests that there is a relationship between residency and self-efficacy.

Taking into account the findings in the literature, this study investigated the association between students' residency and their self-efficacy. It has not addressed the length of students' residence in Australia, but rather their residency status (i.e., domestic or

international student) while they were studying, and their self-assessed level of self-efficacy.

2.3.7.3 Age and self-efficacy

Many valuable studies, in particular those of Bandura, show that student age has a positive association with their self-efficacy, since older students are deemed to be more mature in their expectations and self-belief (Bui & Porter 2010; Bandura 1997; Bandura et al. 2008; Carpara et al. 2011; Gist & Mitchell 1992). In addition, Byrne et al. (2014) analysed the association between the self-efficacy of first year accounting students and found that many students lacked the confidence to be actively involved in activities associated with accounting subjects, with students reluctant to seek assistance. Thus, there was a significant association revealed between students' age (via year of study) and their self-efficacy, which indicated that younger students possess lower self-efficacy compared to older students.

Similarly, Cheng and Chiou (2010) examined correlations between the self-efficacy of accounting students one year apart (n=124). The study analysis demonstrated a positive relationship between students' age and self-efficacy. In turn, students with higher self-efficacy performed better on proficiency tests and set themselves higher goals. Whitesel (2015) also performed a correlation analysis to identify a relationship between students' individual characteristics and self-efficacy for circuit analysis. The study found that the age of students was directly correlated with self-efficacy in this context. The earlier mentioned study by Changrong et al. (2014) examined self-efficacy differences among patients with cancer and found that the categorical variable age was significantly negatively related with patients' self-efficacy ($p<0.001$).

However, when applying the GSES to medical patients across three different countries to measure patients' self-efficacy and its dependency on individual characteristics, including age, Luszczhynska et al. (2005) did not find a direct correlation between the patients' age and self-efficacy. Nonetheless, there were negative correlations found between GSE and negative effects/results.

Thus, depending on the context of the reviewed studies, it is apparent that the association between the variable age and self-efficacy is likely to be positive when it involves outcomes such as academic performance, employment prospects and development of skills. However, in studies relevant to patients' well-being and survival from cancer,

relevant to medical and psychological research, the association between age and self-efficacy is found to be negative. This could be explained by taking into account the natural deterioration caused by ageing.

Thus, regardless of the field of study and the context of the research, there is a significant (either positive or negative) association between age and self-efficacy. Accordingly, this study investigated whether there is any significant association between self-efficacy factors (initiative, effort and persistence) and the age of students in the sample data. The study analysed the association to determine whether prior findings in an educational environment that indicated that mature aged students seem to possess higher levels of self-efficacy (Jackson 2014a; Whitesel 2015), also apply in this context.

2.3.7.4 Language and self-efficacy

Language is found to be significantly associated with self-efficacy, as shown by number of studies. For example, a study by Luszczynska et al. (2005) found a significant relationship between the language of recovery patients in hospital, and their high levels of self-efficacy. Chen and Lin (2009) and Jackson (2013) revealed a significant association between language and the self-efficacy levels of students completing degree courses.

Furthermore, Yilmaz (2011) examined the self-efficacy beliefs of Turkish teachers, for whom English is a foreign language, and found that teachers perceived self-efficacy as positively correlated with their self-reported English proficiency. The study provides useful information on the need to improve English proficiency as it has relevance to self-efficacy. Similarly, another study by Cheng et al. (2009) also identified a positive association between English language proficiency and the self-efficacy of students.

In the same vein, Hassall et al. (2013) studied the link between language and self-efficacy in accounting students. They examined oral communication self-efficacy and written communication self-efficacy, and found significant associations in the overall relationship between apprehension and self-efficacy, and also in their constituent components. As a consequence, Hassall et al. (2013) proposed the need for addressing the development of language proficiency in the pedagogy of accounting education in order to improve students' self-efficacy.

By contrast, Lin and Betz (2009) researched the self-efficacy of students of non-English speaking backgrounds (NESB) and found that Chinese and Taiwanese students exhibit

significantly higher levels of self-efficacy when interacting with fellow native speakers then when interacting in English-speaking settings. This shows the relationship between levels of self-efficacy and language proficiency, when students use the same language. Similarly, Sugahara et al. (2010) and Chen and Lin (2009) also emphasised the strong association between students' language and self-efficacy. The effective use of English language is seen by researchers as a strong predictor, affecting students' motivation for positive academic outcomes and high self-efficacy in generic skills. Furthermore, Thong (2017) researched the effect of language along with self-efficacy and self-regulated learning on the process of learning. His data sample consisted of 186 undergraduates enrolled in a first year psychology unit in an Australian university. His findings showed a mixed pattern of transformative and reproductive concepts of learning, indicating that achievement motivates learning. Moreover, self-efficacy was found to be the only predictor for successful outcomes. Thus, there is a strong association between language and self-efficacy, as evidenced in the above research.

Following the findings in prior studies, this research examined the association between students' language and their self-efficacy factors.

2.3.7.5 Study mode and self-efficacy

According to Jackson (2014a), there is an association between students' study mode and their self-efficacy because part-time students are often more mature and confident (which could be explained by their age), and many have already secured employment (either part-time or full-time). As a result, part-time students appear to be more aware of work environment expectations and, thus, possess higher levels of self-efficacy compared to full-time students (Jackson 2013, 2014a).

Similarly, Bolton (2012) researched the effects of an online education program on self-efficacy and knowledge of the clinical teacher role, and found that this different mode of study has a positive effect on teaching self-efficacy. As a consequence, the mean teaching self-efficacy scores increased significantly from pre-test to post-test ($t=6.7$, $p<0.001$, $df=32$); while teaching knowledge scores also significantly increased from pre-test to post-test ($t=4.1$, $p<0.05$, $df=21$).

However, Kozar et al. (2015) examined the association between self-efficacy and different modes of study for PhD students, including distance education, and reported mixed and inconclusive results. For example, researchers admitted that current

understanding of PhD candidates studying off campus is limited and incomplete. On the one hand, such students appear to have low self-efficacy due to isolation and separation from communities of practice. On the other hand, these students feel autonomous and happy due to the freedom of the study process and not getting side-tracked by others, which implies a higher level of self-efficacy. Since the results are inconclusive, more research is called for to explore the pros and cons of different modes of study. Regardless of the level of qualification (i.e., a PhD as compared to an undergraduate degree in this study), the modes of study seem to have an impact on students' self-efficacy. Therefore, this study investigated the association between self-efficacy and different modes of study. The following table provides a brief summary of the literature discussed, examining individual characteristics and self-efficacy.

Table 3: Summary of prior research on individual characteristics and self-efficacy

Gender and self-efficacy	Residence and self-efficacy	Age and self-efficacy	Language and self-efficacy	Study mode and self-efficacy
Zullig et al. (2011) (females had higher self-efficacy levels)	James and Otsuka (2008) (international students had lower levels of self-efficacy)	Jackson (2013, 2014a) (older students had higher levels of self-efficacy)	Luszczhynska et al. (2005) (significant association between English language and self-efficacy)	Jackson (2014a) (part-time students had higher levels of self-efficacy)
Ma et al. (2015) (females had lower self-efficacy levels)	Jackson (2014b) (international students had lower levels of self-efficacy)	Whitesel (2015) (older students had higher levels of self-efficacy)	Yilmaz (2011) (significant association between English language and self-efficacy)	Bolton (2012) (on-line students had higher levels of self-efficacy)
Vantienghem et al. (2015) (females had higher self-efficacy levels)	Lin and Betz (2009) (international students had lower levels of self-efficacy)	Bandura (1997); Bandura et al. (2008) (older students had higher levels of self-efficacy)	Cheng et al. (2009) (significant association between English language and self-efficacy)	Kozar et al. (2015) (no significant association between study mode and levels of self-efficacy)
Lopez (2014) (males had higher self-efficacy levels prior to interaction)		Girst and Mitchell (1992) (older students had higher levels of self-efficacy)	Hassal et al. (2013) (significant association between language and self-efficacy)	
D'lima et al. (2014) (males have higher levels of self-efficacy)		Byrne et al. (2014) (older students had higher levels of self-efficacy)	Lim and Betz (2009) (significant association between non-English language and self-efficacy in similar settings)	
Vierra and Gratham (2011) (mixed findings)		Cheng and Chiou (2010) (older students had higher levels of self-efficacy)	Sugahara et al. (2010) (some association between skills including English language and self-efficacy)	
Busch (1995) (mixed findings on self-efficacy)		Changrong et al. (2014) (older patients had higher levels of self-efficacy)	Thong (2017) (mixed association between English language and self-efficacy)	
Subramaraniam and Freudenberg (2007) (males had higher levels of self-efficacy)		Carpara et al. (2011) (older students have highern self-efficacy)	Chen and Lin (2009) (significant association between language and self-efficacy)	

Chu and Abdulla (2014) (no significant differences)		Bui and Porter (2010) (older students had higher levels of self-efficacy)		
Sato and Sumi (2015) (no significant differences)				
Jackson (2013, 2014b) (no significant differences)				

2.3.8 Employment and self-efficacy

There is a positive association between self-efficacy and employment outcomes, as outlined by Sherer et al. (1982), Tymon (2011), Demagalhaes et al. (2011), Jackson (2013), Freudenberg et al. (2010b), Rothwell et al. (2008) and Smith and Bentz (2000). Bandura (1997) also stated that an individual's belief that they will gain employment is associated with their self-efficacy and belief in their ability to achieve. Knight and Yorke (2004) also argued that self-efficacy beliefs affect peoples' employment outcomes.

Conversely, Bernston et al. (2008) investigated the relationship between employment and self-efficacy in a Swedish population (n=1,730), in a two-wave longitudinal survey. They employed a CFA and found that the measures of employment and self-efficacy were related, but represented two separate constructs. They argued that employment preceded self-efficacy, thus, strengthening the self-beliefs of employed people and consequently affecting their GSE. It should be noted, however, that Bernston et al. (2008) researched the perception of people who were already in the workforce. Furthermore, in assessing people's self-efficacy, the study used SSE measures, taking into account peoples' beliefs in being able to execute specific work-related tasks, rather than GSE. The researchers' conclusions on the relationship between self-efficacy and employment were based on their findings, including that greater work experiences during employment contribute to increased confidence and improved self-beliefs, thus resulting in higher levels of self-efficacy.

However, it should be noted that the objectives of the above research were distinct to those in the current study. The current research analysed the relationship between near-graduate accounting students' GSE factors (initiative, effort and persistence) and their association with student employment outcomes (e.g. secured employment), as they prepared for the transition from university to professional employment.

Many studies have revealed the dependency between employment and GSE. Guan et al. (2013) applied a self-efficacy theory in studying Chinese graduates' career adaptability and job search outcomes, emphasising a strong positive correlation between perceived self-efficacy and job search progress. The study also found a positive association between self-efficacy and the level of adaptability at the workplace.

Similarly, the effect of GSE was also assessed in the context of technological innovation by Markman et al. (2002), where it was found that technological entrepreneurs have

significantly higher levels of self-efficacy compared to technological non-entrepreneurs. This supports the view of a positive correlation between employment outcomes and self-efficacy, showing that higher self-efficacy beliefs lead to higher employment outcomes. Thus, most studies support the idea of a positive association between high levels of self-efficacy and employment.

Table 4 below provides a brief summary of the literature that examined overall GSE and employment outcomes (due to the lack of studies that have employed the three-factor GSE structure). As already indicated, the present research differs by analysing the association between students' employment outcomes (secured employment/did not secure employment) and students' self-efficacy based on a three-factor structure (initiative, effort and persistence).

Table 4: Summary of prior research on employment and overall general self-efficacy

Study	Conclusion
Tymon (2011)	Significant association between self-efficacy and employment outcomes
Sherer et al. (1982)	Significant association between self-efficacy and employment outcomes
Demagalhaes et al. (2011)	Significant association between self-efficacy and employment outcomes
Freudenberg et al. (2010b)	Significant association between self-efficacy and employment outcomes
Bandura (1997)	Significant association between self-efficacy and employment outcomes
Knight and Yorke (2004)	Significant association between self-efficacy and employment outcomes
Bernston et al. (2008)	Mixed findings between self-efficacy and employment outcomes
Markman et al. (2002)	Significant association between self-efficacy and employment outcomes
Jackson (2013)	Significant association between self-efficacy and employment outcomes
Guan et al. (2013)	Significant association between self-efficacy and employment outcomes
Smith and Bentz (2000)	Significant association between self-efficacy and employment outcomes
Rothwell et al. (2008)	Significant association between self-efficacy and employment outcomes

2.3.9 WIL and self-efficacy

WIL training offered during degree courses seems to associate positively with students' self-efficacy. This was evident, for example, in the work of Submaraniam and Freudenberg (2007). In particular, their research indicated the benefits of WIL in

improving students' self-belief. However, their study examined a simulated WIL, as opposed to an authentic work placement, which was of very short duration (only four days), thus the findings are not sufficiently convincing. Another study by Freudenberg et al. (2010a), which examined whether WIL had a direct relationship with accounting students' satisfaction and self-efficacy, also found a positive association. The study, however, surveyed students who were in the first half of their degree program, when "the extent of the meaningful judgment of the students' capabilities was questionable" (Freudenberg et al. 2010a, p. 585). In contrast, the present research, focused on near-graduate accounting students (i.e., those who are already midway through their course). In addition, unlike Freudenberg et al. (2010a), the present research employed a three-factor structure of GSE, rather than an overall GSE construct.

In a further study, Gracia (2010) examined accounting students' expectations of structured work experience at the transition stage. The study found that students with different perceptions of structured work experience (in this case, WIL) displayed differing general patterns of transition experience. Students with a positive attitude to transition were able to derive the benefits from the experience; those who did not integrate well into the workplace, on the other hand, did not benefit from such an experience.

Purdie et al. (2013) analysed the difference in students' self-efficacy due to participation in WIL. They confirmed prior findings by Green (2011) that there were no benefits to pure academic performance, although they concluded that students felt better as a result of WIL, which suggests a positive relationship between WIL and students' general confidence levels.

Table 5 below provides a brief summary of literature that examined WIL and overall GSE (due to the lack of studies that have employed the three factor GSE structure in association with WIL).

Table 5: Summary of prior research on WIL and self-efficacy

Study	Conclusion
Submaraniam and Freudenberg (2007)	Significant association between WIL and self-efficacy
Freudenberg et al. (2010a)	Significant association between WIL and self-efficacy
Gracia (2010)	Significant association between WIL and self-efficacy
Purdie (2013)	Significant association between WIL and self-efficacy
Green (2011)	Significant association between WIL and self-efficacy

2.4 Individual characteristics and employment

Various studies have demonstrated a strong association between students' individual characteristics and employment outcomes (Jackson 2013, 2014b; James & Otsuka 2008; Demagalhaes et al. 2011; Cranmer 2006; Hazenberg et al. 2015). The individual characteristics examined in previous research studies consisted of a wide range of variables, including but not limited to the following: gender and age (Crebert et al. 2004; Jackson 2014b); students' continent of birth, stage of degree, degree majors, life spheres, working experience, and importance of skill development (Jackson 2014b); ethnic minority groups and cultural backgrounds (Wilton 2011); and language backgrounds (Coates & Edwards 2011; Jackling & Keneley 2009).

The scope and range of students' individual characteristics in the literature is broad. However, the current research selected five individual characteristics based on prior findings: gender, age, language, residency and study mode. The selection was made due to their importance in enabling easier differentiation between categorical groups, as well as the fact that the majority of prior studies also analysed these same variables.

The selected categories were also chosen as some of them incorporated aspects of other variables that were analysed in previous studies. For example, the variable residency assumes prior study variables that have proxied cultural and ethnical differences, as well as continent of birth. Similarly, the variable language assumes the elements of cultural backgrounds. Furthermore, majors and stage of degree are assumed by the study's sample data, which is represented by the accounting near-graduate students who had completed more than 50 percent of their degree course.

The following subsections provide an overview of the research literature relevant to the analysis of the association between students' individual characteristics and employment outcomes.

2.4.1 Gender and employment

Prior studies by Gracia (2010), and Fallan and Opstad (2015) analysed the effect of gender differences in different environments, including higher education. It was found that gender differences result in different employment outcomes in undergraduate accounting programs.

According to Jackson (2013, 2014a), female students are more concerned about developing lifelong skills and place greater importance on long-term employment compared to male students. Male students were found to have a short-term view on skills development and were more concerned with obtaining employment rather than focusing on long-term prospects in their future professional career.

Gender differences were also shown in academic outcomes, in terms of student performance in university (Graduate Careers Australia 2014), as well as employment outcomes (Coates & Edwards 2011), signifying that different employment outcomes exist between male and female graduates. The difference in employment outcomes for male and female graduates is explained by differences in the social status of men and women, resulting in different long-term careers and remuneration outcomes (Webster et al. 2011; Paisey & Paisey 2004). Surridge (2009), however, concluded that gender did not affect the employment prospects of students, although it made a difference to students' academic performance in the first year of their degree program. The present research aimed to determine whether there is any dependency between gender and employment outcomes.

2.4.2 Residency and employment

James and Otsuka (2008), and Jackson (2013) discussed the association between students' employment outcomes and their residential status, finding a negative relationship between non-residents and employment. Coates and Edwards (2011) argued that graduates are disadvantaged in finding employment due to residency status. They also found that these graduates are less likely to be employed full-time in the first year after graduating from their accounting degree courses. Jackson (2013) revealed a 75% reduction in the chances of achieving full-time jobs for overseas residents in Australia, compared to local students.

A study on accounting graduates by Graduate Careers Australia (2014) emphasised that international students were aware that they lacked certain attributes and, as a result, they

were less confident in pursuing professional employment. Consequently, as James and Otsuka (2008) concluded, international graduates face difficulties in finding a professional job, which could be due to differences in cultural backgrounds (Bui & Porter 2010; Jackling & Keneley 2009; Jackling et al. 2012). Birrell (2006), and Birrell and Healy (2010) indicated that international students often saw an Australian accounting qualification as a means of providing the potential to gain permanent residency status in the country. To try and achieve this, students selected and successfully completed an eligible course in accordance with the Australian Government's migrant occupations in demand list. It could be argued that most international students, especially those who completed post-graduate accounting qualifications, were motivated by the benefits of permanent residency status rather than professional qualifications.

The subsequent changes to immigration legislation in February 2010 tightened the eligibility criteria for permanent residency applications from international students. The reviewed general skilled migration points test made it more challenging by emphasising overseas university credentials and the need for work experience either in Australia or overseas. The implication of these changes for educational institutions was that accounting courses were to be viewed as providing values recognised in the countries of origin of prospective students.

The difficulty of getting jobs in Australia, as faced by international students, has been emphasised in many studies (James & Otsuka 2008; Bui & Porter 2010; Jackling & Keneley 2009). The present research aimed to determine whether there is any dependency between students' residency status and employment outcomes in the study sample.

2.4.3 Age and employment

Age was found by Jackson (2013) to be a contributing factor for student employment outcomes. According to Coates and Edwards (2011), employers hire older candidates more willingly than they do younger students, since they perceive older graduates as more responsible and better suited to the job (Jackson 2014a; Smith et al. 2010; Bui & Porter 2010), as well as more open to continual professional development (Stoner & Milner 2010).

Older students also have the advantage of more extensive networks from university and prior part-time jobs (Phillips & Bond 2004). Jackson (2013) found that mature-aged students have a higher chance of obtaining employment. Moreover, the age factor was

found to be significant for predicting employment outcomes for business students in studies that analysed the students' perception of their self-employability (Rothwell et al. 2008). However, Purcell et al. (2007) found that mature-aged students experience more difficulties due to ageism and discrimination.

According to Stoner and Milner (2010), and Jackson (2013, 2014b), the development of employability is more complicated due to students' lack of confidence, which is attributable to their age. Employers perceive a general accounting graduate as an immature employee who lacks the capability of performing complicated tasks efficiently and responsibly (Crebert et al. 2004a; Tymon 2011). Such views affect graduates' employment prospects, as younger graduates are seen as less employable. In light of the aforementioned studies, the present research examined the relationship between age and employment outcomes.

2.4.4 Language and employment

The association between a graduate's level of English and their employment outcomes has been addressed in prior studies. Some research indicates that employers prefer students with well-developed English skills at the time of commencing employment. The literature also reveals the difference in perceptions of accounting students' English language skills. It appears that universities concentrate on developing academic English, whereas employers expect graduates to possess adequate business English (Bui & Porter 2010; Jackling & Keneley 2009).

Watty (2005) examined a link between quality in accounting education and the increased enrolment of international students, emphasising the low English standards of this cohort. The findings of this research were supported by other studies, such as the work of Christopher and Hayes (2008), Thong (2017) and Jackling et al. (2012). The language competency of international students is a problem of concern for all stakeholders, including employers, academics, the accounting profession, government, students and the broader community. It is argued that the issue of international students' insufficient English at the stage of enrolment is outside the reach of education and professional bodies, as this is a matter for government (Watty 2005). Although the entrance level requirements have been gradually lifted since Watty's study, the problem of language deficiency for international students remains acute and is discussed later in this study.

The issue of English language deficiency among accounting graduates is important due to the fact that a large portion of the university cohort in accounting comprises international students. A report by the Australian Government Education Department (2014) emphasised the seriousness of this problem, particularly the level of international students with English deficiency prior to commencing their degree courses.

Not surprisingly, employers prefer applicants with fluent English (Bui & Porter 2010; Jackling & Keneley 2009). Previous research conducted by Jackling and Keneley (2009), Coates and Edwards (2011), and Stoner and Milner (2010) supports the view that language skills are positively associated with employment outcomes. In light of this, the present research assessed the association between students' employment outcome and language.

2.4.5 Study mode and employment

According to Jackson (2013, 2014a), Stoner and Milner (2010) and Hinchliffe and Jolly (2011), study mode is a contributing factor to the improved employment outcomes of accounting graduates. Jackson (2014a) found that students studying through external modes (off-campus) showed significance ($p<0.001$) in securing employment, as these students tended to have greater exposure to the workplace environment. The majority of higher education part-time students are either employed part-time or full-time and are typically more motivated to find professional positions or advance their career at their current workplace (Smith 2010). On the other hand, Knight and Yorke (2004), and Tymon (2011) argued that full-time students appear to be more motivated to find professional employment.

The literature review provides mixed evidence that different study modes affect students' employment, while indicating that part-time students are better equipped to find employment than full-time students (Cheng et al. 2009). Consequently, the present research assessed whether a student's study mode is significantly associated with their employment outcomes. Table 6 below provides a brief summary of the literature that examined individual characteristics and employment.

Table 6: Summary of prior research on individual characteristics and employment

Gender and employment	Residency and employment	Age and employment	Language and employment	Study mode and employment
Jackson (2013, 2014a) (Significant differences exist)	James and Otsuka (2008) (Significant differences exist)	Crebert et al. (2004b) (Differences exist)	Thong (2017) (Significant differences exist)	Jackson (2014a) (Significant differences exist)
Fallan and Opstad (2015) (Significant differences exist)	Jackson (2013) (Significant differences exist)	Jackson (2013, 2014a, 2014b) (Significant differences exist)	Christopher and Hayes (2008) (Significant differences exist)	Stoner and Milner (2010) (Significant differences exist)
Gracia (2010) (Significant differences exist)	Coates and Edwards (2011) (Differences exist)	Tymon (2011) (Differences exist)	Bui and Porter (2010) (Significant differences exist)	Knight and Yorke (2004) (Differences exist)
Webster et al. (2011) (Significant differences exist)	Jackling and Keneley (2009) (Significant differences exist)	James and Otsuka (2008) (Differences exist)	James and Otsuka (2008) (Significant differences exist)	Tymon (2011) (Differences exist)
Paisey and Paisey (2004) (Significant differences exist)	Jackling et al. (2012) (Significant differences exist)	Bui and Porter (2010) (Significant differences exist)	Jackling and Keneley (2009) (Significant differences exist)	Smith and Worsfold (2014) (Differences exist)
Surridge (2009) (No significant differences exist)	Bui and Porter (2010) (Significant differences exist)	Stoner and Milner (2010) (Mixed findings)	Watty (2005) (Differences exist)	Cheng et al. (2009) (Significant differences exist)
		Phillips and Bond (2004) (Significant differences exist)	Jackling et al. (2012) (Significant differences exist)	
		Purcell et al. (2007) (Differences exist)		

2.5 WIL and employment

WIL training programs provide students an opportunity to gain work-related experience while completing their degree program. However, the need for work-related training during the accounting degree course was not mentioned in any International Education Standards (IES5 2011), which specified practical experience requirements and continuing professional development respectively. Thus, work experience is not seen as a priority, since the IES assume that the educational process is designed predominantly for obtaining a degree and that practical on-the-job training and professional development would occur later, outside of the educational environment.

Therefore, it could be argued, that perhaps it is unreasonable to expect the provision of work-related training during the university degree years. According to Cranmer (2006), work training programs are viewed as an add-on to a student's university study, and not as a part of mainstream accounting education (Stanley 1992). According to Geary et al. (2010), one way to incorporate such programs is to enter into collaborations with industry partners (i.e., accounting firms), to commit to teach in the accounting course. In the US, one pilot program - the Partner Teaches Program - inaugurated by a public accounting firm, provided the opportunity to study and analyse the impact of such an approach to generate recommendations.

Ideally, in a WIL training program, carefully selected partners need to match with the demand of particular course outcomes and be integrated into the curriculum. Based on this approach, the learning programs can provide a significant contribution to the quality of accounting education. Currently, the extent to which skills development in WIL programs are implemented while students are still in education is limited. Harvey et al. (1997) recommended that if a WIL placement is offered as a part of a degree course, the length of the placement should be for at least a year.

The 2011 ALTC report (Orrell, 2011; Oliver, 2015) revealed good practices in WIL in Australian universities through a review of 28 funded studies. The report reemphasised that it is WIL training which allows the integration of theoretical knowledge and practice skills: this integration results from students' experiences in a workplace.

According to the ALCT report, in the last decade the role of WIL in university courses has been changed since many Australian universities realise that WIL is an important aspect of their branding and business (Orrell, 2011; Oliver, 2015). Consequently, the

participation rates in WIL programs of Australian universities have noticeably improved. For example, 70 percent of Griffith University's students obtained WIL experience during their course. Other universities such as Queensland University of Technology, Swinburne University and Victoria University were also acknowledged in ALCT report, as promoting WIL in their curriculum and making it a compulsory component of their degree programs.

Furthermore, many researchers (Hungerford et al. 2010; Molan et al. 2010; Oliver, 2015; Winchester-Seeto et al, 2016) strongly support the idea of promoting WIL in HE, stressing the importance of inter-professional collaboration between the industry stakeholders and the universities. These partnerships are necessary for the further improvement of WIL participation rates and the effectiveness of WIL training.

WIL programs provide opportunities to integrate practical and theoretical ways of learning. Such programs aim to overcome the long-argued problems of inadequate graduate preparedness for work (Patrick et al. 2008; Richardson et al. 2009; Bui & Porter 2010). Higher education approaches to WIL are reviewed below.

2.5.1 University approaches to WIL

Universities that offer WIL programs generally attract larger number of students, therefore they benefit from selecting students with better academic results. Furthermore, these universities enjoy a competitive advantage in a highly competitive higher education market (Smith 2012).

It is argued that WIL programs enable universities to fulfil their commitments towards:

- providing a level of education that meets the present and future needs of industry and the community (Alderman & Milne 1998);
- providing meaningful learning that is useful to society rather than merely making students academically knowledgeable (Barnett 2011);
- strengthening partnerships with industry and community organisations (Alderman & Milne 1998; Eames 2003); and
- producing graduates with quality skills that make them more employable (Crebert et al. 2004a Smith 2012; Billett 2009).

Universities consider WIL programs due to the imperative role such initiatives play in achieving their mission as educational organisations. Their committed stance on WIL is evidenced by a position paper published by Universities Australia (2008). This paper advocated strong support for a national internship scheme aimed to address the issue of graduate employment and a national skill shortage in accounting (Smith 2012). WIL also has a significant impact on university partnerships with industry and the community. In fact, universities disclose extensive information on this topic on their websites to show the advantages for industry partners from their collaboration in WIL programs.

2.5.2 WIL programs in selected universities

Not all universities offer the same WIL programs. This section reviews WIL programs from three Melbourne-based universities, specifically their policies and procedures, as well as publicly available material on their websites. Each of the three universities[6] offer accounting degree courses and WIL training programs within their degree programs.

The selection of three universities to review is to provide a diverse sample of the types of WIL programs offered in Australian universities. The diverseness of the programs offered demonstrates the dynamic nature of WIL and is not meant to act as a basis for analysis in this study.

University A is ranked among the world's top 150 universities in accounting and finance and among the top 500 institutions world-wide (Times Higher Education 2016-2017). It is one of Australia's original tertiary institutions, with an international reputation for excellence in professional and vocational education, including engagement with industry.

University B is ranked in the top one percent of world universities and 63rd in the world for business and economics (Times Higher Education 2016-2017). Moreover, this university is a member of the Group of Eight, known as an alliance of leading Australian universities recognised for their excellence in teaching and research. Typically, Group of Eight university graduates find full-time employment sooner than graduates of other universities. Furthermore, graduates commence employment on much higher salaries compared to other Australian university graduates.

[6] The three universities are not explicitly named but are referred to as University A, University B and University C.

University C is ranked in the range of 351-400 in the world (Times Higher Education World 2016-2017). It is known as a dual-sector tertiary institution with courses in both higher education and Technical and Further Education.

The comparison tables throughout this section (Tables 7 to 15) provide an overview of different approaches to WIL programs, showing the different WIL formats, as well as the range of activities and assessments within those programs.

Table 7: Objectives of WIL training programs

University A	University B	University C
-to vastly improve graduate employment prospects -to provide direct contact with industry and employers	-to improve students' employment attributes and skills: communication, teamwork, leadership, negotiation and problem solving -to let students gain an understanding of the workplace culture and increase their network of contacts -to enable business students to gain work experience by working in local companies in the Gippsland region -to provide an opportunity to 'bridge the gap' between the academic and business worlds	-to integrate theory and practice by applying academic learning to the workplace -to develop students' graduate capabilities to meet employer demands -to enable students to use and extend their knowledge and skills in professional work situations -to give the opportunity to explore career options relevant to the discipline -to develop students' professional networks

As the table above shows, the objectives of the three universities are similar, focussing on enhancing graduate employment prospects with an emphasis on improvement in work-related skills and building industry networks.

Table 8: Format of WIL offered in undergraduate accounting programs

University A	University B	University C
Cooperative Education Placements -a year of paid, full-time employment (minimum 40 weeks) as the third year of a four-year business degree -students undertake a preparation program during the second year of study, and enter the workplace the following year **Business Integrated Learning (BIL)** -recognises industry-based experiences such as: • relevant project work • part-time employment • a holiday job or even voluntary work undertaken while completing qualifications in all business courses	**Cooperative Education Program** -set up in 1993 to produce quality, industry-ready accounting graduates and to ensure continuity of supply of accounting graduates to industry (Bachelor of Accounting Partner Package 2012). It comprises: -two full-time placements, a total of 26 weeks -14 weeks in the second year of their degree (June-September) -12 weeks following the first placement (October-December or November-February) -flexible to suit employers' needs -offered over the summer period, semester one or semester two -for full-time on-campus students who have completed 16 units of study within their degree and in second year of study -students must satisfy a GPA (grade point average of 60 percent) to be eligible for the program -students need to allow two electives within their course structure to be able to undertake the work placement program	**Cooperative Education Placements** -two semesters to 12 months of paid full-time employment **Voluntary Placements** -one course to one semester in a not-for-profit or community-based organisation, unpaid **Professional Skills Program** -combination of skills training and workplace learning to help students develop professional skills **Industry Projects** -research project or organisational problem-solving project in which the student works in liaison with industry

As Table 8 illustrates, the format of WIL programs ranges from completing industry-related research projects to industry placements of up to 40 weeks. It is apparent, however, that the training is offered predominantly in the second half of the degree program. The eligibility of students for a WIL program is different, since University B, for example, requires students to satisfy a grade point average score of 60 percent, while University C offers voluntary placements with no selection criteria.

Table 9: Range of WIL offered in degrees other than accounting

University A	University B	University C
-Professional legal practice, 150 hours of activities related to the legal profession in one or more work environments	-Internships -Work placements -Cooperative education -Industry-based learning -Community-based learning -Experiential learning -Clinical rotations -Student projects -Competitions -Study tours	-Vacation work during the penultimate year for up to 12 weeks -Cadetship: paid employment while students study (full-time during vacation, part-time during semester) -Internships: supervised employment (paid/unpaid; full-time during the vacation or part-time during semester)

As Table 9 shows, all three universities offer a variety of WIL programs in addition to those in accounting, highlighting the importance of WIL in each institution.

Table 10: WIL - Optional or mandatory

University A	University B	University C
-Cooperative Education is compulsory in all hospitality, tourism and event management degrees -BIL is mandatory for students undertaking event management courses -Optional in all other degree courses, including accounting	-Cooperative Education and Work Placement Programs are optional in some business degree courses (e.g. information systems), however, it is a compulsory component of the accounting degree course (Bachelor of Accounting - 0169) -It is also mandatory in some other courses, where WIL constitutes part of the curriculum (e.g. medicine, nursing, occupational therapy, teaching) -Accounting students are required to meet a hurdle requirement for work placement by having an average pass for the subjects completed. Whilst the course offers a valuable training component, it is somewhat inflexible in its structure, because for a student who failed any unit, it is not only the work placement, but the entire accounting degree at this university that is unachievable	-Cooperative Education is a compulsory academic requirement of the degree and must be successfully completed before students can proceed with their studies

Table 10 illustrates how WIL training programs are offered both as voluntary and compulsory training. While WIL programs are optional for the accounting students in University A and University C, they are compulsory for students in University B. Moreover, students are required to pass prerequisite units to be eligible for WIL training.

Table 11: Remuneration amounts for 'paid' WIL

University A	University B	University C
n/a	-Industry partners are billed by the University at $8,000 + GST for a student placement. This payment is treated as educational grant, paid to students as a scholarship by the University -There are no payroll implications either for students or partner organisations: the contribution and GST component are tax deductible educational grants, the scholarships therefore are tax free for students	-The cooperative education salary is approximately 75% of a graduate salary, paid in the range $25,000 - $40,000, depending on the sector of the industry and level of the position

As Table 11 shows, students from University B and University C receive payment during their WIL experience, which is an element of employment experience. University A does not offer any remuneration to accounting students as part of their WIL programs.

Table 12: Areas of WIL placements offered

University A	University B	University C
-Local, interstate or overseas (20% of hospitality and tourism WIL are overseas)	Local, interstate or overseas	Local, interstate or overseas

Table 12 above shows that most of the WIL training is provided by local industry. However, University A and University B also have WIL training programs available interstate and even overseas.

Table 13: Assessment of WIL programs

University A	University B	University C
n/a	-Assessment Tasks (AT) for Cooperative Education are as follows: **AT 1:** Mid-placement performance appraisal (week 8) - 20% **AT 2:** End-placement performance appraisal (week 14) – 30% **AT 3**: Placement oral presentation (week 14) - 20% **AT4:** Placement evaluation, folder and reports (week 14) -30% **Industry supervisor** is required to complete both performance appraisals, with scores and comments. The outcomes of the appraisals are discussed with the students and signed off by both the industry supervisor and the student **Criteria for AT1 and AT2**: Interest and energy Dependability and output Organisation and planning Communications Initiative Team work Problem-solving (Each criterion is scored on a 1-5 scale) **Academic supervisor** / **Unit Coordinator** is involved in the remaining assessments – AT3 and AT4 **Criteria for AT3:** Placement oral presentation: Voice projection Body language Eye contact Content-role in organisation, tasks undertaken/evaluation of placement (Each criterion is scored on a 1-5 scale) This assessment is in the last week of placement **Criteria for AT4 Placement Reports** **Task details**: Reflective diary/daily log Key tasks undertaken Placement company report Resume Placement evaluation This task is submitted at the last day of placement **The criteria for assessment:** -Content, structure, presentation, sequence, insight -Each assessment task's marks are made available to students within two weeks of completion of the task	-Cooperative Education Placements assessment includes a business report, full-time employment for a specified period and appropriate workplace performance -Students who fail cooperative education are generally required to participate in a Portfolio run Professional Skills Program before continuing with their studies. Students receiving negative feedback in relation to contract arrangements, job performance or attitude may be brought before an academic progress panel -Assessment is carried out by academic staff, industry supervisor's feedback is considered -Students become employees during the cooperative education year and are therefore bound by the same standard work/performance arrangements as other employees -Employers are made aware that if any difficulties arise, the School can be contacted for support, if appropriate

	-For AT given a fail grade, there is a second evaluation by an independent examiner -The final mark is determined by the Board of Examiners	

As shown in Table 13 above, the assessments for WIL activities differ significantly between the three universities. It appears University A does not have any formal assessments, while University B has a range of assessments with details of marking criteria and scores. Both Universities B and C involve university and industry representatives in the assessment of WIL experiences.

Table 14: Roles assigned in industry-university partnership

University A	University B	University C
n/a	Following University's Guidelines, **Employers** are required to commit to: -provide at least two placements per year -provide placements that are interesting and challenging for students -assign appropriate supervisors to students -evaluate students' performance in a similar manner to staff appraisal -make payments as required at the completion of placement -nominate a mentor during the placement -make its policies, rules, etc. available to the students -ensure that industry experience is appropriate, practical, consistent with the objectives of the University's WIL programs, student's level of achievement and individual learning needs -nominate a representative that will administer the placement and will act as a liaison between all the parties involved in WIL -introduce students with work safety requirements -provide all resources, equipment and supervision necessary during WIL program	As per the University Employers' Guide to Cooperative Education, **Employers** are required to: - provide a position description for distribution to eligible students The **University:** -collates the applications and forwards to employers for consideration The cooperative education training process includes the following sections: *Before cooperative education training:* -students are informed of their eligibility to begin a cooperative education placement in either July (mid-year) or December (end-year) -end-year placements can start between November and February -students negotiate start date with employers and attend the compulsory cooperative education preparation program before the placements -employers confirm placements. The Industry Placement Coordinator is provided with the job descriptions -students forward applications to employers for placements -employers conduct interviews with students, then inform them of the outcome; students formally accept/decline the offers of placements *During cooperative education training:* -students commence their cooperative education placement and notify Industry Placement Coordinator

	The University's role in WIL program: -to ensure that students are aware of terms and conditions of the WIL placement and comply with them -to ensure that students placed in a WIL program are capable of fulfilling the educational objectives of their placement -to make sure that students will not disclose any confidential information acquired during WIL program -to nominate a university representative to act as liaison between all the parties involved in WIL (students, industry and university) Both, university and industry warrant the insurance cover for public liability and professional indemnity while students are at work placements	-students decide on the topic for their business report -first Academic Mentor visit -students begin work on their business report -second Academic Mentor visit (for 12 month placements only) -students submit completed business report to Industry Placement Coordinator by deadline -cooperative education placement ends *After co-op training* -employer provides feedback to student -students reflect on cooperative experience -students return to University to begin the fourth and final year of their degree. The experiences from the cooperative education year are specifically integrated into the final academic year

Table 14 above presents the roles of universities and industry in their shared partnership to provide WIL training, in accordance with the universities' policies. Although the roles and duties are clearly indicated, the reality of actual shared roles in WIL supervision may be different.

Table 15: WIL placements and potential employment

University A	University B	University C
n/a	-Employers are expected to refrain from making any employment offers to the students while they are in the WIL placement program or upon the work placement completion, if this will result in a delay in the completion of their accounting degree	-Upon completion of a WIL program employers can negotiate any future arrangements directly with students. A significant number of students obtain graduate employment as a result of their cooperative education experience -Some students may continue full-time with their cooperative education employer and apply to complete their degree on a part-time basis -Others may work part-time while completing their studies -Some still return to full-time study with the promise of graduate work after completing their final year

Table 15 illustrates the different approaches taken by the selected universities in terms of student employment resulting from WIL training. While University A does not specify

any restrictions, University B explicitly requires its students to complete their degree before accepting any employment position in a work placement organisation. University C, however, is flexible, allowing its students to accept employment if an opportunity arises, even before the completion of their full-time study.

In summary, as Tables 7 to 15 illustrate, the format, assessments, and length of WIL training vary across the universities. And although the objectives and the aim of the training outcomes are the same - to enhance the employment prospects of graduates - the ways the programs are structured, delivered and assessed are quite different.

2.5.3 Roles of academics and workplace supervisors

As could be seen in Tables 7 to 15, the role of university and industry in the supervision of WIL training is vital. Some research has been conducted on this issue, including Gracia (2010), Richardson et al. (2009), and Smith (2012), who all emphasise the crucial role of supervisors during workplace training and the importance of supervisors' feedback to students. For example, in courses such as medicine, law and mental health, workplace supervisors are involved in providing ongoing feedback, including assessments of students, and the learning process in those courses is facilitated by the provision of practical placements. Medical degree students have a compulsory internship in hospitals while law students attend compulsory practical training in judiciary (e.g. moot courts) before they are received at the bar. However, in business courses, particularly in accounting degrees, this appears not be the case, with activities and placements still yet to be formalised throughout the curriculum (Smith et al. 2010; Richardson et al. 2009).

The research literature reveals that most of the WIL assessments are based on university criteria, which concentrate and reflect on academic learning results rather than on work-related knowledge and skills (Richardson et al. 2009). This is evident from Table 13. According to Jones and Abrahams (2007), workplace supervisors are not well prepared in carrying out supervision and assessment tasks (AT) since they lack the appropriate training. This often results in providing negative feedback that demotivates students and creates 'barriers to learning'.

The different models of effective workplace supervision are discussed in the academic literature, including Mant's (1997) plan-do-review model (shown in Figure 2 below). Mant's model assumes effective industry supervisor feedback to students while they are

in workplace training, from the planning stage, throughout the commencement and until the completion of the work placement.

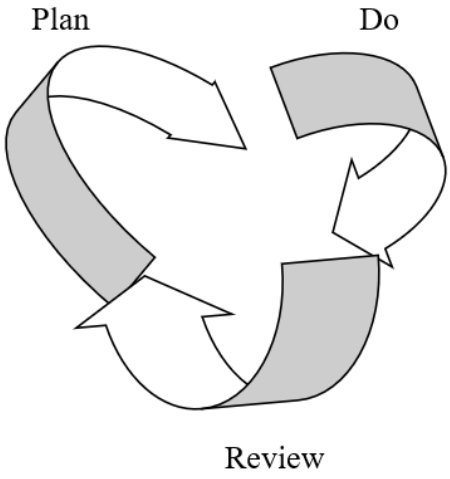

Figure 2: Plan-do-review model

Source: Adapted from Mant (1997) by Richardson et al. (2009)

Richardson et al. (2009) conducted qualitative research on industry feedback to students' assessment. They found that industry and academic supervisors recognise the need for collaboration throughout all the three stages of WIL identified by Mant (1997). Furthermore, the ALTC's WIL Report (Patrick et al. 2008) stressed the need for training of industry supervisors so that they are better equipped for WIL assessment and evaluation.

Choy and Delahaye (2011) argued that during work placement programs, the dominant role of universities as transmitters of knowledge shifts to workplace supervisors. To overcome WIL challenges, universities and industry need to develop partnerships, which would be effective only when they engage all participants, including the students, their supervisors, and the university (Choy & Delahaye 2011). Involvement of both industry and university in WIL training will contribute to improving the employment outcomes of students.

Employers feel that they are able to contribute their practical expertise, and want to help universities by being involved in WIL programs (Smith 2012).

This will be useful, since as Crebert et al. (2004a) found, employers share general assumptions about new graduate recruits, such as:

- graduates are immature, not appropriately informed and therefore are not capable of performing high responsibility work;
- a lengthy period of training and adaption is necessary before graduates can commence work; and
- most employers are risk averse 'just in case', and they do not delegate responsible work to graduates.

These assumptions are based on employers' perceptions of the quality of graduates. Their opinions vary across different industries and are influenced by employers' personal educational experiences and the culture of the organisation (Crebert et al. 2004a).

Extensive studies have confirmed that employers no longer seek graduates with hard technical or vocational skills; it is interpersonal skills that are expected from graduates. Whilst putting the blame on higher education for a lack of work-readiness, employers express their willingness to take part in preparing students for work (Crebert et al. 2004a; Harvey 1999).

Atkins (1999, p. 275) argued that "it is possible that employers' criticism of the shortcomings of graduate recruits are not so much a result of failure in the university curriculum, as of failure in the transfer process". WIL programs could be effective in integrating efforts of both industry and education to narrow the gap in the perception and reality of accounting graduates' employment.

Partnering with university for WIL offers significant benefits to employers, including gaining cost-effective, temporary employees and the ability to preview potential job candidates.

2.5.4 WIL and employment

Researchers found that, for many graduates, expectations are not met when they commence initial employment in terms of job satisfaction, salary levels or professional development opportunities, and their knowledge base as valued by their employers (Harvey 1999). The transition from university to employment for graduates is a challenging and apprehensive step (Harvey 1999; Tomu 2013; Billett 2009; Cheng et al. 2009).

Candy and Crebert (1991, p. 572) referred to the problems as challenges for new graduates at the transition period, including:

- having heads full of theories, principles and information. This implies that intensive training is needed before they become ‘useful’ to organisations;
- with lack of generic skills, therefore, universities should pay greater attention on developing problem-solving, decision-making, team work and self-learning skills; and
- having wrong expectations that the workplace will provide supervision, order and control similar to the educational environment. Graduates are expected to be job-ready.

In order to be able to adjust and adapt to the workplace environment, graduates should move from structured learning approaches to self-reflective learning. This would be possible in an appropriate learning framework, which assumes the inclusion of WIL programs (Candy & Crebert 1991; Smith 2012).

WIL programs provide students with the opportunity to narrow the gap between learning at university and learning at work. Such programs inform students about the real world environment, make them aware of real expectations in the workplace, and encourage the development of relevant skills and appropriate learning. Students get a realistic idea of the workplace, improve their employment prospects by building up networks and their self-efficacy and confidence is enhanced as a result (Smith 2012; Richardson et al. 2009). WIL programs, with effective connections between industry and academic supervisors, and where students have a clear understating of desirable outcomes, provide greater benefits in preparing students for their future employment (Harvey et al. 1997; Crebert et al. 2004a; Smith 2012).

Although many studies have shown that WIL is effective in improving student employment, an important gap remains as to understanding how the program effectiveness is valued by different stakeholders (Smith 2012). The important question is also about whether the expectations of stakeholders are justified. This, however, is outside the scope of the present research, but could be addressed in future research.

WIL provides many benefits to students, as evident in the findings of a number of studies (Jackson 2013; Smith et al. 2010; Freudenberg et al. 2010a; Cheng et al. 2009). Table 16 below provides a brief summary of the literature that examined WIL and employment.

Table 16: Summary of prior research on WIL and employment

Study	Conclusion
Freudenberg (2010a)	Significant differences exist between WIL and non-WIL participants
Smith (2012)	Significant differences exist between WIL and non-WIL participants
Jackson (2013)	Significant differences exist between WIL and non-WIL participants
Crebert et al. (2004a)	Significant differences exist between WIL and non-WIL participants
Smith et al. (2010)	Significant differences exist between WIL and non-WIL participants
Harvey et al. (1997)	Significant differences exist between WIL and non-WIL participants
Cheng et al. (2009)	Significant differences exist between WIL and non-WIL participants

2.6 Chapter summary

In this chapter, the literature relating to the interchangeable terms of employment and employability, as well as a performance expectation gap, were reviewed. The self-efficacy construct was discussed in-depth before arriving at a valid and justifiable selection of the three-factor GSES for this study, incorporating initiative, effort and persistence (Bosscher & Smit 1998; Sherer et al. 1982; Jerusalem & Schwarzer 1992). In addition, the chapter presented a review of prior literature focused on the association between: (i) self-efficacy and students' individual characteristics; (ii) self-efficacy and employment outcomes; and (iii) self-efficacy and WIL participation. Further, prior studies on associations between individual characteristics and employment outcomes and the association between WIL and employment were also discussed. The next chapter outlines the conceptual framework for this research, as well as the research methods employed in this study.

Chapter 3: Conceptual framework and methods used

3.1 Introduction

This chapter summarises the relationship effects and outcomes between the variables under investigation, based on the literature review discussed in Chapter 2. These outcomes provided the basis for the development of the conceptual framework for the study, which examined the relationship between individual characteristics, participation in WIL, as well as the self-efficacy of accounting near-graduates on their employment outcomes. This chapter also provides details of the methods used to test the developed model in order to capture the relationships between the various variables in the framework. It provides a justification for the main research methods employed, which were a principal CFA and logistic regression analysis. This is followed by a review of the data that was used for analysis.

The organisation of this chapter is as follows. Section 3.2 presents the conceptual framework. A summary of the effects and outcomes of the study framework variables on students' employment outcomes, along with the research hypotheses proposed for the study is then presented in Section 3.3. Section 3.4 provides a brief overview of the research design and approach, providing overall details of different types of research, while Section 3.5 reviews the research methods applied in previous studies relevant to this study. Section 3.6 focuses on the identification and justification of the research methods approach utilised in the present study, specifically factor analysis via PCA and tests of association (Mann-Whitney U-test, Pearson chi-square test) and logistic regression analysis. The data collection method and development of the research instrument is discussed in Section 3.7 and Section 3.8 provides details of the data collection technique employed. Section 3.9 discusses considerations of the study sample size, while Section 3.10 examines the measurement of variables with reference to the prior literature. Section 3.11 highlights the ethical issues considered for gathering the study data. Finally, Section 3.12 presents a chapter summary.

3.2 Conceptual framework

Based on the literature review presented in Chapter 2 and the research questions to be investigated, a conceptual framework was developed to encompass the associations between individual characteristics, WIL, and the self-efficacy of accounting near-graduates with their employment outcomes. The conceptual framework developed for this

study was underpinned by SCT. As discussed earlier in Section 2.3.1, the SCT incorporates three interacting components: personal factors, environmental factors and the behaviour of people. According to SCT, the behaviour of people is influenced by their individual characteristics. Therefore, the conceptual framework developed for this research included the individual characteristics of students (i.e., age, gender, language, residency and study mode), to be analysed to address the research problem. Furthermore, GSE factors represented by persistence, initiative and effort were included in the conceptual framework due to their influence on attainment of desired outcomes, represented by employment outcomes. In addition, the environmental factors, which assume different influences of specific environments within which an individual is situated, were also included via student experiences from WIL participation.

Thus, the self-efficacy construct is based on SCT (Bandura 1977, 1982, 1997; Sherer et al. 1982; Bosscher & Smit 1998), while student characteristics and WIL are based on established prior literature (Tymon 2011; Smith 2012; Jackson 2013, 2014b; Freudenberg et al. 2010a). In addition, the twelve research hypotheses developed for this study (discussed in Sections 3.3.1-3.3.10) align with the positivist paradigm applied in this research. The framework serves as the foundation for this study and is presented in Figure 3 below.

Figure 3 shows the range of variables and their relevance to research questions in this study. For example, the first research question (RQ1) involves the analysis of association between individual characteristics and self-efficacy in a three-factor construct. The second research question (RQ2, which is also the overarching question of the study), incorporates three general hypotheses (H1, H2 and H3), which have nine specific hypotheses contained therein (discussed in Sections 3.3.1 to 3.3.9). These analyse the relationships between the three groups of independent variables (individual characteristics, self-efficacy factors and WIL participation) on the dependent variable (the employment outcomes of the near-graduate accounting students). The third research question (RQ3) involves the fourth general hypothesis (H4) of the research, which contains three specific hypotheses therein (discussed in Section 3.3.10) to analyse the impact between WIL participation and the three GSE factors.

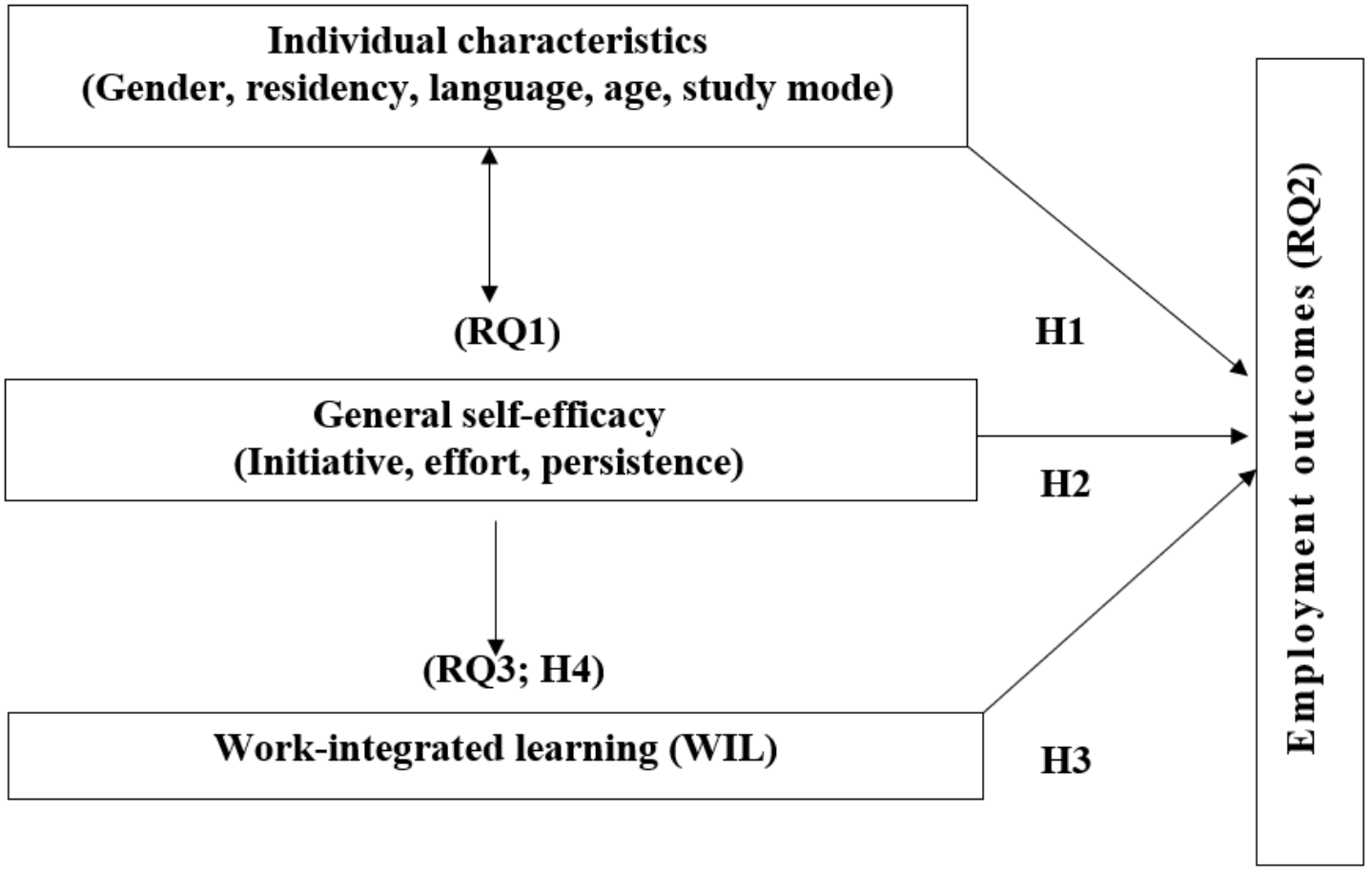

Figure 3: The conceptual framework for the study

3.3 Summary effects and research hypotheses

Chapter 2 revealed some issues in the literature in relation to accounting students' employment outcomes, their self-efficacy, their participation in WIL during their degree course and their individual characteristics. There are mixed research findings on the relationship between the employment of accounting students and the different demographic factors, including participation in WIL, which can impact on this (Cranmer 2006). In fact, a research gap in the literature is the absence of accounting studies that combine demographic characteristics, such as gender, study mode, age, language, residency, along with students' self-efficacy, divided into three factors (initiative, effort and persistence), and participation in WIL, as factors contributing to the employment outcomes of Australian accounting students. Based on the explanations provided in the prior chapter, a set of associations between: (i) self-efficacy and employment outcomes; (ii) student characteristics and employment outcomes; (iii) WIL and employment outcomes; and (iv) the association between self-efficacy and WIL participation, are developed. These led to the development of the research hypotheses and questions for this study. Thus, the research design of this study aimed to address the research objectives identified in Chapter 1 and endeavour to fulfil the gaps revealed by the literature review presented in Chapter 2.

3.3.1 Outcomes between gender and employment

The first general hypothesis of this study focused on whether a relationship exists between individual characteristics and employment outcomes. To answer this, five specific hypotheses were developed, with the first comprising gender. The review in the previous chapter highlighted an association between the gender and employment outcomes of students (Coates & Edwards 2011; Jackson 2013), showing that male students are more likely to secure professional employment. Conversely, the findings from the Graduate Careers Australia (2014) survey showed that female graduates in all fields of education have higher employment levels (62.1%) when compared to male graduates (37.9%). For accounting graduates, the discrepancy is less (52.9% for female and 47.1% for male). It should be noted, however, that Graduate Careers Australia only surveys domestic students. In light of these findings, this study aimed to examine whether gender differences contribute to accounting near–graduate employment outcomes. This led to hypothesis 1a:

H1a*: There is a relationship between gender and employment.*

3.3.2 Outcomes between residency and employment

The literature regarding residency status and employment outcomes (accounting and non-accounting) shows a major association between the two (Jackson 2013). That is, students who are either citizens or permanent residents are far more likely to obtain employment than those students who do not possess Australian permanent residency (Birrell & Healy 2010; James & Otsuka 2008). Bui and Porter (2010), and Jackling et al. (2012) also found that international students face greater challenges in securing professional employment due to cultural differences. The variable residency levels in this study incorporated differences in cultural and ethnical backgrounds. Thus, the present research sought to assess the relationship between residency status and accounting near-graduate employment outcomes, leading to the following hypothesis:

H1b*: There is a positive relationship between residency and employment.*

3.3.3 Outcomes between age and employment

The relationship between age and the employment outcomes were tested since studies such as Bui and Porter (2010), and Coates and Edwards (2011) showed that the age of graduates affects employers' perceptions of candidates for professional employment. Specifically, young graduates are not viewed as efficient or responsible, nor as skilled as older graduates (Tymon 2011). Furthermore, Stoner and Milner (2010) found that a student's employment is correlated with age. Similar findings were expressed by Jackson (2013), when focusing on WIL programs and graduate employment, which noted that older students were more successful in securing employment. This led to the following hypothesis:

H1c*: There is a positive relationship between age and employment.*

3.3.4 Outcomes between language and employment

Studies show that English language skills are crucial for the successful employment outcomes of accounting graduates (Jackling & Keneley 2009; Bui & Porter 2010). Not surprisingly, industry recruiters prefer candidates with well-developed language skills, emphasising the need for a high level of written and spoken English (Bui & Porter, 2010; Jackling et al. 2012; Stoner & Milner 2010). This led to the following hypothesis:

H1d*: There is a positive relationship between English language and employment.*

3.3.5 Outcomes between study mode and employment

Prior literature supports the view that a relationship exists between a student's study mode and their employment outcomes (Jackson 2014a; Hinchliffe & Jolly 2011). For instance, Knight and Yorke (2004), and Tymon (2011) found that full-time students are more motivated to find employment compared to part-time students. Conversely, students who study part-time are typically employed and therefore not as motivated to secure employment when nearing completion of their degree course. Researchers claim that universities offer WIL training to full-time students in order to provide them with the opportunity to have exposure to a real-life working environment (Stoner & Milner 2010; Smith & Worsfold 2014). This led to the following hypothesis:

***H1e**: There is a positive relationship between study mode and employment.*

3.3.6 Outcomes between initiative and employment

The self-efficacy concept as developed by Bandura (1977) emphasises the strong relationship between beliefs regarding a specific behaviour and the actual performance of that behaviour. Self-efficacy involves the belief that a person is able to organise and effectively execute actions to produce a desired outcome (Bandura 1997; Green & Crick 1998). Thus, self-efficacy has an impact on people's perceptions of self-control, and how they realise the level of their accomplishment (Sherer et al. 1982). The present research adopted the three factors[7] that comprise the self-efficacy construct: initiative, effort and persistence (Bosscher & Smit 1998; Sherer et al. 1982).

This constitutes the second general hypothesis for the present research, which is whether a relationship exists between the three-factor GSE and employment outcomes. To answer this, three specific hypotheses were developed, with the first comprising initiative. In accordance with the theory, students who are more active and who possess greater self-efficacy levels are characterised as being pro-active (factor 1: initiative), which can impact their employment outcomes (Jackson 2013; Jones & Abrahams 2007; Crebert et al. 2004b). This led to the following hypothesis:

***H2a**: There is a relationship between initiative and employment.*

[7] The terms 'component' and 'factor' for self-efficacy are used interchangeably throughout the thesis.

3.3.7 Outcomes between effort and employment

Similar to initiative, the level of student effort (factor 2) was significantly associated with students' employment outcomes. In fact, according to Jackson (2013), and Tymon, (2011), the more effort students put in to securing employment, the higher the probability of that student obtaining a positive employment outcome towards the end of their degree program. This led to the following hypothesis:

H2b*: There is a relationship between effort and employment.*

3.3.8 Outcomes between persistence and employment

The third factor of self-efficacy is persistence, which, according to Bandura (1997), Sherer et al. (1982), and Bosscher and Smit (1998), influences a person's positive outcome. Thus, students with higher levels of persistence are more likely to achieve successful outcomes from their degree studies, such as employment outcomes. In fact, prior literature shows that students who had work-related training were aware of expectations at the workplace, and thus appear to be in a better position to obtain employment compared to students who lack such experience (Bui & Porter 2010; Bandura 1997; Leong & Kavanagh 2013). This was assessed in the present research, via the following hypothesis:

H2c*: There is a relationship between persistence and employment.*

3.3.9 Outcomes between participation in WIL and employment

Based on the literature review presented in Chapter 2, accounting employment outcomes are associated with participation in WIL programs undertaken during a student's accounting degree course. Prior research (Smith 2012; Crebert et al. 2004a; Jackson 2013; Freudenberg et al. 2010a) suggests that accounting students who complete WIL are more successful in finding accounting employment. This constitutes the third general hypothesis of the present research:

H3*: There is a positive relationship between WIL and employment.*

3.3.10 Outcomes between self-efficacy components and participation in WIL

In light of the above discussion, this study also examined the outcomes between the level of self-efficacy components (initiative, effort and persistence) and student participation in WIL. It is expected that students who possess higher levels of self-efficacy are more likely to participate in WIL training for the benefit of gaining work experience in an

authentic environment. As Cranmer (2006) argued, universities are not able to develop student employability within the classroom, hence it is WIL training and experience that leads to positive employment outcomes. Further, Purdie et al. (2013) found that although WIL did not lead to improved academic achievements, there is a positive association between students' self-efficacy and WIL participation (Freudenberg et al. 2010a; Gracia 2010; Jackson 2013). Thus, students with higher levels of self-efficacy would be more motivated to realise the opportunity of improving their employability via participation in WIL programs. This constitutes the fourth, and final, general hypothesis of the present research which is whether a relationship exists between the three factor GSE and WIL. This comprises three specific research hypotheses, as follows:

H4a*: There is a relationship between initiative and WIL.*

H4b*: There is a relationship between effort and WIL.*

H4c*: There is a relationship between persistence and WIL.*

3.4 Overview of the research design and approach

A paradigm is defined as a philosophical framework that guides how scientific research should be conducted (Collis & Hussey 2009). It consists of a basic set of theories, or a set of assumptions, that a researcher utilises in guiding their activities (Guba & Lincoln 1991). These theories guide the ways a researcher undertakes a variety of tasks from thought patterns to action (Collis & Hussey 2009).

Not surprisingly, different disciplines have varying views on what research is and how it relates to the development of knowledge. Therefore, studies have a tendency to be led by particular paradigms. At one end of the paradigm spectrum is positivism, while at the other is interpretivism. Between these two paradigms different theoretical approaches can be employed. For example, experimental testing is associated with a positivist paradigm, which is meant to produce findings that avoid bias. Conversely, research in which researchers construct their own reality may result in multiple interpretations, and is more closely aligned to an interpretivist (or constructivist) paradigm (Collis & Hussey 2009).

Table 17 displays the common terms used to describe different approaches to research design within the two distinct paradigms.

Table 17: Approaches within the paradigm

Positivist	Interpretivist
Quantitative	Qualitative
Objective	Subjective
Scientific	Humanist
Traditionalist	Phenomenological

Source: Adapted from Collis and Hussey (2009, p. 58)

Furthermore, research design requires consideration of the different features that are relevant to a particular paradigm (Collis & Hussey 2009). Table 18 provides a summary of the different features, or characteristics, applicable to these contrasting paradigms.

Table 18: Features of the two main paradigms

Positivists tend to:	Interpretivists tend to:
Use large samples	Use small samples
Concerned with theory testing	Concerned with generating theories
Produces precise, objective quantitative data	Produces 'rich' subjective qualitative data
Produces results with high reliability but low validity	Produces results with low reliability but high validity
Allows results to be generalised from the sample to the population	Allows results to be generalised from one setting to another similar setting

Source: Adapted from Collis and Hussey (2009, p. 62)

Positivist theories tend to take an objective view of reality, use larger samples of data and apply quantitative tools to ensure an objective analysis of data in order to test the stated theory. Interpretivists, on the other hand, tend to take a subjective view of reality and use smaller samples, but employ data collection methods that allow collection of 'rich' data, enabling researchers to analyse the research questions in greater depth (Collis & Hussey 2009; Yin 1994).

As Collis and Hussey (2009) stated, researchers must not be restricted by a particular paradigm when designing their study. Instead, the paradigm needs to be used as a guide for development of the most appropriate research method. Therefore, after defining the research paradigm, the research design involves consideration of the most applicable research method (Yin 1994; Hair et al. 2006).

3.4.1 Types of research

During the research design phase, the type of research method to be undertaken is identified based on its suitability to the research. Three broad types of research methods are: (i) qualitative; (ii) quantitative; and (iii) triangulation.

Qualitative research explores the behaviours, attitudes and experiences of participants in order to obtain in-depth opinions on subject matter from research participants (Dawson 2009). This type of research is intended to allow the researcher to better understand a particular issue from the perspective of those participating. Typically, researchers will analyse how participants' perspectives and perceptions are shaped by their physical, social and cultural contexts. As Goertz and Mahoney (2012) stated, qualitative research involves describing in detail specific situations by using research tools such as interviews, surveys, and observations. Thus, most aspects of qualitative research involve inductive, open-ended surveys that rely on textual or visual data rather than numeric quantitative types of study. In sum, the primary objective of qualitative research is to understand the phenomena in detail, rather than generalise across different data settings (Creswell 1998).

Quantitative research involves a specific type of research design that includes the process of collecting, analysing and interpreting data (Creswell 1998). Specific methods exist in identifying the sample and population of data under investigation while analysis typically involves numerical and statistical explanations to research findings (Goertz & Mahoney 2012). This type of research uses large-scale surveys, such as questionnaires (Dawson 2009), with the writing of the research results consistent with a survey or experimental study design (Cresswell 1998).

The type of research where both qualitative and quantitative forms of enquiry are combined is known as triangulation research. However, triangulation is not limited to combining quantitative and qualitative data and processing. Rather, triangulation refers to different research techniques used in the same study in order to confirm and verify data gathered in different ways. Such an approach adds rigour, richness and depth to the design of the research and the data collected (McMurray et al. 2004). Triangulation could apply in different contexts. For example, McMurray et al. (2004) cites that Denzin (1978) identified four types of triangulation: 1) source triangulation, where data sources are used; 2) investigator triangulation, where more than one researcher is involved; 3) theory triangulation, where more than one perspective is used for interpretation of data; and 4) methodological triangulation, where several data gathering techniques are used during research design.

3.5 Research methods review

Having provided a broad overview of research design, the focus shifts to the research method employed in the present study. Since the conceptual framework was designed to examine the impact of individual characteristics, self-efficacy, and WIL participation on employment outcomes, it was important that a research method was adopted to accommodate this. However, before selecting the most suitable research methods for this study, a review of different methods employed in some previous studies was undertaken.

3.5.1 Research methods employed in previous studies

The literature shows different methods employed by researchers in analysing WIL, individual characteristics and self-efficacy with respect to employment outcomes. For example, Jackson (2013, 2014a) examined the contribution of WIL on the employment outcomes of undergraduate students by analysing demographic characteristics and placement details of students from different faculties in a single university, as well as their levels of self-efficacy. Online surveys were used to gather data on students' demographic characteristics, such as age, gender, type of degree, years of study, and placement details (duration and type of organisation). The research method employed was a mixture of descriptive statistics and inferential testing via t-tests and repeated measures of ANOVA.

Jackson's (2013) study of factors influencing the job attainment of bachelor graduates applied a multiple logistic regression analysis to the data set obtained from the Australian Graduate Destination Survey. As part of the logistic regression, the analysis also contained chi-squared values, pseudo R^2 measures, and Hosmer and Lemeshow test statistics to indicate the robustness of the model. Jackson has also tested a model of undergraduate competencies on the employability of graduates. Initially, a case-wise deletion of missing data was also performed. The study then utilised logistic regression analysis, which was employed as a combination of student demographic variables, as well as Likert scale responses, to assess the importance of student capabilities and perceptions of acquired capabilities.

In another study, Rothwell et al. (2008) analysed the expectations and perceptions of employment status among business undergraduate students in three UK universities. Four components of employment measures (university, field of study, self-belief and state of external labour market) were considered in a matrix. PCA was conducted to explore the

dimension of employment. The researchers used the PCA as a type of CFA, due to the theoretical expectations regarding the structure of the data (Henson & Roberts 2006). The use of a Monte Carlo PCA enabled the identification of four factors that were extracted, since their eigenvalue exceeded the critical eigenvalue (> 1), while a varimax rotation supported the significance of the extracted four factors.

A study by Bui and Porter (2010) utilised a case study of a New Zealand university accounting undergraduate program. They undertook semi-structured interviews with different groups of stakeholders (recent graduates, academics, final year students and partners/recruitment managers). The data was analysed via a thematic analysis representing seven major themes: (i) the competencies desired in accounting graduates; (ii) the competencies that graduates are perceived to possess; (iii) the role of university accounting education; (iv) the effectiveness of the case study program in development of student competencies; (v) students' expectations of education and the profession, and students' aptitude and abilities; (vi) the major constrains of teaching effectiveness; and (vii) how teaching quality might be improved. The combined matrix analysed similarities for four groups of stakeholders and the general opinion of the interview group was identified.

Other studies, such as Tymon (2011), analysed student perspectives on employment via a mixed-methods approach. Specifically, Tymon employed questionnaires as well as focus group discussions in order to explore students' understanding of employability. Emphasising that motivation and commitment are critical prerequisites for students' successful employment outcomes, the study analysed students' views across different levels of university degrees and compared these with the perceptions of other stakeholders.

Freudenberg et al. (2010a) conducted a study applying a longitudinal survey to examine the impact of professional degree programs on student experience and perceptions of their satisfaction and self-efficacy. The data was collected at two points: (i) at the start of degree program; and (ii) at the start of the second year of the degree. The analysis was conducted via descriptive statistics and a non-parametric Mann-Whitney U test, as well as Kolmogorov-Smirnov tests to address the research objectives.

Guan et al. (2013) examined the role of career adaptability and job success among graduates from a Chinese university. The data were collected via an online survey

questionnaire at three points of time. A seven-point scale was used to measure a self-efficacy construct. The four dimensions of career adaptability correlated positively with graduates' job search self-efficacy and their employment status. Along with demographic characteristics (gender, education, age, majors), and family background, the four dimensions served as the strongest predictors for job search efficacy. The analysis was undertaken via a logistic regression with employment status as the dependent variable. Furthermore, a hierarchical regression was employed with fit perception as the dependent variable.

The effect of employability enhancement and GSE was studied by Hazenberg et al. (2015) in the evaluation of an intervention program designed to improve employability for a group of unemployed people. A quasi-experimental, longitudinal approach through an intervention research method was conducted, by employing a GSES as validated and tested in prior research. Questionnaires were administered twice, just prior to the intervention program commencing and immediately after the program ended. The intervention program consisted of participation in a Master of Business Administration module delivered by a UK university. The GSE of respondents was measured by using Schwarzer and Jerusalem's (1995) GSES, with Cronbach alphas of between 0.75 and 0.91 showing the measure to be reliable. Hazenberg et al. (2015) analysed the normality of data via histograms and P-P plots, while the relationships between the demographic data (e.g., age and gender) were explored using descriptive statistics, and one-way ANOVA. The changes in self-efficacy between the two sets of data were analysed using paired-sample t-tests. A summary of the main methods used for studies in this area is presented in Appendix B.

3.5.2 Research method employed in the present study

The summary table in Appendix B shows that the majority of studies on graduate or near-graduate employability used a linear or logistic regression model, depending on the objective of the study, as well as the dependent variable. Specifically, studies where the properties of the dependent variable were binary (i.e., a 0 or 1 outcome) employed a logistic regression model. Furthermore, various studies employed a factor analysis for the self-efficacy construct in order to explore and validate its content (Sherer et al. 1982; Bosscher & Smit 1998). In addition, many studies analysed descriptive statistics and undertook tests of data normality and multicollinearity via a variance inflation factor (VIF) and tolerance, along with, where appropriate, t-tests for tests of association.

The present research employed a positivist paradigm. Given the outlined research objectives, a quantitative approach was employed via the use of a questionnaire (see Appendix A) as the research instrument for collecting data. The statistical methods selected for addressing the research questions are as follows: a PCA method to validate a factor analyses of GSES, and Mann-Whitney U test and Pearson chi-square for tests of association between variables for RQ1; and to develop two separate logistic regression models for RQ2 and RQ3 that both have binary dependent variables. The methods selected are both valid and justifiable for this type of study. The selected methods for this study (the factor analysis via PCA and Mann-Whitney U test and Pearson chi-square tests of association, and the logistic regression models) are discussed in depth in the next section.

3.6 Research method approach

The usefulness of business studies depends, in part, upon the appropriateness and accuracy of the methods adopted (Scandura & Williams 2000). This is because design choices regarding instrumentation, data analysis, and construct validation influence the soundness of the conclusions drawn from the findings (Sackett & Larson Jr. 1990). In this section, the research methods by which the conceptual framework can be tested are discussed. This outlines the approach utilised in this study that were justified above: (i) factor analysis using a PCA method; (ii) Mann-Whitney U test and Pearson chi-square for tests of association; and (iii) logistic regression using Statistical Package for the Social Sciences (SPSS), and Lasso and R-glmulti techniques.

3.6.1 Factor analysis

Factor analysis is a statistical method of analysing research data, which was introduced and conceptualised by Spearman (1904). It is used in both exploratory research and as a means of confirming or validating a set of otherwise loosely related dependent variables (Thompson 2004). The purpose of factor analysis is to discover simple patterns in the relationships among the variables. In particular, it seeks to discover if the observed variables can be explained largely or entirely in terms of a much smaller number of variables called factors. More specifically, the factor analysis is carried out by examining the pattern of correlations between the observed measures (or variables). Measures that have higher correlations (either positive or negative) are likely to be influenced by similar factors, whereas those that are not correlated are likely to be influenced by different factors (DeCoster 1998).

The factor analysis method was used in this study for the self-efficacy construct, comprising the 12-item GSES (Bosscher & Smit 1998; Sherer et al. 1982). This method allowed the researcher to reduce the number of items into more manageable identified factors for subsequent inclusion in the logistic regression models for employment and WIL. Factor analysis is a powerful tool, which enables one to draw correlations between variables and is used for analysis techniques in constructing factor models (Thompson 2004).

Typically, factor analysis is undertaken via the steps outlined in Table 19 below. A brief description of each of the steps is provided in the following subsections.

Table 19: Factor analysis steps

Steps
1. Test the assumptions
2. Select the type of analysis
3. Determine the number of factors
4. Identify which items belong to each factor
5. Drop items as necessary (repeat steps 3 and 4)
6. Name and define factors
7. Examine correlations amongst factors
8. Analyse internal reliability

Source: Hair et al. (2010)

3.6.1.1 Assumptions of factor analysis

Prior to commencing a factor analysis, the following assumptions need to be fulfilled.

Sample size

Factor analysis requires a reasonable sample size in order to be effective (Comrey & Lee 1992). Since this method of statistical analysis is based on correlations amongst the items, a good estimate of each pair-wise correlation is required. The literature provides typical guidelines for factor analysis sample size and a total sample size of n>200 is recommended (Collis & Hussey 2009). According to Comrey and Lee (1992), sample sizes for factor analysis can be viewed as follows: 50=very poor, 100=poor, 200=fair, 300=good, 500=very good, 1000+= excellent. The minimum sample size for a factor analysis is expected to be in ratio of 1 to 5. That is, there should be at least five cases in a variable item. So, if there are 40 variables in the study, there should be at least 200 cases. An ideal sample size assumes 20 or above cases per variable (Hair et al. 2010), which means that for 30 variables, there should be at least 600 cases. The sample size used in this study is further discussed in Sections 3.9 and 4.2.2.1.

Level of measurement assumption

The level of measurement assumption requires all variables to be in the form of ratios, metric data or Likert data with several interval levels (Pallant 2013). Dummy variables can also be used for specialised methods and these dummy variables can be part of metric variables to be used in factor analysis.

Normality-Q

Factor analysis is robust to assumptions of normality. If the variables are normally distributed, the solution of the analysis is enhanced (Field 2009). Thus, the normality of the self-efficacy variable (12-item GSES) is tested using SPSS functions, such as histograms, Q-Q plots, detrended normal Q-Q plots and box-plots. The results of the normality tests are discussed in Chapter 4 (Section 4.2.2.5).

Linearity

Since factor analysis is based on correlations between variables, linear relations amongst the variables need to be tested (Pallant 2013). This is typically undertaken via producing scatter plots and partial regression plots. The results of the linearity tests undertaken are discussed in Chapter 4 (Section 4.2.2.4).

Outliers, multicollinearity and heteroscedasticity

Many researchers emphasise that factor analysis is sensitive to outliers (Phillips 2015; Field 2009; Pallant 2013); therefore testing is required. Since this study dealt with survey

data, scatter plots for bivariate outliers and boxplots for the self-efficacy construct were employed to identify any potential outliers. With respect to multicollinearity, the VIF and tolerance (i.e., measure of the unique contribution of each variable to the model) were computed on SPSS, while the scatter plot of studentised residuals against regression standardised predicted values were also examined to test heteroscedasticity. The results of these tests are discussed in Sections 4.2.2.3, 4.2.2.6 and 4.2.2.7, and are also presented in Appendix C.

3.6.1.2 Selecting the type of analysis

Two different types of factor analysis are used in research: (i) exploratory factor analysis (EFA); and (ii) CFA (Thompson 2004). EFA attempts to find the nature of the constructs influencing a set of various responses, while CFA examines whether an identified set of constructs is influencing the responses in some predicted manner (DeCoster 1998). In prior studies, such as McDowall et al. (2015), and Guadangnoli and Velicer (1988), a PCA was used as a type of CFA. This was also supported by Field (2009) who claimed that both types of factor analysis are used to understand the shared variance of measured variables believed to be attributable to a factor.

As DeCoster (1998) pointed out, regardless of the method selected, any factor analysis is based on the common factor model, as shown in Figure 4 below. In this model, the strength of the links between each factor and each measure can vary since a given factor can influence some measures more than other factors.

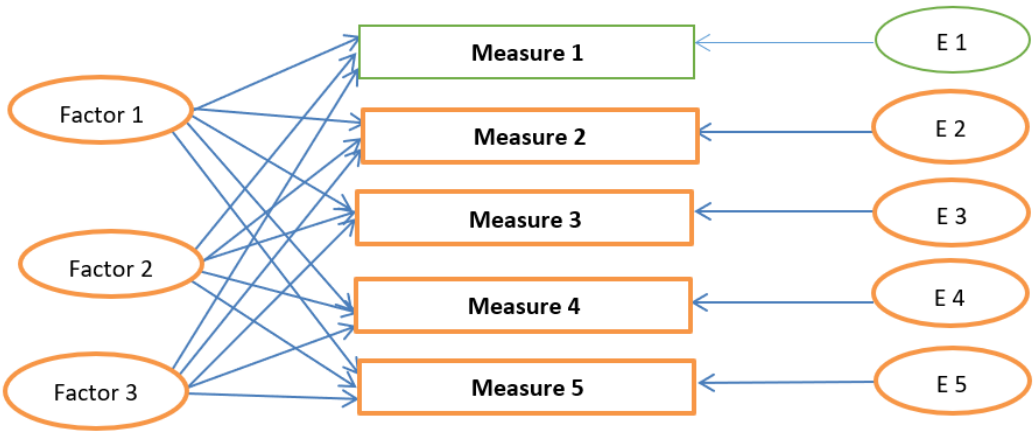

Figure 4: Common factor model

Source: Adapted and modified from DeCoster (1998)

The above model shows that each observed response (measure one to measure five, or a five-point Likert Scale) is influenced by an underlying common factor (factor one to factor three). At the same time, each response is also partially influenced by underlying unique factors (E1 to E5 such as items/statements). However, despite their similarity via the common model, the two methods (EFA and CFA) contain some differences (Field 2009).

Specifically, EFA is used to identify the underlying relationships between measured variables (Thompson 2004), to reveal the underlying structure of a relatively large number of variables (Field 2009). The objective of EFA, therefore, is to identify factors based on analysed data. With EFA, the researcher is not required to have any specific hypotheses about how many factors or what variables these factors will include.

CFA, however, is predominantly driven by concepts or theory. It requires the number of factors, whether or not these factors are correlated, and which items or measures reflect which factors (Thompson 2004). With CFA, the researcher is expected to have specific expectations regarding the number of factors; which variables reflect given factors; and whether the factors show dependency or are correlated. Therefore, CFA explicitly and directly tests the fit of factor models (Thompson 2004).

According to Thompson (2004), and Field (2009), EFA can still be used in research even when CFA would be a better statistical approach. This is evidenced and supported by various studies (McDowall et al. 2015; Guadangnoli & Velicer 1988).

Another multivariate technique used in studies for identifying the linear components of a set of variables is PCA, which is proven in research literature as a psychometrically sound procedure (Field 2009). It is concerned with identifying which linear components exist within data and how a given variable might contribute to this component. There is evidence in the literature (Guadangnoli & Velicer 1988; McDowall et al. 2015) that PCA and factor analyses provide similar solutions and therefore could be used interchangeably (Field 2009). It is emphasised that, for non-statisticians, the difference between the two approaches is difficult to conceptualise since both PCA and factor analysis are linear models. The difference is mainly in the methods of calculation (Guadangnoli & Velicer 1988), however the produced results are very close. This conclusion is further supported for studies with a number of variables of communalities above 0.7.

Thus, this study employed PCA for factor analysis of the self-efficacy construct. The use of a PCA as a type of CFA is supported by Field (2009) and has been used in prior studies (McDowall et al. 2015; Guadangnoli & Velicer 1988).

3.6.1.3 Determining the number of factors

Factor analysis is also used for data reduction by identifying the typical variables from a large set of variables. The purpose of data reduction via factor analysis is to retain the nature and character of the original variables, but reduce the variable number for facilitation of the subsequent multivariate analysis. Therefore, the reduction of variables involves obtaining a relatively small number of components that can account for variability found in larger number of measures. This can be achieved by employing PCA (DeCoster 1998; Field 2009; Comrey & Lee 1992; Thompson 2004; Pallant 2013). The following figure shows the PCA model.

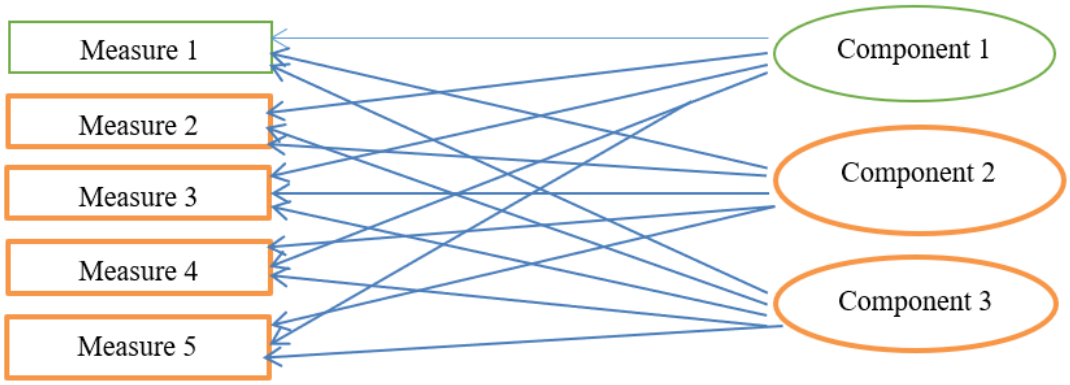

Figure 5: Principal component analysis model [8]

Source: Adapted and modified from DeCoster (1998)

As shown above, the direction of the influence in PCA is reversed when compared to the common factor model. Unlike the common factor model, the PCA is not constructed on the assumption of underlying factors (see Figure 5). Rather, the PCA model is based on the measured responses. Furthermore, it is defined simply as a linear relationship of measurements and therefore contains both the common and unique variance (DeCoster 1998).

According to Hair et al. (2006), both models provide relatively identical results in common research settings (>30 variables or > 0.6 communality for most variables). Thus,

[8] The term components in this diagram are equivalent to the term factor in Figure 4 Common factor model.

a common factor model is used because there is a well-defined theoretical concept (Sherer et al. 1982; Bosscher & Smit 1998), and PCA can be employed specifically in order to reduce data.

The determination of the number of factors is based on considerations of their eigenvalue, which indicates the importance of the factor and represents the amount of variation explained by a factor. An eigenvalue of 1 represents a substantial variation, therefore factors with eigenvalues of >1.0 are retained. Hinton (2004) suggested that only factors with eigenvalues greater than one should be retained, as they explain more variance than factors with eigenvalues of one or less. Conversely, a predetermined number of factors are based on prior research. Consideration of several possible solutions (one more or one less factor than the initial solution) is beneficial for ensuring the best structure identified.

To improve the interpretability of the factors, further analysis involves varimax and oblique rotation of the factors due to the un-rotated solutions of factor analysis that are often not sufficient for defining the results (DeCoster 1998; Field 2009). Therefore, preliminary results are further tested via rotation for improved interpretation of the data results by considering factor loadings.

3.6.1.4 Identifying which items belong to each factor

In addition, factor loadings indicate the correlation of the item with the factor. It expresses how much a factor explains a variable in factor analysis. Factor loadings can range from -1 to 1, where loadings close to -1 or 1 are an indication that the specific factor strongly affects the variable. Loadings close to zero indicate that a factor has very little effect on the variable (Coakes 2013; Pallant 2013)

The factor loadings of values greater than +/-0.50 are considered acceptable for practical significance. According the Hair et al. (2010), variables should have communalities of >0.50 to be retained in the factor analysis. Communality is the proportion of the variance of an item, explained by the common factors in a factor analysis. The optimal structure is considered to exist when all of variables have high loading on only one factor. Variables that have high loading on two or more factors are usually eliminated.

The rotated factor solution discloses a more meaningful pattern of item factor loadings. Rotation of factors enables one to maximise factor loadings that are already large and to minimise factor loadings that are already small. Rearrangements of factor analysis include such options as changing rotation methods, or changing the number of factors. The

selection of a factor rotation method typically involves either the varimax (orthogonal) rotation method or the oblique (oblimin) rotation method. The varimax rotation method is typically used in the data reduction of a smaller number of variables and in a set of uncorrelated measures. It allows the reduction of numbers in complex variables and helps to improve the interpretation of the factorising results. This rotation is done with the factor axes kept at 90 degrees (at the right angle) to each other (Field 2009; Pallant 2013).

The oblique rotation allows the underlying factors to be correlated. According to Hair et al. (2010), few constructs are uncorrelated, therefore the oblique rotation is used more often. The oblique rotation is also more suitable for the purpose of this study as it is the best method for obtaining theoretically meaningful correlated factors that show significant loadings based on conceptual theory (Sherer et al. 1982; Bosscher & Smit 1998). Hence, the present research employed the varimax rotation for the comparison and validation of oblique rotation outcomes.

3.6.1.5 Drop items as necessary

Step 5 of a factor analysis (as in Table 19) involves repeating step 3 (determining the number of factors) and step 4 (identifying which items belong to each factor), in order to remove from the factor items with a correlation below 0.3. This process is automatically undertaken by SPSS.

3.6.1.6 Name and define factors

As in the previous step (Section 3.6.1.5), the factors of the self-efficacy construct are revealed automatically by SPSS. The factors are then defined and named in accordance with their theoretical concept (e.g., the three factors as per Sherer et al. 1982; Bosscher & Smit 1998).

3.6.1.7 Examining correlations amongst factors

Prior to employing factor analysis, one needs to precisely define the model that needs to be tested. This involves selection of a number of factors as well as defining the nature of the loadings between the measures and the components (i.e., factors). At this level, the variables are required to be measured at the same experimental units. To check the suitability of the data for factor analysis, it is important to test the factorability of the correlations matrix. This involves assessing the matrix for correlations over 0.3 (Field 2009).

The anti-image matrix displays the negatives of the partial correlation coefficients; therefore, most of the off-diagonal elements should be small for a good factor model. Hence, anti-image correlation matrix diagonals over 0.50 need to be checked together with the Kaiser-Mayer-Olkin (KMO) measures of sampling adequacy. The KMO test examines the sampling adequacy and is typically required to be >0.50. Variables of value less than 0.50 are excluded from factor analysis one at a time; each time the smallest item is omitted (Field 2009; Pallant 2013). In addition, Bartlett's test of sphericity examines homogeneity of variance of the data. A significance level of <0.05 is considered statistically significant and indicates the existence of sufficient correlation among the variables to perform a PCA factor analysis.

In employing factor analysis, the critical assumptions underlying the analysis are more conceptual than statistical. The studies are always concerned with meeting the statistical assumptions of any multivariate technique. However, Hair et al. (2010) advised caution when carrying out factor analysis, as just as much concern is needed on character and composition of variables, as on their statistical qualities. For instance, a conceptual issue relating to the set of variables selected in the sample chosen, is the assumption that the factors to be derived will comprise the self-efficacy construct. The presence of correlations does not always guarantee their relevance. Therefore, the observed patterns could be examined to further confirm they are conceptually valid. The internal reliability of the scale helps determine this.

3.6.1.8 Analyse internal reliability

Reliability of the degree of consistency between the 12 items of the GSES is measured via Cronbach's alpha.

Cronbach alpha is defined as:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}} \qquad (1)$$

Where,

α is the Cronbach alpha

N is the number of items

$\bar{c}$ is average covariance between item-pairs, and

$\bar{v}$ is the average variance (Hosmer & Lemeshow 2000).

This measure of reliability ranges from 0 to 1, with values of 0.6 to 0.7 being the lower limit of acceptability (Field 2009). When assessing the Cronbach alpha, the study should give consideration to the specific attribute of this measure. That is, the Cronbach alpha is deemed to have a positive relationship with the number of items in the scale. The larger the number of the items in the scale, the higher the scale's reliability is expected to be, indicating a higher Cronbach alpha value. Therefore, the scale that has a large number of items requires a larger sample of data.

The present study conducted a factor analysis on the 12-item self-efficacy construct. Specifically, a PCA analysis was used as a type of CFA (McDowall et al. 2015; Guadangnoli & Velicer 1988; Field 2009) to reduce the number of items in accordance with a well-defined theoretical concept (Sherer et al. 1982; Bosscher & Smit 1998). Factor analysis was used to identify particular aspects of the self-efficacy construct in the sample data. In addition, tests of association include, but are not limited to, t-tests and one-way ANOVA for a study with a normal distribution of data, as well as a Mann-Whitney U test and Kruskal-Wallis test for a study with a non-normal distribution of data. Depending on the distribution of data, the appropriate tests of association will be employed to address RQ1 below:

RQ1: Is there any association between accounting near-graduate students' individual characteristics and the self-efficacy components of the GSES?

3.6.2 Logistic regression

Logistic regression analysis, developed by Cox (1958), is widely used in social science and accounting education research. It is useful in describing relationships between an outcome and one or more exposures, covariates or dependent variables (Hosmer & Lemeshow 2000). The outcome variable must be binary, that is, have only two possible categories. The covariates in the logistic regression can be of any type, categorical or numerical (Cox 1958). A logistic regression model can be simple or multivariate, this depends on the number of covariates included in the model. A simple logistic regression analysis is used extensively for evaluating the relationship between an outcome variable and one covariate that can be either categorical or continuous.

The extension of a simple logistic regression model with more than one covariate is called a multiple logistic regression, which shows the relationship between two or more covariates (independent variables) and the outcome variable. Logistic regression analysis

defines the dependency of multiple independent variables presented simultaneously to one or the other of the two dependent variable categories (Hair et al. 2006).

Similar to the simple regression, multiple logistic regression uses a binary dependent variable. The relationship between the categorical dependent variable and independent variables is measured by estimating probabilities. The logistic regression does not make many of the key assumptions of linear regression (Field 2009). The following section provides more details on logistic regression analysis assumptions.

3.6.2.1 Assumptions of logistic regression

There are no assumptions for linearity, normality and measurement level in logistic regression analysis due to the following points:

1) Logistic regression does not need a linear relationship between the dependent and independent variables. It can solve all sorts of relationships by applying non-linear log transformation to the predicted odds ratio (Field 2009).

2) The independent variables are not required to be multivariate normal. Furthermore, logistic regression analysis does not need the error terms (residuals) to be normally distributed (Field 2009; Hair et al. 2006).

3) In the logistic regression model, the variances are not required to be heteroscedastic for each level of independent variables. Heteroscedasticity assumes non-constant standard deviations of a variable over a specific amount of time (Field 2009). In addition, homoscedasticity (null hypothesis) is not required. Homoscedasticity is not required for the estimates to be unbiased, consistent, and normal.

4) Logistic regression can handle ordinal and nominal data as independent variables. Furthermore, the independent variables are not required to be metric interval or ratio scaled. Thus, the logistic regression method does not assume a linear relationship between the dependent and independent variables. The independent variables do not need to be normally distributed, linearly related, interval or equal variances within the group, this is a distinguishing feature of logistic regression analysis (Press & Wilson 1978).

Nonetheless, some other assumptions still apply to logistic regression analysis. Therefore, the following assumptions were considered in the research design for this study:

1) Logistic regression analysis requires the dependent variables to be coded accordingly. The dependent variable is required to be dichotomous in nature that is, consisting of two categories (Field 2009). For a binary regression, the factor level 1 of the dependent variable should represent the desired outcome.

2) Categories of the dependent variable need to be mutually exclusive and exhaustive; therefore every case can belong to one group only (French et al. 2013). Independence of error assumption in logistic regression requires the cases of data to be unrelated. This means that the same case cannot be measured at different points in time. If this assumption is violated, over-dispersion of data is produced (Field 2009). Accordingly, any significant interaction would indicate that the assumption is violated by main effect (Field 2009).

3) Logistic regression analysis requires large sample sizes. Multiple logistic models need at least 10 events per independent variable, and some statisticians recommend at least 20 events for each parameter to be estimated (French et al. 2013). However, the rule of 10 events per variable (EPV) is considered to be the 'rule of thumb' and could therefore be relaxed via using Lasso and generalised linear models, which tackle the sparsity of data and minimise the squared error loss function by finding the best fitting model (Hastie et al. 2015). This is further discussed in Section 3.6.2.3 of this chapter.

3.6.2.2 Estimation and validation of a logistic model

Logistic regression uses logistic relationships in both estimating the logistic model and in establishing the relationship between dependent and independent variables. The result of logistic regression is the transformed dependent variable, which impacts the estimation process and the coefficients of the independent variables in the model. Transformation of a dependent variable is done via use of a S-shaped logistic curve, to remain in the range of 0 to 1 (see Figure 6 below).

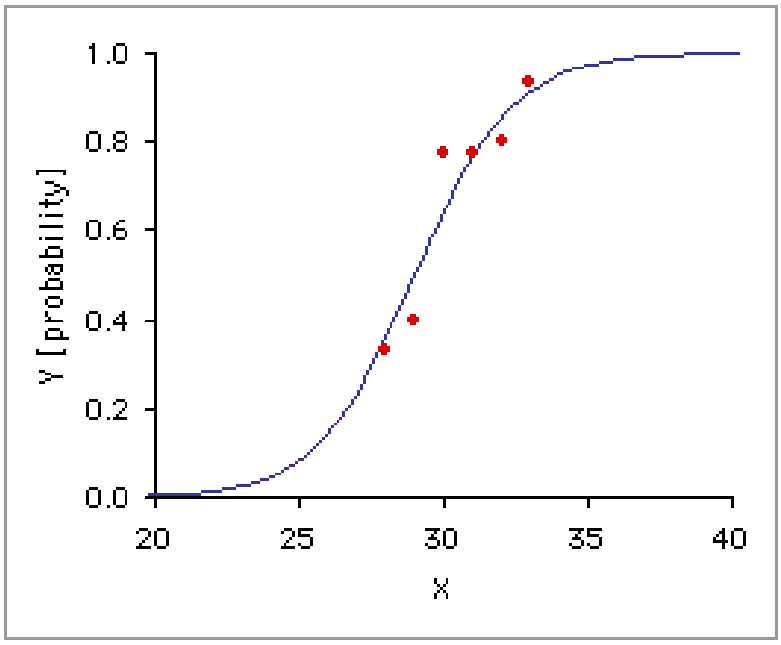

Figure 6: Logistic curve

Source: Adapted from Hosmer and Lemeshow (2000)

When estimating the logistic regression model, the curve of predicted values is fitted to the data of the sample. For each observation, the logistic regression analysis predicts a probability value within this curve, based on the value of independent variables and their estimated coefficients. For a predicted probability of 0.5 and above, the outcome of the event happening is 1, and for probability of an event below 0.5, the predicted outcome is 0. In logistic regression, the value of a predicted outcome can never be outside the range of 0-1, therefore it is most suitable for predicting a categorical dependent variable (Hair et al. 2010).

Logistic regression analysis probabilities could be transformed into odds and logistic values. Probability expressed as odds is shown as a ratio of the probability of the two outcomes ('Yes' and 'No', or 'will happen' and 'will not happen'). For example, hypothetically, if the probability of employment outcomes for accounting students is 0.20, the probability of the alternative outcome is 1-0.20 = 0.80. The logistic values are appropriate for the categorical dependent variable, where there are only two possible outcomes (Field 2009).

The values of either logistic or odd measures are used for estimating the coefficients of the independent variables in the logistic regression model, such as:

$$\text{Odds}_i = \left(\frac{\text{Prob event}}{1-\text{Prob event}}\right) = e^{b+ b_1X_1 +\dots b_pX_p} \qquad (2)$$

Where,

Odds_i is the odds function;

$\ln \frac{\text{Prob event}}{1-\text{Prob event}}$ is the logarithm of the odds that a particular outcome will occur;

e: is a mathematical constant, approximately equal to 2.71828;

$b_1 - b_n$ are regression (i.e., beta) coefficients;

$X_1 - X_n$ are predictor variables;[9] and

p is number of predictor variables.

From this we can obtain the following:

$$\text{Log}_i = \ln\left(\frac{\text{Prob event}}{1-\text{Prob event}}\right) = b_0 + b_1 X_1 + \dots + b_p X_p \qquad (3)$$

Where,

Log_i is the logistic regression function with binary values to be estimated by the predictor variables;

$\ln \frac{\text{Prob event}}{1-\text{Prob event}}$ is the logarithm of the odds that a particular outcome will occur;

b_0 is constant;

$b_1 - b_n$ are regression (i.e., beta) coefficients;

$X_1 - X_n$ are predictor variables; and

p is number of predictor variables.

The above two measures are equivalent in formulating the estimation of independent variable coefficients. However, the interpretation of their results is different. This is discussed further in Chapter 4. The relationship between the odds ratio (OR) and a predictor (variable) is a very important concept. In a logistic regression model, the estimated beta coefficient could be positive or negative, as well as small or large. Interpretations of the weights of the beta coefficient on the outcome from the model are as follows:

- *OR<1*, a negative estimate of the beta coefficient means that the covariate is protective of the outcome, meaning that there is low risk for the outcome.

[9] The terms 'predictor variable' and 'independent variable' are used interchangeably throughout the thesis.

- *OR>1*, a positive estimate of beta coefficient indicates that the covariate increases the risk for the outcome.
- *OR* close to 0, a very small estimate of beta coefficient means that the covariate has little effect on the risk of the outcome.
- A very large estimate of the beta coefficient means that the covariate strongly influences the risk of the outcome (Pallant 2013; Coakes 2013).

The estimated beta coefficient may be very high or very low if the data sample is not sufficiently large. The value of the risk factor/variable/covariate in this model is always between 0 and 1. A zero (0) indicates that there is no relationship between the variable and the outcome; and one (1) signifies that the variable belongs to an exposed category (Field 2009).

A maximum likelihood of estimation could by derived by employing the method of least squares. This method reduces the sum of the squared differences between the actual and the predicted values of the dependent variables in the model. However, in a logistic regression model, where there is no linear relationship between the independent variables, it is more appropriate to measure the overall model fit instead of calculating sum of least squares the likelihood value. When analysing the results of the logistic models for employment and WIL in Chapter 4, the study will discuss the overall fit for both models.

The goodness-of-fit is assessed in two ways: (i) using a pseudo R^2 value[10]; and (ii) examining the predictive accuracy. The model estimation fit is measured by a likelihood value referred to as -2 log likelihood (or -2LL), where -2LL is a minimum value (0) corresponding to a perfect fit (1). The lower the value of -2LL, the better the model fit. With this approach, the value of likelihood of the two estimated models can be compared – a null model and the proposed model. If there is a significant difference in the -2LL value, it suggests that the set of independent variables in the proposed model is significant in improving the estimation fit of model. The statistical tests, including chi-square, are used for evaluation of the significance of a reduction in -2LL. However, the academic literature warns that in logistic regression, the sample size can influence the significance value of chi-square test results, therefore care needs to be taken when interpreting the results (Hair et al. 2006). Pseudo R^2 measures are used to assess model fit.

[10] In logistic regression, a number of pseudo R^2 measures exist. These include, but are not limited to: (i) Hosmer and Lemeshow's R^2; (ii) Cox and Snell's R^2; (iii) Nagelkerke's R^2.

The value of the R^2 logistic ranges from 0 to 1 for the increased model fit of the proposed model, whereas the -2LLvalue decreases. Therefore, the perfect fit has values of 1 for R^2 and 0 for -2LL. The measures of goodness-of-fit in logistic regression include Cox and Snell's R^2, Nagelkerke's R^2 and Hosmer and Lemeshow's R^2 values.

The predictive accuracy of the logistic regression model can be measured by chi-square based measures of fit. The Hosmer and Lemeshow classification test divides the data into ten equal classes, where the number of actual and predicted events is compared via chi-square statistics. As previously mentioned, the chi-square test is sensitive to sample size, requiring at least 50 cases, to provide for a minimum of five observations in each of the ten groups. The Hosmer and Lemeshow classification allows one to measure the accuracy of prediction, based on the actual prediction of the dependent variable, and not on likelihood value (Hair et al. 2006).

With respect to the present research, two logistic regressions were used for modelling the relationships between the categorical outcomes: (i) Employment (0 = not secured employment; 1 = secured employment); and (ii) WIL (0 = not participated in WIL; 1 = participated in WIL), and a set of independent variables that were discussed with their inclusion justified in Chapter two. Statistical analyses for the study were undertaken via IBM SPSS Statistics software, version 23. The two logistic models, which address RQ2 and RQ3 of the present research, are detailed below.

RQ2: *What are the factors that influence the employment outcomes of accounting near-graduate students?*

In order to address this research question, the present research investigated the relationships between the independent variables and employment of near-graduate accounting students. The dependent variable referred to the employment outcomes of near-graduate accounting students. Consequently, the two main outcomes were (a) non-employment and (b) employment. Given the nature of the dependent variable (i.e., categorical), this study employed a logistic regression model, which is commonly used in quantitative modelling. The default was that students desire to be employed.[11] The logistic regression model, which appeared in equation 3 is utilised.

[11] For a binary logistic regression model, the factor level 1 (i.e., 0, 1) of the dependent variable should represent the desired outcome. This is also known as the default. In this case it refers to near-graduate accounting students' desire to be employed.

In this study, the dependent variable binary outcome is the employment outcome of near-graduate accounting students. This is in accordance with the research question. Thus, the dependent variable in the logistic regression took the value of '0' (non-employment) and '1' (employment). The logistic regression model which initially appeared in equation 3 was estimated in the present study for all accounting students below:

$$Employment = b_0 + b_1 * gender + b_2 * residency + b_3 * language + b_4 * age + b_5 * study\ mode + b_6 * wil + b_7 * initiative + b_8 * effort + b_9 * persistence \quad (4)$$

Where:

Employment is the logarithmic transformation representing the employment outcomes of near accounting graduates with binary values to be estimated by the explanatory variables;

b_0 is constant;
b_i's are the regression (i.e., beta) coefficients;
gender: 0 = female; 1 = male;
residency: 0 = domestic; 1 = international;
language: 0 = NESB; 1 = English speaking background (ESB);
age: 0 = 18 years to 20 years old; *age1* = 21–30 years old (age1 = 1); *age2* = 31-40 years old (age2 = 1); *age3* = over 40 years old (age3 = 1);
study mode: 0 =part-time; 1 = full-time;
wil: 0 = non-WIL participation; 1 = WIL participation;
initiative: (discrete variable);
effort: (discrete variable);
persistence: (discrete variable).

RQ3: *Do self-efficacy factors influence accounting near-graduate students' participation in WIL?*

In order to address this research question, the present research investigated WIL participation by estimating probabilities of inter-dependency of the three self-efficacy factors: *initiative*; *effort*; and *persistence*. The dependent variable referred to the near-

graduate accounting students' participation in WIL. Consequently, the two main outcomes were (a) non-WIL participation and (b) WIL participation. Given the nature of the dependent variable (i.e., categorical), this study again employed a logistic regression model. The default was that students desire to undertake WIL.[12] Thus, the dependent variable in the logistic regression took the value of '0' (non-WIL participation) and '1' (WIL participation). The model estimated in the present study for all accounting students was:

$$WIL = b_0 + b_1 * initiative + b_2 * effort + b_3 * persistence \quad (5)$$

Where:

WIL is the logarithmic transformation representing the participation in WIL of near accounting graduates with binary values to be estimated by the explanatory variables;

b_0 is constant;
b_i's are the regression (i.e., beta) coefficients;
initiative: (discrete variable);
effort: (discrete variable);
persistence: (discrete variable).

In addition, the validation of the logistic regression employment model is performed by checking the accuracy rate of the estimated logistic regression model and by carrying out a split-sample validation cross-check. The usefulness and validity of the predictors is determined when the classification accuracy rate is higher compared to the accuracy attainable by chance alone. Specifically, classification accuracy should be 20 percent or more than the proportional by chance accuracy rate (Hair et al. 2010). These were undertaken for this study.

This study also used the Lasso (Hastie et al. 2015) and the glmulti estimator (Calcagno 2013) via the R statistical package (R-core team 2016), to support the statistical analysis of the logistic regression model. This is explained below.

[12] As stated previously, for a binary logistic regression model, the factor level 1 (i.e., 0, 1) of the dependent variable should represent the desired outcome. This is also known as the default. In this case it refers to near-graduate accounting students' desire to undertake WIL.

3.6.2.3 The Lasso and glmulti estimator and cross validation

The Lasso and glmulti methods were used to overcome the issues with sparsity in data with respect to the employment and WIL logistic regression models in order to justify the goodness-of-fit of both models.

For a linear regression model:

$$y_i = \beta_0 + \sum_{j=1}^{p} x_{ij}\beta_j \quad (6)$$

the usual least squares estimate is based on minimising the squared error loss function:

$$\text{minimise}_{\beta_0,\beta}\left\{\frac{1}{2N}\sum_{i=1}^{N}\left(y_i - \beta_0 - \sum_{j=1}^{p} x_{ij}\beta_j\right)^2\right\}. \quad (7)$$

The Lasso estimator (Hastie et al. 2015) is based on a modified loss function:

$$\text{minimise}_{\beta_0,\beta}\left\{\frac{1}{2N}\sum_{i=1}^{N}\left(y_i - \beta_0 - \sum_{j=1}^{p} x_{ij}\beta_j\right)^2\right\} \text{ subject to } \sum_{j=1}^{p}|\beta_j| \le t, \quad (8)$$

which is equivalent to:

$$\text{minimise}_{\beta_0,\beta}\left\{\frac{1}{2N}\sum_{i=1}^{N}\left(y_i - \beta_0 - \sum_{j=1}^{p} x_{ij}\beta_j\right)^2 + \lambda\|\beta\|_1\right\}, \quad (9)$$

where,

$$\|\beta\|_1 = \sum_{j=1}^{p}|\beta_j| \quad (10)$$

is called the ℓ_1 norm (Hastie et al. 2015),

Where:

y_i is the response variable;

$x_i = (x_{i1}, x_{i2}, \ldots, x_{ip})$ is a p-dimensional vector of predictors for the *ith* individual;

ε_i is the error term for the *ith* individual; and

$\beta_0, \beta_1, \ldots, \beta_p$ are a set of parameters to be estimated.

For the Lasso estimator not to depend on the scale of the predictors, it is assumed that each predictor has been centred (i.e. $\frac{1}{N}\sum_{i=1}^{N} x_{ij} = 0$) and scaled to have unit variance (i.e. $\frac{1}{N}\sum_{i=1}^{N} x_{ij}^2 = 1$). The value t plays the role of a budget, limiting the size of the

parameter estimates. For each value of t, there is a corresponding value of λ (Hastie et al. 2015).

The best choice of t or equivalently λ is chosen by cross-validation with ten folds choosing the value of t or equivalently λ giving the smallest cross-validation error. Lasso determines how many variables to include by using 10-fold-cross validation, by breaking the data into ten parts and for each part fit the model on the remaining data and compare the predictions with the results on that part of the data. This study used the 'one-standard-error rule' (Hastie et al. 2015) (i.e., applying more shrinkage), which is the smallest value of t yielding a CV error no more than one standard error above its minimum value. The Lasso produces two dotted lines in its plot of coefficients, the left hand dotted line gives the best fitting model, while the right hand dotted line gives the best fitting model with the 1SE rule (Hastie et al. 2015).

For a logistic model, which can also be expressed as:

$$\log\left(\frac{\Pr(X=1)}{\Pr(X=0)}\right) = \beta_0 + \sum_{j=1}^{p} x_{ij}\beta_j \qquad (11)$$

the Lasso criterion is modified to be as below (Hastie et al. 2015)

$$\text{minimise}_{\beta_0,\beta}\left\{-\frac{1}{N}\sum_{i=1}^{N}\left[y_i\left(\beta_0 + \sum_{j=1}^{p} x_{ij}\beta_j\right) - \log\left(1 + e^{\beta_0+\sum_{j=1}^{p} x_{ij}\beta_j}\right)\right] + \lambda\|\beta\|_1\right\} \qquad (12)$$

with the same interpretation as above and with *X* being a binary variable taking the value 1 or 0 and the value of λ is again to be chosen by cross-validation.

The Lasso method was used as a supplement to logistic regression because it is able to improve prediction accuracy by shrinking the values of the regression coefficients and reducing the variance of the predicted values. Lasso is also useful for the purposes of interpretation, since it can reduce the large number of predictors (independent variables in the models: Employment and WIL) to a smaller subset that shows the strongest results.

Further, the study used the R statistical package, glmulti (Calcagno 2013) to find the best models to justify the selection of the variables in them. The glmulti software is able to generate all possible model formulae and to return the best models, thus assisting with building confidence models and producing model-averaged parameter estimates (Calcagno & Mazancourt 2010). It essentially allows for assessing the fitting of all

possible models by ranking them in accordance with an information criterion. One of the common information criteria, used as the default in glmulti, is Akaike's Information Criterion (AIC). The AIC gives twice the negative of the maximised log-likelihood plus two times the number of parameters. The smaller the value of log-likelihood, the closer the model predictions; and the increased number of parameters provide for penalty in the model (Hastie et al. 2015).

Once all the models are fitted, the Akaike weights are computed to determine the importance of variables in the model. First, the delta AICs are calculated. These are the differences between the AIC for the particular model and the minimum AIC for all models considered. Then the Akaike weight for a model is computed as exp (-delta AIC/2) and then normalised to add to 1. Akaike weights can be interpreted as the probability of the model being the best one (Calcagno & Mazancourt 2010).

The importance of the variable is the sum of the Akaike weights for all models, including the variable in question. The rule of thumb is to label variables with variable importance above 0.8 as 'important' (Calcagno & Mazancourt 2010). Similar to AIC, the Bayesian information criterion (BIC) could be used in model selection. However, the BIC penalty terms are greater than in AIC. The BIC is partly based on the likelihood function and could be formally defined as:

$$BIC = -2\ln L + k\ln(n) \qquad (13)$$

Where,

L is the maximised value of the likelihood function of the model;

ln is the natural logarithm;

k is the number of parameters (i.e., p+1);

n is the number of data points that the model is being fit to.

Thus, in addition to logistic regression analysis in SPSS, the study employed analysis using Lasso and glmulti software. Lasso is used to improve the predictive accuracy of the logistic regression models by reducing the number of independent variables to a smaller subset, to show the best result. The glmulti function goes through every possible model and finds the best one. These two methods were used for the employment and WIL logistic regression models in order to justify the models' goodness-of-fit.

3.7 Data collection methods and questionnaire

Having defined the appropriate research method to be employed, the next step was the selection of the data collection method. As Collis and Hussey (2009) stated, different data collection methods could be utilised to address the research aims. The literature suggests a variety of different ways of gathering information. However, seven main data collection methods are identified: (i) critical incident technique; (ii) diaries; (iii); focus groups; (iv) interviews; (v) observations; (vi) protocol analysis; and (vii) questionnaires (Collis & Hassey 2003, 2009).

The most commonly used method of collecting data for quantitative analysis in social science, including accounting education, is the questionnaire. Questionnaires are generally characterised by prescribed wording and the order of questions, with prescribed definitions or explanations for each question. This approach ensures relative consistency in responses and minimises any bias in respondents' interpretation of the questions. The prescribed response format also enables relatively rapid completion of the questionnaire, which ensures efficiency in data collection (Collis & Hussey 2009). The questionnaire for this study is located in Appendix A.

3.7.1 Research instrument

For the purpose of the research objectives, the questionnaire was selected as the most efficient and appropriate method for collecting the data. The study considered quantifying the research questions and the data were to be analysed statistically, therefore a questionnaire was designed for the participants of this study on this basis (Collis & Hussey 2009).

The benefits of using questionnaires as compared to alternative methods of data collection have been emphasised by Ackroyd and Hughes (1981). The practical advantages of employing a questionnaire were further highlighted by Collis and Hussey (2003), including: (i) a large quantity of data could be collected in a relatively cost-effective way; (ii) gathering of data could be carried out by anyone without any sacrifice to validity and reliability of data collected; (iii) the quantified data can be processed via use of statistical software, such as SPSS; and (iv) data could be 'scientifically' and objectively analysed.

This study examined the role of WIL programs together with individual characteristics and the self-efficacy of students in contributing to employment outcomes of near-

graduate accounting students. The questionnaire addressed the research questions discussed in this chapter, which were developed as a result of the literature review.

The structured questions were designed in anticipation of different responses from accounting students; the variety of responses would comprise a valuable source of data for addressing the research questions. Students were provided with options from which they were to select the most appropriate, whether through 'Yes/No' answers, or scaled responses rated from 'Strongly disagree' to 'Strongly agree'. The items in the questionnaire requested students to provide honest responses in relation to their employment, their individual characteristics, WIL participation and self-assessment of their level of self-efficacy. The two major groups of respondents were distinguished on the basis of whether they had secured employment or not.

3.7.2 Refining the questionnaire

The design of the questionnaire proved to be a lengthy and time-consuming process, as the research instrument underwent a number of drafts prior to the final version. The design of the questionnaire was driven by reflection of the literature in order to obtain useful data to address the research questions.

While the advantages of collecting data using questionnaires are apparent (Hair et al. 2006), the design of the questionnaire requires careful consideration of the questions to be included in order to address the research problem while making it workable and realistic. The consideration of prior findings in the literature in relation to measurement systems that have been tested and validated is also of utmost importance. For the purpose of this study, the development of the questionnaire involved several considerations, as illustrated in Figure 7 below and discussed in the sections that follow.

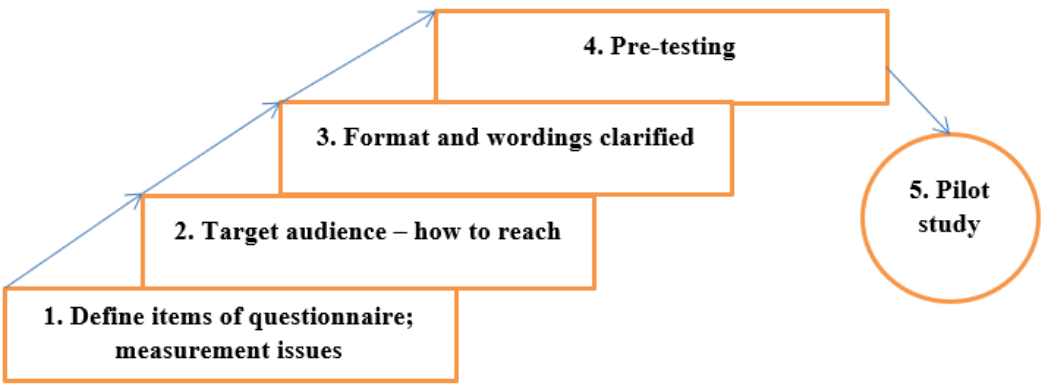

Figure 7: Considerations for data collection via a questionnaire

3.7.2.1 Defining research instrument items

The most demanding task is to define and refine the research questions to better address the identified research problem (Collis & Hussey 2009). The research instrument should address the research problem through finding answers to the research questions. The research questions are affirmed as a result of a literature review to ensure that the information received via the designed research instrument will assist in finding answers to the formulated questions. The formulation of items in the questionnaire is taken into account during the development phase. The measurement criteria are also extremely important and need to be considered when developing the items. Without a proper and appropriate measurement system, the data gathered from the survey loses its meaning and purpose, even if a high quantity of data is collected (Hair et al. 2006). Therefore, for data to be useful for research purposes, the measurement of variables needs to be defined. This is discussed in Section 3.10. The next step however is defining the target respondents.

3.7.2.2 Defining the target respondents

Target respondents were defined as near-graduate accounting students who had completed more than 50 percent of their degree program. The sampling strategy employed was purposive sampling since the research was focused on near-graduate accounting students who had had an opportunity to undertake WIL training. To reach the target respondents, the researcher attended teaching sessions, distributing the questionnaires to students personally at the beginning of the teaching sessions. The literature provides evidence of low response rates for other methods of data collection including online surveys, and using telephone or mail devises as research instruments (Collis & Hussey 2009). Therefore, preliminary steps involved the organisation of visits to the scheduled classes, and obtaining permission from unit coordinators to collect the teaching timetables of students who were targeted for his study in order to arrange suitable times to visit. At the beginning of the class, the researcher provided students with a brief introduction about the research, then distributed the survey and exited the teaching room. At the end of the teaching session, the researcher came back and collected the completed questionnaires. In agreement with the unit coordinators, 20 minutes were allocated for answering the questionnaire. The majority of accounting tutorials and lecture sessions of final year units were surveyed with the collection of data occurring during the last two weeks of the second semester (i.e., October 2014).

3.7.2.3 Using proper wording and format

When designing the questionnaire, the wordings were selected carefully, eliminating ambiguous expressions, and unfamiliar or unpopular words (Collis & Hussey 2009). The questions were ordered in a meaningful manner and the length of the questionnaire was checked with reference to the time required to complete it. To ensure that the wording, format and length were appropriate, pre-testing and a pilot study were employed to confirm that the designed research instrument would be used to its full potential (Collis & Hussey 2009).

3.7.2.4 Pilot testing

A typical data collection strategy in the quantitative method involves closed-ended questions via a questionnaire. Researchers suggest that open-ended questions and 'difficult to answer' questions should be avoided (Hair et al. 2006). These guidelines were followed when embarking upon the design of the research instrument. For it to be effective in gathering reliable responses from students, a pilot test of the questionnaire was conducted to ensure the adequateness of the research instrument's design for data collection.

The pilot test employed a form of Delphi method, which consists of seeking the opinions of experts in reviewing and providing feedback on the questionnaire developed for the main study (Collis & Hussey 2009). This testing involved three accounting education academics (experts) to consider content matters, along with seven near-graduate accounting students for feedback related to understanding item wording and phrasing, among other things.

A pilot study assesses the quality of the developed questionnaire to ensure that the measurement systems included in it do not conflict with existing concepts and scales underpinned in previous research. Thus, any inconsistencies discovered can be removed prior to the actual data collection process. Therefore, the pilot study is a means of ensuring that the items and questions within the questionnaire can capture the required information, and to check if respondents understand all of the items and questions provided (Collis & Hussey 2009; Hair et al. 2010). The demographic questions were designed with a straightforward 'Yes/No' answer, while space was provided for additional data when appropriate.

The seven students who undertook the pilot study (Delphi method) were randomly selected from a third year accounting course, along with three accounting academic staff from the College of Business at VU. Third year students were selected since these students were nearing the completion of their accounting degree programs. The questionnaires were collected immediately upon completion. The time to complete the questionnaire varied from 10 to 20 minutes for individual respondents. Such variance is due to the nature of the survey, insofar as students who did not undertake WIL in their degree program did not need to answer all the questions.

The student and staff feedback on the wording and layout of the questionnaire were positive. However, based on suggestions from respondents, some amendments were made, but no major changes. The questionnaire was revised to simplify the questions and to eliminate questions that seemed to deter respondents (Hair et al. 2006). In addition, some amendments were suggested to replace ambiguous and 'difficult' words to create more straight-forward expressions. The fact that the majority of those surveyed were of NESB was taken into consideration to ensure the most appropriate words were used and to clarify the meaning of each question.

Based on the feedback provided in the pilot study, the questionnaire as a research instrument was considered appropriate to conduct the survey of near-graduate accounting students. It was distributed in a booklet format (see Appendix A).

3.7.3 Composition of the questionnaire

The research instrument used in this study was developed with consideration of the gaps identified from the literature review. The findings in the literature were also used to guide the questionnaire content (Sherer et al. 1982; Bosscher & Smit 1998). The questionnaire comprised five different sections, with 28 questions and 32 sub-questions. The questionnaire was set up to collect data on the following topics:

1. Participants' demographic data (Bui & Porter 2010; Coates & Edwards 2011; Jackson 2013, 2014a, 2014b);
2. WIL and employment outcomes (Crebert et al. 2004b; Smith 2012; Cranmer 2006; Stoner & Milner 2010);
3. Activities and tasks performed during WIL training (Gracia 2010; Smith 2008; Smith et al. 2010);

4. Acquisition of skills from WIL training (Hancock 2009; Kavannagh & Drennan 2008); and
5. A self-efficacy measuring instrument (Sherer 1982; Bosscher & Smit 1998; Jerusalem & Schwarzer 1992).

The demographic section and self-efficacy sections were applicable to every student surveyed, regardless of whether WIL training was undertaken or not. The content of each section of the questionnaire is discussed in more detail in the following paragraphs.

3.7.3.1 Section 1 – Demographic information

Section 1 consisted of twelve questions on gender; mode of study (full-time or part-time); the initial enrolment at the commencement of their degree; and age group (scaled groups were divided by decades: from 18-20, 21-30, 31-40 and over 40). Students were asked if they were currently studying in the final year of their degree. If students selected 'No' a further question was asked as to the stage they were at in their degree. These questions were designed to verify that the target respondents were near-graduates who had completed more than 50 percent of their degree course.

The research instrument included a question on whether English was the respondent's first language or not. If English was not their first language, they were required to provide information about their language background.

The first section also included questions on students' employment outcomes. Respondents were asked whether they had secured employment. If the answer was positive, details of their employing organisations were requested. To facilitate an efficient response, students were given a template of the 'types of organisations' they could be employed in. The template was designed as a follow-up (next) question and included seven types of organisations; from 'big four' firms to small-to-medium size businesses.

3.7.3.2 Section 2 - WIL and employment

The second section consisted of twelve questions designed to obtain student feedback on WIL programs. Only those students who undertook a WIL program during their course were required to answer. For example, if a student's response was negative to the first question in this section: "Have you completed a WIL program as part of your accounting course?" he/she skipped to the final section (Section 5). This is due to the fact that Sections 2, 3 and 4 were only relevant to students who completed a WIL program.

The questions in this section aimed to collect data on the timing of their WIL program (in which year of their degree course and how long the WIL training ran); types of organisations that students joined; employment outcomes as a result of WIL training; and whether the WIL provider offered students employment.

Students were required to elaborate on their feedback on WIL training delivery by evaluating a set of items focused on it. A five-point Likert scale was used from 'Not at all satisfied' to 'Very satisfied'. In addition, students were expected to explain via an open-ended response why they were or were not satisfied by the WIL program.

3.7.3.3 Section 3 – Tasks performed during WIL

This section included three parts that focused on the tasks performed during WIL training. One of the main objectives of WIL programs is to familiarise students with an authentic working environment and to facilitate development of the work-related skills required by the accounting profession. Such accounting-based tasks include: recording financial transactions manually, or using accounting software, assisting in the preparation of income tax returns, assisting in the preparation of financial statements, auditing, reconciliation of accounts, budget preparation, cost volume profit analysis, among other accounting tasks.

Students were also provided with the option to specify non-accounting tasks performed during their WIL training. The items were set up to require a 'Yes' or 'No' response. Questions also focused on the approximate time spent on accounting-related tasks during WIL training – the minimum was defined as below 30% and the maximum as above 80%.

Section 3 also included a scaled table to obtain information on the perceptions of students on the value of the tasks and activities they performed during WIL, and whether they saw themselves as contributing to the organisation's successful performance. Smith's (2012) measurement was applied in the questionnaire to collect students' perceptions on tasks and activities performed during WIL training, regarding their relevance to the university curriculum and learning objectives.

Students were asked whether they believed they worked with considerable autonomy; had some degree of responsibility; and learned new skills that otherwise could not be provided by university course. Students were also questioned on whether they considered themselves an important part of the organisational system, contributing to its successful

performance. Student responses were measured by a five–point Likert scale from ‘Strongly disagree’ to ‘Strongly agree’, with a middle response of ‘Neutral’.

3.7.3.4 Section 4 – Skills’ acquisition as a result of WIL

This section includes questions adopted, in part, from the Student Experience Survey (SES). Students were required to indicate the extent to which they believed selected skills improved as a result of their WIL placement. The skills reflected the scope of graduate capabilities defined by universities, in accordance with the accounting professional framework. The specific skills highlighted in this section included teamwork, analytical, problem-solving and written communication skills. Students were also asked about long-term life-learning skills: being able to plan and manage their future; being confident in an unfamiliar situation. Again, a five-point Likert scale was used to measure the extent of agreement about their development of the identified skills.

3.7.3.5 Section 5 - Self-efficacy

This section was designed to assess students’ perceptions of their self-efficacy, reflecting on their motivation, learning and the course of action needed to be successful in achieving targeted goals. Through their courses, students interact with different people, different situations and tasks; and they may approach them differently compared to their peers. Students were required to read carefully the statements provided in this context and answer them honestly as they applied to them.

The self-efficacy measurement in the form of a GSES was originally developed by Jerusalem and Schwarzer in 1981 and consisted of 17 items (Schwarzer & Jerusalem 1995). The scale underwent subsequent modifications via Sherer et al. (1982), Jerusalem and Schwarzer (1992), as well as Bosscher and Smit (1998). The present study used the modified version of GSES (Bosscher & Smit 1998), which consists of 12 items. This GSES has been used and validated in many studies across 23 countries worldwide. The 12 statements of the self-efficacy instrument used the same wordings with a five-point Likert scale format, in accordance with Bosscher and Smit’s (1998) GSES. The statements had both ‘positive’ and ‘negative’ content, but they were not separated/distinguished, to ensure student answers could be qualified as being honest and appropriate. This section was applicable to every student, regardless of whether they participated in a WIL training program or not.

3.7.4 Questionnaire alignment

Table 20 below shows the relevance of the items in the research instrument to the research questions of this study.

Table 20: Aligning the research instrument with the research questions

RQ	Items	Adapted from	Variable	Method
RQ1: 'Is there any association between accounting near-graduate students' individual characteristics and self-efficacy components of GSES?'	Section 1 Items 1, 2, 4, 8, 9 Section 5 Items 28.1-28.12	Bosscher and Smit (1998); Chen et al. (2001); Sherer et al. (1982); Chagrong et al. (2014); Whitesel (2015); Jackson (2013, 2014a); Zillig et al. (2011); Ma et al. (2015); Lopez (2014); James and Otsuka (2008); Chen et al. (2004); Luszczhynska et al. (2005); Sugahara et al. (2010)	Self-efficacy – 12- item GSES Categorical variables: gender, residency, language, age, study mode	Factor analysis via PCA. Tests of association: Mann-Whitney U test and Pearson chi-square.
RQ2: 'What are the factors that influence the employment outcomes of accounting near-graduate students?'	Section 1 Items 1, 2, 4, 8, 9 Section 2 Item 13 Section 5 Items 28.1-28.12	Crebert et al. (2004b); Stoner and Milner (2010); Jackson (2012, 2013); Tymon (2011); Coates and Edwards (2011); Hancock et al. (2009); Birkett (1993); CPA and ICAA (2012); Gracia (2010); Bandura (1997); Sherer et al. (1982); Bosscher and Smit (1998); Patrick et al. (2008); Knight and Yorke (2004); Smith and Worsfold (2014); Rothwell et al. (2008); Surridge (2009); Webster et al. (2011); Jackling et al. (2012)	Dependent variable: employment Independent variables: gender, residency, language, age, study mode, WIL, initiative, effort and persistence	Logistic regression model and Lasso and R-glmulti techniques
RQ3: 'Do self-efficacy factors influence accounting near-graduate students' participation in WIL?'	Section 2 Item 13 Section 5 Items 28.1-28.12	Submaraniam and Freudenberg (2007); Gracia (2010); Freudenberg et al. (2010a); Green (2011); Purdie (2013); Smith (2012); Jackson (2013); Bandura (1997); Sherer et al. (1982); Bosscher and Smit (1998); Jerusalem and Schwarzer (1992)	Dependent variable: WIL Independent variables: initiative, effort and persistence	Logistic regression model and Lasso and R-glmulti techniques

3.8 Data collection for the study

Once pilot testing was completed and all the appropriate changes were made, the data collection proceeded via two selected Melbourne-based universities: VU and Swinburne University of Technology. As already indicated, the data were collected from students who had completed more than half of their course and teaching sessions of third year (final year) units were chosen for data collection. The collection of data occurred at the end of the academic/school year (end of semester 2 in 2014).

The two universities were selected on the basis of their involvement in WIL programs. The universities view their WIL training partnerships as bringing a competitive advantage when compared to other educational organisations. A body of research in WIL has been published by academics from these universities (Tempone & Martin 2003; Kay et al. 2010). The selected universities are viewed as leading educational organisations, working collaboratively with industry and professional accounting bodies, especially in the area of identifying the framework of required employment qualities for accounting students (Kay et al. 2010; Jackling et al. 2007).

3.8.1 Victoria University (VU)

The organisation and timing of the collection of data requires careful consideration. The timetables of the lectures and tutorial classes obtained from the administrators of the accounting faculty were used as a guide to scheduling planned visits to as many teaching sessions as possible, in order to collect a sufficient sample size.

Prior to commencing data collection, emails were sent to the coordinators of the units, and after receiving their approval, the data collection times were planned for the selected teaching sessions. Due to the proximity of final exams, the attendance in those sessions was higher, thus enabling the researcher to approach a large number of students.

The aims of the questionnaire were explained to students on the title page of the questionnaire (see Appendix A). The questionnaires were then distributed at the start of the lecture/tutorial sessions; students were briefed about the task.

The collection of data was undertaken by the researcher, who was not familiar to students. Participation in the survey was voluntary, students were advised of their right to decline to participate at any point in time, and the questionnaire was anonymous (i.e. not identifiable).

Lecture streams of third year accounting units in weeks 11-12 of Semester 2, 2014 were targeted. The data were collected from both full-time and part-time students. Overall, 310 questionnaires were collected with responses from VU students. A breakdown of responses is provided in Table 21 below.

Table 21: Information on data collected from VU

Date of data collection 2014	Quantity of questionnaires collected
8 October	88
9 October	44
13 October	45
15 October	75
16 October	25
17 October	33
Total	310

The data collection process was an intensive undertaking. Third year accounting lectures and tutorial classes for both campuses – City Flinders and Footscray – were attended for the purpose of obtaining a high survey response rate.

3.8.2 Swinburne University of Technology

To enrich the sample data, it was decided that additional responses should be gathered from accounting students at a different university. Swinburne University of Technology was selected as the most appropriate option given its recognised role in providing industry-based learning programs. Swinburne was the first university to successfully integrate practical placements and 'sandwich year' courses in their business programs, including their Bachelor of Accounting.

To collect data from Swinburne University of Technology, in-principle support was received from their faculty manager. The data collection method was discussed with the manager who then consulted with the appropriate faculty teaching staff. The data collection procedure was suggested by the faculty manager in accordance with feedback from the teaching staff.

Unlike VU, the teaching staff at Swinburne University of Technology did not want the researcher to attend the teaching sessions, because of limited time for extra activities related to the proximity of final assessments. Rather, it was suggested that the questionnaires be distributed in the lecture sessions by the lecturers themselves, who would advise students to return the completed questionnaires to the designated drop-off

box area, known as the ‘Assignment box’, located on level 10 of the building, where faculty staff members were located.

The researcher was not permitted to be directly involved in the data collection process. At the agreed time of collecting the responses from the administrators of university, it was revealed that not a single response was returned to the drop-off box. It was also discovered that the majority of the questionnaires were not distributed to students as a result of poor communication between administrative and teaching staff. However, 93 responses were collected by tutors at the end of the tutorial sessions.

In order to increase the volume of data collected from Swinburne University of Technology, more data were gathered during the summer course in January 2015. Consequently, 43 more responses were received. The table below provides a breakdown of the data collected.

Table 22: Information on data collected from Swinburne University of Technology

Date of data collection 2014-2015	Quantity of questionnaires collected
9 October 2014	20
16 October 2014	73
17 January2015	43
Total	136

Overall, 136 responses were collected from Swinburne University of Technology, bringing the total initial sample size for this research to 446 responses.

3.9 Sample size

The sample of this research consisted of accounting near-graduate students, defined as students who were about to complete their accounting degree. This research is cross-sectional in nature, with the target respondents from two Melbourne-based, Australian universities. Given this context, the selected sample needed to represent a valid description of the whole population since inference testing was conducted (Sekaran & Bougie 2009). This would allow for the generalisation of findings (Field 2009).

Typically, sample sizes can be determined using a mathematical formula to arrive at a figure to represent the entire population (Sekaran & Bougie 2009). The formula used to calculate the sample size representative of the population is as follows:

$$SS = Z^2 \times (p) \times (1-p)/c^2$$

Where,

SS – Sample size

p- Percentage picking a choice, expressed as decimal (0.5 used for sample size needed)

c- Confidence interval, expressed as a decimal.

The three factors – population size, confidence level and confidence intervals – are the main factors that determine the sample size (Field 2009; Sekaran & Bougie 2009). The confidence level is expressed as a percentage to confirm the true proportion of the sampled population that would have similar responses within the confidence intervals.

Most educational researchers use confidence intervals between 95 and 99 percent (Bartlett et al. 2001), although in the education literature, a 90 percent confidence level is also acceptable. A general rule, however, is a margin of error of five percent for categorical data and three percent for continuous data (Field 2009). Although, as Bartlett et al. (2001) stated, it is acceptable to increase or decrease this value depending on the degree of precision needed by the research.

The initial sample size of 446 responses was reduced to 337 due to missing data identified during the data cleaning process. This is discussed further in Chapter 4, Section 4.2.1. The 337 responses provided a sufficiently large sample since, according to the sample size guide, a sample can represent a population of 2,500 at a five percent confidence level (Krejcie & Morgan 1970). Consequently, the sample size is adequate to accurately represent the two accounting cohorts at VU and Swinburne University.

With respect to the measurements to be undertaken, the sample size (n=337) could be classified as ‘good’ to ‘very good’ within the factor analysis guidelines (Comrey & Lee 1992). As indicated earlier, Collis and Hussey (2009), and Comrey and Lee (1992) recommended the adequacy of total sample sizes for factor analysis as: 50=very poor, 100=poor, 200=fair, 300=good, 500=very good, 1000+=excellent. The minimum sample size based on the number of variables is a factor ratio of at least five cases per variable item (1:5), with an ideal of n>20 – or 20 cases per variable (1:20). Since the sample size for this study provided 28 cases per variable (337 cases: 12-item GSES), it was sufficient for factor analysis.

With respect to the logistic regression models, although the literature does not offer specific rules regarding sample sizes to effectively employ a logistic regression model

(Peng et al. 2002), Field (2009), and Tabachnik and Fidell (2007) suggested a minimum ratio of 10 to 1. This refers to at least 10 cases per independent variable, along with a minimum sample size of between 50-100. The employment model (RQ2) had 55 positive responses with nine independent variables, while the WIL model (RQ3) had 21 positive response with three independent variables. Therefore, this study also employed the Lasso and R-glmulti methods to handle the potential issue of scarcity of data (see Section 3.6.2.3).

3.10 Measurement of variables

As part of the literature review presented in Chapter 2, the researcher reviewed and justified the selection of the variables to be incorporated into this study. Consequently, this section will, for the most part, focus on the method of measurement adopted for the selected variables.

3.10.1 Employment

The variable *employment* represents the outcome of the first logistic regression model. To define and measure the employment outcomes of accounting near-graduates, the study distinguished between two groups of final year accounting students: those who secured employment nearing the completion of their degree; and those who were not successful in obtaining employment. The two groups were assigned the numeric categorical value of 1 and 0 respectively. Several researchers (Jones & Abrahams 2007; Kavanagh & Drennan 2008; Yorke 2006) used similar measurement criteria for employment.

3.10.2 Gender

For the measurement of the categorical variable *gender,* the study considered numeric values of 0 for the group of female students, and 1 for male students. Similar measurements have been used in other research (Jackson 2013; Wilton 2011).

3.10.3 Residency status

For the measurement of the categorical variable *residency,* a numeric code of 0 was used for domestic students and 1 for international students. The measurement was based on prior research (Jackson 2013; James & Otsuka 2008; Watty 2005; Wilton 2011).

3.10.4 Language

For the purpose of this study, the measurement for *language* was as follows: for students who had English as their first language, the study used a numeric value of 1; for students

who had a first language other than English, the study used a numeric value of 0. Similar measurements were used by Jackson (2013).

3.10.5 Age

The research measured the categorical variable *age* using the following scaled measurement: age of students between 18 to 20 as 0, from 21-to 30 years old as 1; 31-40 years old as 2; over 40 years old as 3. Similar measurement scales were used in Freudenberg et al. (2010a), and with minimal variations in other studies (Jackson 2013; Wilton 2011).

3.10.6 Study mode

For the measurement of the categorical variable *study mode,* a numeric value of 0 was assigned for students who studied part-time, and a numeric value of 1 for the cohort of full-time students.

3.10.7 WIL

WIL participation was considered in this study as a categorical variable, providing measurement of the two distinct groups of students. The group of students who have completed WIL were categorised as 1; and students who did not undertake a WIL program were assigned a 0. The categorical variable *WIL* has been used in other studies (Purdie et al. 2013; Jackson 2013).

3.10.8 Self-efficacy

As discussed in Chapter 2, the measurement criteria for self-efficacy have been modified several times over the years by many researchers. Having justified the selection of Bosscher and Smit's (1998) 12-item GSES for this study, the items that comprise the self-efficacy construct are presented in Table 23 below.

Table 23: General self-efficacy scale

Item in the GSES	Statement in the GSES
1	If I make plans, I am convinced I will succeed in executing them
2	If I have a failure the first time, I bite into it until it is going better
3*	If I absolutely want something, it usually goes wrong
4*	If I have the impression something new is complicated, I do not start it
5	Even with unpleasant tasks I hold on until I am finished
6*	I have difficulties solving problems well in my life
7	If I have made a decision to do something, I will do it
8*	If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit
9*	Unexpected problems make me quickly lose my balance
10	If I make a mistake I try even harder
11*	I do not start learning new things if I think they are too difficult
12*	I doubt myself

* Indicates items that were reverse coded.

Source: Adapted from Bosscher and Smit (1998)

As stated previously, to address RQ1, the study investigated the association between self-efficacy components and students' individual characteristics. Since self-efficacy was a composite variable, the study used PCA to reduce the number of factors to meaningful components for factor analysis, as evident in prior studies (Bosscher & Smit 1998; Sherer et al. 1982).

The 12-item GSES (Sherer et al. 1982; Bosscher & Smit 1998) incorporated a five-point Likert scale ranging from 'Strongly disagree' (1) to 'Strongly agree' (5) with a neutral response (3). As previously indicated, the study applied the 12-item GSES measuring system (Sherer et al. 1982; Bosscher & Smit 1998) using the three factors extracted by PCA: initiative, effort, and persistence.

3.10.9 Summary of variables

Table 24 below presents the variables considered for addressing the research questions of this study with reference to the literature.

Table 24: Summary of variables with reference to prior literature

Variable	Prior literature	Measurement
Gender	Coates and Edwards (2011); Jackson (2014a); Paisey and Paisey (2010); Webster et al. (2011); Wilton (2011).	Categorical variable measured by numeric values: 0 - for female accounting students; 1 – for male accounting students.
Residency	Birrell (2006); Jackson (2013); James and Otsuka (2008); Watty (2005); Wilton (2011).	Categorical variable measured by numeric values: 0 - for domestic accounting students; 1 - for international accounting students.
Language	Bui and Porter (2010); Coates and Edwards (2011); Crebert et al. (2004b); Jones and Abrahams (2007); Kavanagh and Drennan (2008); Jackling and Keneley (2009).	Categorical variable measured by numeric values: 1 - for accounting students with English as their first language; 0 - for accounting students with a first language other than English.
Age	Freudenberg et al. (2010a); Jackson (2013) and Wilton (2011) had minimal variations in age group measurements.	Categorical scaled variable, measured by numeric values: 0 - for accounting students with age from 18 to 20; 1 - for those aged from 21 to 30; 2 - for those aged from 31 to 40; 3 - for those over 40 years old.
Study mode	Knight and Yorke (2004); Tymon (2011); Cranmer (2006); Crebert et al. (2004b).	Categorical variable measured by numeric value: 0 – for part-time students, and 1 - for full-time students.
WIL	Bui and Porter (2010); Cranmer (2006); Crebert et al. (2004b); Gracia (2010); Jackson (2013); Jones and Abrahams (2007); Leong and Kavanagh (2013); Paisey and Paisey (2010); Smith and Worsfold (2014); Stoner and Milner (2010).	Categorical variable measured by numeric values: 1 - for accounting students who completed WIL as part of their degree program; 0 - for those who did not undertake a WIL program during their university studies.
Employment	Andrews and Russell (2012); Candy and Crebert (1991); Cranmer (2006); Crebert et al. (2004a); Holmes (2002, 2013); Jackson (2013, 2014a); Jackling and Keneley (2009); Jones and Abrahams (2007); Kavanagh and Drennan (2008); Knight and Yorke (2004); Tymon (2011); Yorke (2006).	Categorical variable measured by numeric values: 0 - for accounting near-graduates who did not obtain employment; 1 – for those who secured employment while finishing degree course. The same measurements apply to the cohort of part-time accounting students.
Three factor self-efficacy composite (initiative, effort and persistence)	Bosscher and Smit (1998); Chen and Gully (1997); Chen et al. (2001); Jerusalem and Schwarzer (1992); Luszczynska et al. (2005); Schwarzer and Jerusalem (1995); Sherer et al. (1982); Smith and Foti (1998); Subramaniam and Freudenberg (2007).	The measuring system is based on a composite variable consisting of initiative, effort and persistence, derived as a result of a factor analysis of the 12-item scale.

3.11 Ethical considerations

Given the nature of the outlined data collection, ethics approval was sought for the research. In accordance with ethics approval requirements, the aims of the research and the purpose of the questionnaires were explained to participants on a title sheet. The participants were given time to consider and discuss with others their involvement in the research questionnaire before being requested to provide their consent. Consent for the study was implied upon students answering the questionnaire.

Students were informed about the voluntary nature of the survey, along with their right to withdraw from the survey at any point if they were not comfortable answering the questions. Moreover, students were informed that if they chose to opt out of the survey, this would not jeopardise them in any way as their participation was entirely voluntary.

Students were assured that since no identifying details were requested of participants, no individual would be identified in any report or publications produced from this research. Students were made aware that the information they provided would be protected for a minimum of five years and secured in storage. Data would be destroyed when that five year period expires.

3.12 Chapter summary

This chapter has discussed the conceptual framework as a foundation for this study, derived by applying a positivist paradigm in which the self-efficacy construct was based on SCT (Bandura 1977, 1982, 1997; Sherer et al. 1982; Jerusalem & Schwarzer 1992; Bosscher & Smit 1998). Individual characteristics and WIL constructs were based on the findings of established literature (Tymon 2011; Smith 2012; Jackson 2013, 2014a; Cheng et al. 2009; Demagalhaes et al. 2011). Outcomes associated with the theoretical framework were then discussed.

The chapter also explained the variables selected and the research methods used in this study. The variables chosen for analysis were justified, as were their methods of measurement. An overview of various research methods techniques was provided to explain the use of quantitative methods for data collection and analysis. In addition, the most appropriate research method for the stated research questions and objectives were discussed. A justification was provided for use of PCA, tests of association and logistic regression analysis. Specifically, the factor analysis via a PCA method, together with tests of association, such as the Mann-Whitney U test and Pearson chi-square test, were used

to address RQ1. In addition, logistic regression models were used for the binary outcome dependent variable (*employment*) as well as the binary outcome dependent variable (*WIL*) to address RQ2 and RQ3.

The assumptions attributable to factor analysis and logistic regression methods will be tested in the following chapter, which presents and discusses the results of this study.

Chapter 4: Results and discussion

4.1 Introduction

The previous chapter presented the conceptual framework and research methods used for this research. The impact of students' individual characteristics, participation in WIL and their self-efficacy were considered in designing the research method of the study. This led to the identification of factor analysis and tests of association as valid and justifiable approaches for addressing RQ1. In addition, two logistic regression models were developed and their use justified for addressing RQ2 and RQ3.

This chapter examines and discusses the results of this study. To achieve this, the organisation of this chapter is as follows. Section 4.2 reviews the preparation of data for statistical analysis, which involved cleaning of data and testing assumptions, while Section 4.3 presents and analyses the descriptive statistics. Section 4.4 analyses the results for RQ1 using factor analysis via a PCA method and tests of association (i.e., Mann-Witney U-test and chi-square). Section 4.5 addresses RQ2, discussing the results of the logistic regression model on near-graduate employment outcomes for the study sample. Section 4.6 analyses the results of the logistic regression model on participation in WIL – RQ3. The chapter concludes with a summary.

4.2 Stage 1: Preparation of data

Preparation of data for analysis requires the cleaning of data to ensure its suitability for statistical analyses. Part of the cleaning process involves removal of missing responses and identifying outliers to eliminate their potential impact on data analysis (Hair et al. 2010).

4.2.1 Dealing with missing data

The cleaning of data commences by identifying the types of missing data in the sample. The key distinction within the missing data is whether it is ignorable or non-ignorable data (Hair et al. 2010). This distinction is based on the relationships between the missing data and the observed values.

As a result of the cleaning process, the final sample comprised 337 observations. Details of the removed non-ignorable data are presented in Table 25 below.

Table 25: Cleaning of sample data

	No.
Original sample size prior to cleaning data	446
Number of removed cases with non-ignorable missing data in:	
Employment	7
Residency	11
WIL	2
Self-efficacy (items 1-12, all missing)	24
Self-efficacy item 1	2
Self-efficacy item 2	1
Self-efficacy item 3	3
Self-efficacy item 4	4
Self-efficacy item 5	2
Self-efficacy item 10	1
Self-efficacy item 11	1
Self-efficacy item 12	4
Self-efficacy - all 12 items answered with identical response (e.g. all agree or all disagree, thus ignoring the meaning of statements)	47
Total number of cases removed	(109)
Sample size after cleaning	**337**

As per Table 25, the initial sample (n=446) included 81 cases of students who secured employment and 45 cases of students who completed WIL. The cleaned sample (n=337) resulted in 55 cases of students who secured employment and 21 cases of students who completed WIL.

Data were collected from two Melbourne-based universities, with 32.6 percent of the total sample represented by students of Swinburne University of Technology and 67.4 percent represented by students of VU. To test the differences between the two subsets in the sample, the study employed chi-squire tests (see Appendix D). The results indicated that the subsets of data were not significantly different. Since the differences between the two subsets of data were minimal, the full sample was deemed to be homogeneous. Therefore, the study's full data set included the survey results of both universities.

The preparation of sample data also involved the testing of the assumptions for the use of factor analysis and logistic regression.

4.2.2 Testing assumptions for data analysis

The study employed logistic regression analysis to address RQ2 and RQ3 and factor analysis and association tests to address RQ1. The following assumptions needed to be met for the data analyses in this study.

4.2.2.1 Sample size

Logistic regression analysis requires a relatively large sample size to accurately estimate all the parameters in the model. According to Hair et al. (2010), the minimum ratio of valid cases to independent variables in a logistic regression should be 10 to 1 EPV, meaning that one predictive variable can be studied for every ten events without risk of overfitting the logistic regression model (Harrell et al. 1984). EPV considers the number of positive predictor outcomes (events) per variable included in the logistic regression model.

The employment logistic regression model includes 55 cases with positive predictor outcomes (secured employment) and 9 independent variables, giving an EPV ratio for the employment model of 6:1. The overall sample size for this study was fine (n=337), however, since the EPV ratio for the employment model was below 10:1, there was a potential issue. Consequently, the study employed a logistic regression model, as well as Lasso and R-glmulti techniques to ensure the robustness of the employment model.

This issue also applied to the WIL model, which indicated three independent variables and 21 positive predictor outcomes (participation in WIL). The EPV in the WIL model was a ratio of 7:1 for events per variable and thus also had the potential to cause an issue of sparsity of data. A logistic regression model was therefore also ran, as well as Lasso and R-glmulti techniques to ensure the robustness of the WIL model. According to Santner and Duffy (1989), King and Zheng (2001), and Cox and Snell (1989), inclusion of imbalanced data in the logistic regression model is acceptable where the variable is of a categorical nature.

With respect to factor analysis, typical guidelines recommend sample size n>200 as a fair sample (Comrey & Lee 1992), with a minimum sample size of five cases per variable factor and an ideal sample of more than 20 cases per variable. The GSES includes 12 items, which would require at least 60 cases for a minimum sample size (n>5 cases per variable factor) and 240 cases for an ideal sample size (n>20 cases per variable factor). The study's sample of 337 cases was therefore classified as 'good' based on the above guidelines.

4.2.2.2 Diagnostic tests

A number of diagnostic tests were performed. The results showed that the study data did not exhibit multicollinearity; the results are discussed later and shown in tables 39 and 44.

Since factor analysis is based on correlations between the variables, linear relations amongst the items of the GSES needed to be tested. Correlation analysis of the 12-item GSES using Pearson correlation, is discussed in Section 4.3.

In addition, the test for normality of data, outliers, and heteroscedasticity were performed. The results shown in Appendix C did not reveal any issues with data. Thus, the results of testing the associated assumptions indicated that the present research's sample data was appropriate for conducting further statistical analyses.

4.3 Stage 2: Descriptive statistics

The second stage of data analysis involved analysis of the descriptive statistics of the variables. Descriptive statistics included analysis of frequencies of the variables, and their basic statistics, such as means and standard deviations where appropriate. Further, the study employed Pearson and Spearman correlation to analyse correlations of the study variables. Pearson correlations were used for the GSES with a normal linear relationship due to their parametric nature (see Table 27); while the Spearman correlations were used for data variables with categorical values (see Table 28). Table 26 below shows the descriptive statistics for the categorical variables used in the employment logistic regression model and WIL logistic regression model. Further descriptive statistics on WIL participation are provided in Section 4.5.4.1 and Appendix H.

Table 26: Descriptive statistics (excluding GSES)

Variables	Frequencies	
	n	%
Gender		
Female	183	54.3
Male	154	45.7
Study mode		
Part-time	43	12.8
Full-time	294	87.2
Age		
18-20	8	20.2
21-30	245	72.7
31-40	17	5.0
>40	7	2.1
Residency		
Domestic	143	42.4
International	194	57.6
Language		
English speaking background (ESB)	128	38
Non-English-speaking background (NESB)	209	62
Employment		
Did not secure employment	282	83.7
Secured employment	55	16.3
WIL		
Did not complete WIL in degree course	316	93.8
Completed WIL in degree course	21	6.2

The study data sample (n=337) included the individual characteristics of students. As the table above illustrates, 54.3 percent of the sample size was represented by female students. The majority of the surveyed students (87.2 percent) studied in full-time mode at the time of data collection. Most of the surveyed students were in the age bracket 21 to 30 years old, representing 72.7 percent of the total sample (n=337). The youngest students in the age group 18 to 20 years comprised 20.3 percent and the oldest students (over 30 years old) only 7.2 percent of the study sample. The table above also indicates that over half of the sample (57.6 percent) of surveyed students (n=337) were international students. In addition, the students with a first language other than English represented 62 percent of the total sample (n=337).

The above data collected on variables, *gender*, *age*, *residency* and *language*, were generally reflective of the population characteristics of the two universities under study. Both universities tend to have high proportions of international students who come from a NESB. Given the emphasis on near-graduates, the age outcome is reasonable, while the gender outcome reflects the popularity of accounting among females. Thus, the data

collected on demographic variables can be said to be generalisable to the study population.

With respect to the *employment* variable, the study data revealed that 16.3 percent of the data sample secured full-time employment at the time of the survey. The employment variable is further examined in Section 4.5.

The descriptive statistics for the *WIL* variable show that 21 students in the data sample, representing 6.2 percent of the total sample size, had undertaken the WIL program. This number corresponds with an overall rate of less than 10 percent of the participation rate for students of VU.

Table 27 below shows the descriptive statistics for the 12-item GSES construct. Please note that the (R) refers to an item that was reverse-coded prior to analysis in accordance with accepted practice.

Table 27: Descriptive statistics of the 12-item GSES variable

Self -efficacy item	Mean	Median	Standard deviation	Coefficient Variation	Skewness	Kurtosis	Minimum	Maximum
1) If I make plans, I am convinced I will succeed in executing them	4.26	4.0	0.688	0.162	-1.274	3.413	1	5
2) If I have a failure the first time, I bite into it until it is going better	4.27	4.0	0.726	0.170	-1.268	2.457	2	5
3) If I absolutely want something, it usually goes wrong (R)	3.51	4.0	1.008	0.287	-1.056	0.191	1	5
4) If I have the impression something new is complicated, I do not start it (R)	3.56	4.0	1.003	.282	-0.872	-0.307	1	5
5) Even with unpleasant tasks I hold on until I am finished	4.05	4.0	0.966	0.236	-1.371	2.881	1	5
6) I have difficulties solving problems well in my life (R)	3.58	4.0	1.086	0.303	-0.820	-0.391	1	5
7) If I have made a decision to do something, I will do it	4.28	4.0	0.715	0.167	-1.303	3.015	1	5
8) If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit (R)	2.98	3.0	1.234	0.414	-0.042	-1.360	1	5
9) Unexpected problems make me quickly lose my balance (R)	3.28	4.0	1.141	0.348	-0.503	-1.106	1	5
10) If I make a mistake I try even harder	4.10	4.0	0.804	0.196	-1.157	1.508	2	5
11) I do not start learning new things if I think they are too difficult (R)	3.75	4.0	1.059	0.282	-1.084	0.426	1	5
12) I doubt myself (R)	3.42	4.0	1.263	0.369	-0.464	-1.060	1	5

Table 27 shows that for the 12-item GSES variable, the mean varied between 2.98 to 4.28. The minimum value was 1 (‘Strongly disagree’) and maximum was 5 (‘Strongly agree’) with 3 being ‘Neutral’. The mean values in addition to median values were all above the neutral value of 3, except for item 8, which was close to neutral (2.98). The values of skewness were between -1.371 and -0.042, while kurtosis values ranged from -1.360 to 3.413. Four items of GSES demonstrated a kurtosis value above 2 (items 1, 2, 5 and 7 as shown in table above). Most of the 12 items in the GSES indicated normal univariate distribution, since their skewness and kurtosis were between the acceptable values and did not exhibit any issues (George & Mallery 2010).

4.3.1 Correlation analysis

The present study employed correlation analysis to quantify the connection between the *employment, WIL, gender, study mode, age, residency, language,* and within the 12-items the GSES. The correlations between the above variables were tested in accordance with the type of data involved. Since most of the data in this study were of a categorical nature, a Spearman correlation technique was employed.

Following the guidelines outlined in Hinkle et al. (2003), the strength of a relationship is considered very high when correlation values are between 0.90 and 1; high from 0.70 to 0.89; moderate from 0.50 to 0.69; low from 0.30 to 0.49; and very little if values are from 0.00 to 0.29. The same values apply to negative relationships, indicated by negative values. This guidance was used to assess the strength of correlation in the variables of the sample data. The strength of correlation is presented in Table 28 below, with the significant levels of correlation indicated by either (*) or (**), depending of the level of significance.

Table 28: Spearman correlation results

	Gender	Study mode	Age	Residency	Language	Employment	WIL
Gender	1						
Study mode	0.832	1					
Age	0.060	-0.315**	1				
Residency	0.173**	-0.274**	0.209**	1			
Language	0.154**	-0.159**	0.072	0.523**	1		
Employment	-0.034	-0.168**	0.131**	-0.043	0.051	1	
WIL	-0.039	-0.122**	0.045	0.122*	0.152**	0.252**	1

**Correlation was significant at the 0.01 level (2-tailed)
*Correlation was significant at the 0.05 level (2-tailed)

As per Table 28 above, 13 correlations out of 21 were positive. High positive correlations between *gender* and *study mode* (0.832) were identified, however this was not significant, while correlations between variables *language* and *residency* were significant, moderate and positive (0.523). Low but significant correlations were revealed between variables *age* and *study mode* (-0.315), while little if any correlations were revealed between the variables *WIL* and *study mode* (-0.122), *WIL* and *residency* (0.122), *WIL* and *language* (0.152) and *WIL* and *employment* (0.252). Little correlation was also revealed between *employment* and *study mode* (-0.168) and *employment* and *age* (0.133).

Overall, the Spearman test revealed only one high correlation, between *study mode* and *gender* (0.832), followed by a moderate correlation between *language* and *residency* (0.532). Low strength was revealed between *study mode* and *age* (-0.315), and the remaining 10 relationships between the variables in the table were of little or no correlation. This indicates that the variables of the study data were appropriate for further analysis.

Further, Pearson correlations were employed on the 12-item GSES due to the parametric nature of this variable. The correlations within the 12-item GSES revealed the strength and the direction of the relationships between them, as shown in the following table.

Table 29: Pearson correlations of the 12-item GSES variable

	Self-eff 1	Self-eff 2	Self-eff 3	Self-eff 4	Self-eff 5	Self-eff 6	Self-eff 7	Self-eff 8	Self-eff 9	Self-eff 10	Self-eff 11	Self-eff 12
Self-eff 1	1											
Self-eff 2	0.316**	1										
Self-eff 3	0.095	0.096	1									
Self-eff 4	0.140*	0.131*	0.254**	1								
Self-eff 5	0.329**	0.215*	0.071	0.124*	1							
Self-eff 6	0.129*	0.023	0.164**	0.182**	0.060	1						
Self-eff 7	0.275**	0.231**	0.188**	0.105	0.310**	0.072	1					
Self-eff 8	0.086	0.019	0.245**	0.211**	-0.084	0.234**	0.073	1				
Self-eff 9	0.085	0.044	0.350**	0.247**	0.041	0.331**	0.149**	0.318**	1			
Self-eff 10	0.274**	0.222**	0.027	0.116*	0.237**	0.078	0.301**	0.017	0.121*	1		
Self-eff 11	0.154**	0.142**	0.220**	0.383**	0.181**	0.212**	0.150**	0.302**	0.264**	0.205**	1	
Self-eff 12	0.163**	0.139*	0.300**	0.144**	0.138**	0.303**	0.260**	0.110*	0.353**	0.168**	0.253**	1

Note: Self-eff = Self-efficacy

*Correlation was significant at the 0.05 level

**Correlation was significant at the 0.01 level

The Pearson correlation revealed 49 significant relationships of below moderate strength. All of the relationships between the items of the 12-item GSES had positive directions, as shown in the table above. According to the aforementioned guidelines (Hinkle et al. 2003), there were no correlations of high and moderate strength between the 12 items of the GSES. Low correlations (0.30-0.49) were revealed in only 10 relationships, with the highest level of 0.383 between items 11 (I do not start learning new things if I think they are too difficult) and item 4 (If I have the impression something new is complicated, I do not start it). Thus, the results of the correlation analysis of the 12-item GSES indicated the suitability of this variable for statistical analysis in this study.

After preparing the correlation matrix, the study analysis proceeded to stage 3 – the factor analysis of the 12-item GSES. This stage identified the underlying structure of relationships within the GSES construct to partially address RQ1 (Sherer et al. 1982; Bosscher & Smit 1998).

4.4 Stage 3: Factor analysis

In addressing RQ1 *'Is there any association between accounting near-graduate students' individual characteristics and self-efficacy components of GSES?*' a factor analysis, the Mann-Whitney U test and the chi-square tests were undertaken.

4.4.1 KMO, Bartlett tests and Cronbach alpha

To check how suitable the data were for factor analysis, the factorability of the correlations matrix[13] needed to be tested.

The study used the KMO measure of sampling adequacy (Kaiser 1974). The KMO statistics can vary between 0 and 1, where a value of KMO close to 0 indicates that the sum of partial correlations is large relative to the sum of correlations. This indicates diffusion in the pattern of correlation and if this was the case, the factor analysis technique would not be appropriate. A value of KMO close to 1 indicates that the patterns of correlations are more compact; in such cases the factor analysis would be applicable to produce distinct and reliable factors (Kaiser 1974). According to Kaiser, KMO levels of 0.00 to 0.49 are unacceptable; 0.50 to 0.59 miserable; 0.60 to 0.69 mediocre; 0.70 to 0.79 middling; 0.80 to 0.89 meritorious; and 0.90 to 1.00 marvellous, as the greater the value of KMO, the better the reliability of the factor analysis technique. The KMO value of

[13] Section 4.3 discussed results of the correlation analysis applied to the *12-item GSES* variable.

0.776 obtained for the 12-item GSES variable meant that the assumption for adequacy of factor analysis technique in this study was satisfied.

The appropriateness of the factor analysis for the study sample was further checked by using Bartlett's test of sphericity. This test indicates statistical significance in cases where the correlation matrix reveals significant correlations among at least some of the variables; it assumes factorability when the statistic is large and significant (Hair et al. 2010).

Table 30: KMO and Bartlett tests – GSES

	Value
KMO measure of sampling adequacy	0.776
Bartlett's test of sphericity Approximate chi-square	591.305
df	66
Significance (p-value)	0.000

Bartlett's test of sphericity showed an approximate chi-square of 591.305, a degree of freedom of 66 and a significance value of 0.000 for all cases. This indicated that the GSES was adequate for a factor analysis.

The scale was also examined to reflect on its consistency and reliability. The reliability analysis was carried out on the full GSES and separately on the scale's three constructs by employing Cronbach's alpha. Cronbach's alpha measures reliability of a scale by splitting sample data into two in every possible way and by computing the correlation coefficient for every split of data. For a reliable scale the correlation coefficient should be large, the minimum acceptable level is above 0.5. The results are presented in Table 31 below.

Table 31: Comparison of Cronbach's alpha

Sub (scale)	**Bosscher and Smit**	**Study sample data N=337**		**Inter-item correlations min-max**	
		Cronbach's alpha	**Standardised**	**Bosscher and Smit**	**Study sample data N =337**
GSES-12	0.69	0.720	0.723	0.04-0.45	0.017-0.383
Initiative	0.64	0.553	0.561	0.30-0.45	0.211-0.383
Effort	0.63	0.648	0.650	0.16-0.33	0.215-0.329
Persistence	0.64	0.633	0.632	0.23-0.39	0.164-0.353

The reliability for the 12-item GSES used in this study (n=337) shows slightly higher results (0.720 vs 0.69) compared to Bosscher and Smit's study. Inter-item correlations within 0.2 to 0.7 are normally acceptable and, as shown in the table, inter-item correlations were below the upper limit of the proposed threshold. When analysing each item separately on its effect on Cronbach's alpha, and considering the option of 'if item deleted', it was apparent that no removal of any item was required from the scale, so the reliability of the scale was justified. While the Cronbach's alpha for components *effort* and *persistence* were reasonably close (0.648 vs 0.63 and 0.633 vs 0.64 respectively), the *initiative* component of the scale resulted in a lower loading (0.553 vs 0.64) for the full data set of this research.

4.4.2 Determining the number of factors

The study proceeded with the PCA technique as the dimension reducing method to identify the linear components of the 12-item GSES. The factor analysis was performed by using the method of extracting factors via CFA, to identify the underlying structure of relationships in the GSES items. According to Hair et al. (2010), the common variance in a variable is shared by all other variables in the analysis; the variable's communality, therefore, is the estimate of its shared variance.

As presented in Table 32 below, the communalities of the 12 items of the GSES, obtained by the extraction method of PCA, indicate that item number 10 had the lowest communality (0.379), followed by item 2 (0.383) and item 3 (0.386). The highest communality is indicated for item 12 (0.613), followed by items 4 (0.588), 9 and 11 (both of 0.569). The results signify above moderate relationships (Pallant 2013) between the multivariate items of GSES.

Table 32: Communalities of the 12-item GSES

Item in the GSES	Statement in the GSES	Extraction
1	If I make plans, I am convinced I will succeed in executing them	0.455
2	If I have a failure the first time, I bite into it until it is going better	0.383
3	If I absolutely want something, it usually goes wrong	0.386
4	If I have the impression something new is complicated, I do not start it	0.588
5	Even with unpleasant tasks I hold on until I am finished	0.458
6	I have difficulties solving problems well in my life	0.393
7	If I have made a decision to do something, I will do it	0.481
8	If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit	0.478
9	Unexpected problems make me quickly lose my balance	0.569
10	If I make a mistake I try even harder	0.379
11	I do not start learning new things if I think they are too difficult	0.569
12	I doubt myself	0.613

The following figure shows the eigenvalue results obtained from PCA.

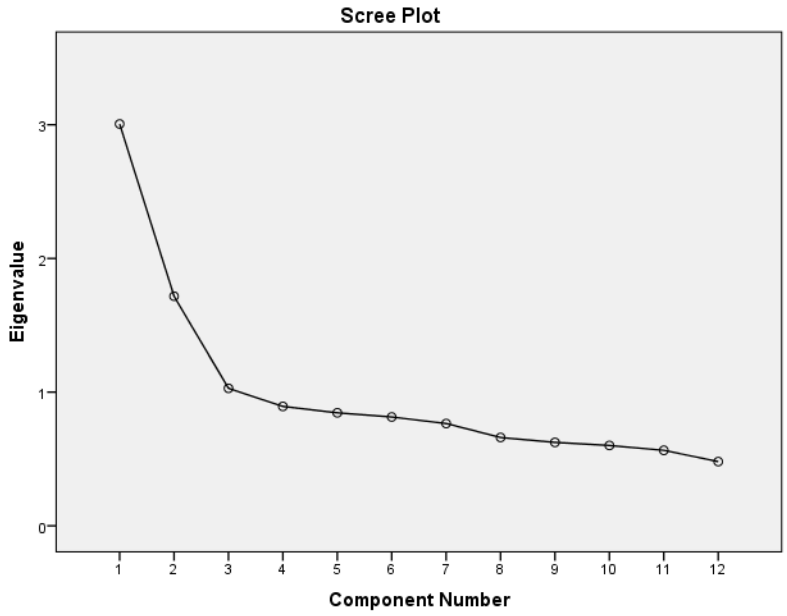

Figure 8: Eigenvalue of GSES

As shown in Figure 8 above, even without any rotation, the factor analysis showed three factors extracted with an eigenvalue greater than one. The extraction sum of square loadings for component 1 was 3.006, for component 2 was 1.717 and for component 3 was 1.029. The percentages of the variance for the three factors were indicated with the extraction sums of their squared loading (25.05 percent, 14.31 percent and 8.57 percent respectively for the three components). The cumulative percentage of variances of the

three factors equalled 47.93 percent, indicating that if three factors were extracted then 47.93 percent of the GSES variance would be explained.

The factor matrix with the PCA extraction method showed three groups of factors with the included items within them. The factor matrix also revealed the correlations between the three factors of the GSES variable; however each of the 12 items of the GSES had cross loadings between the factors. Therefore, for a more accurate interpretation of data, a rotation of the GSES construct was required.

The factor analysis offers different methods of data rotation, including oblique and varimax rotations. Since the data included a large number of variables, significantly correlated with each other, the oblique rotation should, in theory, provide more accurate results (Field 2009). Hence, the study employed the oblique rotation of the 12–item GSES.

4.4.2.1 Oblique rotation

The oblique rotation produced two matrices: the pattern matrix and the structure matrix. The rotation converged in seven iterations and resulted in a different structure, which provides a solution by assigning each of the 12 items of the GSES to only one of the three factors. Thus, the pattern matrix produced by direct oblique rotation with Kaiser normalisation revealed three factors comprising different items from the GSES.

4.4.2.2 Three factors' loadings

The loadings in the pattern matrix represented the unique relationships between the factors and the items in the GSES variable. The structure matrix shown in Table 33 below was used to allocate each item of the GSES into the three factors: persistence, effort and initiative. The three identified factors are discussed further below.

Table 33: Structure matrix of the 12-item GSES

Item in the GSES	Statements as per GSES	Factor 1 (Initiative)	Factor 2 (Effort)	Factor 3 (Persistence)
12	I doubt myself (R)			0.739
9	Unexpected problems make me quickly lose my balance (R)			0.735
6	I have difficulties solving problems well in my life (R)			0.622
3	If I absolutely want something, it usually goes wrong (R)			0.596
5	Even with unpleasant tasks I hold on until I am finished		0.675	
1	If I make plans, I am convinced I will succeed in executing them		0.668	
7	If I have made a decision to do something, I will do it		0.627	
10	If I make a mistake I try even harder		0.613	
2	If I have a failure the first time, I bite into it until it is going better		0.599	
4	If I have the impression something new is complicated, I do not start it (R)	0.755		
11	I do not start learning new things if I think they are too difficult (R)	0.718		
8	If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit (R)	0.632		

The three factor structure of the GSES, identified through the analysis above, confirmed the findings of prior literature (Sherer et al. 1982; Bosscher & Smit 1998). Each of the three factors shown in Table 33 included the most relevant items from the 12-item GSES. The three factors comprised:

Factor 1 –*initiative,* which incorporated item 4 (If I have the impression something new is complicated, I do not start it (R)), item 8 (If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit (R)) and item 11 (I do not start learning new things if I think they are too difficult (R));

Factor 2 – *effort,* which incorporated item 1 (If I make plans, I am convinced I will succeed in executing them), item 2 (If I have a failure the first time, I bite into it until it is going better), item 5 (Even with unpleasant tasks I hold on until I am finished), item 7 (If I have made a decision to do something, I will do it), and item10 (If I make a mistake I try even harder); and

Factor 3 - *persistence*, which incorporated item 3 (If I absolutely want something, it usually goes wrong (R)), item 6 (I have difficulties solving problems well in my life (R)), item 9 (Unexpected problems make me quickly lose my balance (R)) and item 12 (I doubt myself (R)).

The identified factors *persistence*, *effort* and *initiative* were employed in the logistic regression analysis as separate independent variables. The transformation of individual components of the 12-item GSES into three new variables was performed via factor analysis (i.e., a PCA method). This method of transformation of variables was justified in the research, where the validity of scales was tested and confirmed (Wilson 2002).

4.4.3 Descriptive statistics of the three factors

The descriptive statistics of the three factors are highlighted in the following table.

Table 34: Descriptive statistics of the three factors

	Initiative	Effort	Persistence
Mean	3.4332	4.1941	3.4651
Median	3.3333	4.2000	3.5000
Standard deviation	0.8081	0.4773	0.7783

Table 34 shows that of the three factors, the highest mean was obtained for *effort*, which demonstrates that students in the study sample perceived the *effort* factor as more important than *initiative* and *persistence*. The results for the two other factors (*initiative* and *persistence*) are very similar (3.4332 for *initiative* and 3.4651 for *persistence*), which indicates that students in the sample data had similar expectations of their perceived *initiative* and *persistence* factors, associated with their self-esteem (Sherer et al. 1982).

4.4.4 Correlations between the three factors

Further analysis of correlations between the three identified factors (*initiative, effort* and *persistence*) were carried out and are presented in Table 35 below.

Table 35: Correlations between the three factors

Three self-efficacy factors (n=337)	Initiative	Effort	Persistence
Initiative			
Pearson correlation	1		
Sig (2-tailed)	-		
Sum of squares and cross-products	219.414		
Covariance	0.653		
Effort			
Pearson correlation	0.210**	1	
Sig (2-tailed)	0.000	-	
Sum of squares and cross-products	27.266	76.548	
Covariance	0.081	0.228	
Persistence			
Pearson correlation	0.440**	0.244**	1
Sig (2-tailed)	0.000	0.000	-
Sum of squares and cross-products	93.007	30.480	203.528
Covariance	0.277	0.091	0.606

** Correlation is significant at the 0.01 level (2-tailed).

The results shown in Table 35 above indicate that the correlations between the three factors of the GSES were significant but of different strengths. Low positive correlation was revealed between factors *initiative* and *persistence* (0.440), while little if any correlation was identified between *initiative* and *effort* (0.210) and *effort* and *persistence* (0.244). This supports the use of these three factors as separate variables for further analysis.

4.4.5 Comparison of loadings

The three-factor construct of self-efficacy for accounting near-graduates and the loadings of appropriate items within each factor are presented in Table 36 below. The loadings for Bosscher and Smit (1998) are also included for comparison. This allowed for further exploration of the GSES structure and the correlation of loadings of the items.

Table 36: Comparison of factor loadings

Items	Statements as per GSES	As per Bosscher and Smit (1998)	This study sample (n=337)
Initiative			
4	If I have the impression something new is complicated, I do not start it	0.740	0.755
8	If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit.	0.600	0.632
11	I do not start learning new things if I think they are too difficult	0.500	0.718
Effort			
1	If I make plans, I am convinced I will succeed in executing them	0.570	0.668
2	If I have a failure the first time, I bite into it until it is going better	0.490	0.599
5	Even with unpleasant tasks I hold on until I am finished	0.530	0.675
7	If I have made a decision to do something, I will do it.	0.560	0.627
10	If I make a mistake I try even harder	0.410	0.613
Persistence			
3	If I absolutely want something, it usually goes wrong	0.370	0.596
6	I have difficulties solving problems well in my life	0.610	0.622
9	Unexpected problems make me quickly lose my balance	0.620	0.735
12	I doubt myself	0.620	0.739

The present study's factor components reveal a similar structure to previous findings, with the contents (i.e., items) of each of the three factors identical. However, the factor loadings between this study and prior studies were different. The highest difference in loading was shown for item 3 (in *persistence*, 0.596 and 0.370), followed by item 10 (in *effort*: 0.613 and 0.410), and item 11 (in *initiative*: 0.718 and 0.500). Overall, the study sample indicated higher loadings in all items throughout the three factors. This suggests that, in the sample data of the current study, the items of self-efficacy had greater correlation in loadings of items compared to the sample in Bosscher and Smit (1998), as indicated by each item in the three factors: *initiative*, *effort* and *persistence*.

4.4.5.1 Comparison of the loading in subsets – The 12-item GSES

The comparison of the loading of the items in the factors *initiative, effort* and *persistence* with Bosscher and Smit (1998) was applied on the selected categories of the sample data.

This was undertaken as a preliminary analysis to reveal the differences in item loadings compared to Bosscher and Smit (1998), since this study employed the same measuring instrument. Thus, initially the total sample from the present research was compared to Bosscher and Smit (1998), followed by a comparison of the loadings of the binary categorical groups: *employment*, *gender*, *language*, *residency*, and *mode of study*.

To implement the comparison of loadings, the subsets of data were selected based on the highest quantity (n) in the binary variable. For example, the selected variables included *employment* (students who did not secure employment while completing their degree, n=282), *gender* (female, n=183), *language* (students whose first language was other than English, n=209), *residency* (international students, n=194), *study mode* (full-time students, n=294), and participation in *WIL* (students who did not participate in WIL programs, n=316). The factor analysis via a PCA technique with oblique rotation provided information on the loadings in the selected data settings, as shown in Table 37 below.

Table 37: Comparative loadings based on selected individual characteristics

Item	Statement as per GSES	Bosscher and Smit n=2,860	Current study – selected characteristics						
			Total sample n=337	Employment (not secured) n=282	Gender (Female) n=183	Lan-ge (NESB) n=209	Residency (Intern.stud-s) n=194	Study mode (full-time) n=294	WIL (did not partic) n=316
1	2	3	4	5	6	7	8	9	10
Initiative									
4	If I have the impression something new is complicated, I do not start it	0.740	0.755	0.755	0.687	0.769	0.705	0.704	0.747
8	If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit.	0.600	0.632	0.469	0.620	0.580	0.553	0.574	0.617
11	I do not start learning new things if I think they are too difficult	0.500	0.718	0.704	0.711	0.731	0.592	0.660	0.713
Effort									
1	If I make plans, I am convinced I will succeed in executing them	0.570	0.668	0.648	-0.699	0.664	0.678	0.657	0.666
2	If I have a failure the first time, I bite into it until it is going better	0.490	0.599	0.644	-0.525	0.509	0.555	0.625	0.590
5	Even with unpleasant tasks I hold on until I am finished	0.530	0.675	0.677	-0.653	0.705	0.733	0.662	0.670
7	If I have made a decision to do something, I will do it.	0.560	0.627	0.593	-0.583	0.621	0.596	0.523	0.614
10	If I make a mistake I try even harder	0.410	0.613	0.612	-0.632	0.636	0.560	0.598	0.642

Persistence									
3	If I absolutely want something, it usually goes wrong	0.370	0.596	0.522	0.656	0.517	0.707	0.613	0.627
6	I have difficulties solving problems well in my life	0.610	0.622	0.592	0.559	0.705	0.676	0.497	0.596
9	Unexpected problems make me quickly lose my balance	0.620	0.735	0.717	0.613	0.660	0.550	0.657	0.727
12	I doubt myself	0.620	0.739	0.744	0.735	0.698	0.656	0.769	0.728

The comparison of data shown in Table 37 demonstrates that the loading of the items for the categories of students in the present study largely exceeded the loadings revealed by factor analysis in Bosscher and Smit's (1998) study. This indicates stronger correlations. For the present study's total sample (n=337), the loadings were higher for all items in the three factors (see also Table 36). However, lower loadings were revealed for the selected categories when compared with Bosscher and Smit (1998). For example, female students (n=183) in the sample data showed lower loadings in three items (*initiative* - item 4, *persistence* - items 6 and 9). Both full-time students (n=294) and international students (n=194) showed lower loadings on three items (*initiative* - item 8 and *persistence* - items 6 and 9).

Table 37 also shows that item 6 (I have difficulties solving problems in my life) in the factor *persistence* showed lower loadings for four categories of students (female students; students studying full-time; students who did not participate in WIL; and students who did not secure employment). Similarly, item 8 in *initiative* (If I start something, I should have an idea, otherwise I quit) showed lower loadings in three categories of students (NESB, full-time, and international students).

A comparison with Bosscher and Smit's (1998) study was designed to aid further exploration of the GSES structure and the correlation of loadings of the items. However, to reveal the differences in the perception of students in terms of their self-efficacy, with association to students' characteristics, the study specifically addressed RQ1 *'Is there any association between accounting near-graduate students' individual characteristics and the self-efficacy components of the GSES?*' The Mann-Whitney U test and Pearson chi-square test were employed to determine the significance in association and compare the mean ranks of different categorical groups.

4.4.5.2 Tests of association between student individual characteristics and self-efficacy factors

The results of the Mann-Whitney U tests are shown in Table 38, while the total output, along with mean rank scores, are located in Appendix E.

Table 38: Mann-Whitney U tests of association between students' self-efficacy factors and gender, language, residency and study mode

Groups separated by:	Mann-Whitney U test Asymptotic 2-tailed significance at confidence level of 95%		
	Initiative	Effort	Persistence
Gender	0.498	0.355	0.373
Language	0.000***	0.825	0.344
Residency	0.000***	0.055	0.008***
Study mode	0.767	0.011*	0.047*

'***' indicates the significance value for variables that showed significance below p=0.001
'**' indicates the significance value for variables that showed significance below p=0.01
'*' indicates the significance value for variables that showed significance below = 0.05[14]

The Mann-Whitney U test was conducted at the 5% level of significance. The results revealed that a student's degree of self-efficacy is significantly associated with certain individual characteristics, which is also shown by differences in the Mann-Whitney U test mean ranks (see Appendix E). The results in Table 38 indicate that while *gender* did not show significance in any of the three self-efficacy factors, a significant association was revealed for two self-efficacy factors (*effort* p=0.011 and *persistence* p=0.047) based on students' *study mode*, with part-time students exhibiting greater perceived self-efficacy in these two components compared to full-time students. This is supported by their mean ranks (see Appendix E). With respect to students' residency, two self-efficacy factors (*initiative* p=0.000 and *persistence* p=0.008) were significantly associated and the mean ranks showed the higher values in all three components for international students compared to domestic students (see Appendix E). In addition, the factor *initiative* showed significance (p=0.000) for students of different *language* backgrounds, specifically that students from an English-speaking background (ESB) had higher perceived levels of initiative.

With respect to the variable *age*, this study employed a Pearson chi-square test. The results of the analysis are presented in Table 39 below.

[14] The statistical significance testing standards for Mann-Whitney U tests of association are based on the 'three-star system' of symbolic codes used in social science research (Leahey 2005).

Table 39: Pearson chi-square test of association between students' self-efficacy factors and students' age

	Initiative	Effort	Persistence
Pearson chi-square value	21.423	23.832	47.368
Significance (2-sided)	0.974	0.972	0.376
Likelihood ratio	22.670	26.237	44.424
Significance (2-sided)	0.959	0.941	0.496
Symmetric measures:			
Pearson's r value	0.370	0.092	0.027
Pearson's r approx. significance (based on normal approximation)	0.500	0.093	0.627

Table 39 above illustrates that there was no association with the three factors of self-efficacy (*initiative* (p=0.974); *effort* (p=0.972); and *persistence* (p=0.376)) and different age cohorts.

The above two tests (the Mann-Whitney U test and Pearson chi-square test) were used to analyse the association between the self-efficacy factors and various student individual characteristics. The tests revealed some significant associations. These are discussed further below.

4.4.6 Discussion – Self-efficacy factors and students' individual characteristics

The following subsections discuss the results of the completed statistical analysis.

4.4.6.1 Self-efficacy factors and study mode

The test of association for the variable study mode revealed significant association with two factors of perceived self-efficacy: *effort* (p=0.011) and *persistence* (p=0.047). These results support those of previous literature, where the impact of study mode on accounting students' self-efficacy was analysed (Jackson 2013). In this study sample, the percentage of part-time students who secured employment was 37.5% (9 out of 24 students who studied in part-time mode), compared to 14.6% (45 out of 308) for full-time students. Thus, it was expected that students in part-time study mode possessed a higher level of self-efficacy due to exposure to the work environment. This is reflected in the findings of Jackson (2014a), Surridge (2009), Freudenberg et al. (2010a), and Subramaniam and Freudenberg (2007), with the latter two studies utilising the overall GSE construct rather than the three-factor structure. The above studies claimed that higher levels of self-efficacy lead to increased confidence in goal attainment as a result of work experience. This improves students' perceptions of their abilities to achieve the desired outcome, be

it in job attainment (Surridge 2009) or academic performance (Jackson 2013). Furthermore, students who have work experience are seen as better equipped for challenges in their day to day life (Purdie et al. 2013), as they develop greater confidence resulting in stronger self-efficacy. Thus, the study's findings are in accordance with prior research, as part-time students demonstrated greater levels of GSE in terms of effort and persistence. The present study suggests that part-time students are more confident and more determined to succeed compared to full-time students.

4.4.6.2 Self-efficacy factors and residency

The study data analysis revealed that domestic and international students showed significant differences in relation to perceived levels of *initiative* (p=0.000) and *persistence* (p=0.008) and insignificant differences in *effort* (p=0.055). Specifically, the results suggest that international students have higher levels in all three components of self-efficacy, as shown by their mean ranks (see Appendix E). These findings support those of an Australian Government Educational Department (2014) research paper, which identified some of the difficulties and challenges for international students studying in Australia. International students need to adjust to a new environment, thus, higher levels of self-efficacy, specifically initiative, effort and persistence, are expected of them.

The present study's findings also support those of James and Otsuka (2008), who claimed that cross-cultural knowledge contributes to international students' awareness of the need for greater effort, initiative and persistence to achieve success in a new environment. Birrell and Healy (2010) also emphasised the existence of challenges for international students, requiring increased levels of self-efficacy to adjust in a new environment.

Moreover, self-efficacy factors are assumed to be part of a universal construct that characterises a basic belief inherent in all individuals (Luszczynska et al. 2005). Therefore cross-cultural communality of beliefs about efficacy that influence personal action might be expected (Bandura 1982). The study findings suggest that the international students' persistence, initiative and effort rank higher than those of domestic students, with the latter two being significantly higher.

4.4.6.3 Self-efficacy factors and language

The present study suggests that students of ESB and NESB differ significantly in the *initiative* (p=0.000) factor of self-efficacy (see Table 38). The mean ranks for ESB

students were higher in initiative and persistence, but relatively similar in effort (see Appendix E).

The significant result for initiative supports the findings of Christopher and Hayes (2008), and Thong (2017), who emphasised that students of NESB differ in their level of confidence due to a lack of language proficiency. Accordingly, Lin and Betz (2009) found that Chinese and Taiwanese students demonstrated higher levels of self-efficacy when interacting with students from their own language background. Furthermore, Sugahara et al. (2010) found that language proficiency among ESB students is a strong predictor affecting students' motivation for positive academic outcomes and high levels of self-efficacy. Other studies that have supported this relationship include Luszczynska et al. (2005), Guan et al. (2013), and Jackson (2013).

It should be noted, however, that the above studies refer to an overall self-efficacy measure as opposed to the three-factor structure, thus making comparison useful but somewhat limited. Nonetheless the results of the current study support prior research, where the importance of language in students' self-efficacy and successful performance outcomes were emphasised (Jackson 2013; James & Otsuka 2008; Freudenberg et al. 2010a).

4.4.6.4 Self-efficacy factors and gender

The Mann-Whitney U test of association did not reveal any significant differences in either of the three factors: *initiative* (p=0.498); *effort* (p=0.355) and *persistence* (p=0.373) based on gender differences in the sample data. However, the mean ranks revealed higher values in female students' initiative and effort, and lower in persistence (see Appendix E).

Earlier research has revealed mixed findings on the role of gender in self-efficacy. For example, Subramaniam and Freudenberg (2007) found that male students possessed higher levels of self-efficacy compared to female students. On the other hand, Purdie et al. (2013) did not find any significance in gender difference when measuring self-efficacy of students. Furthermore, Surridge (2009) also found no consistent conclusion on the effect of gender on desired outcomes, driven by students' self-efficacy. This corresponds with findings in this present study.

When comparing the items within each factor, there are some differences revealed in students' perceptions of their initiative and persistence (see Table 37) that potentially

could be due to some female students feeling not as confident as their peers, being shy and perhaps influenced by different beliefs (e.g., international students). However, these differences appeared insignificant, as shown by the test of association results provided in Table 38, as the significance level of gender differences with self-efficacy factors *initiative, effort* and *persistence* was well above p=0.05.

There was not much discrepancy in students' perceptions of their self-efficacy in terms of gender, as male and female students possess relatively similar self-efficacy factors.

4.4.6.5 Self-efficacy factors and age

Similar to gender, the variable age did not show significance in the test of association with self-efficacy factors, as *initiative* (p=0.974), *effort* (p=0.972) and *persistence* (p=0.376) were above the accepted level of significance of p=0.05. Thus, no significant difference was found in the self-efficacy factors of the surveyed students separated by age groups. This suggests that, regardless of their age, the students in the sample data possessed relatively similar levels of initiative, effort and persistence. These findings support those of prior research. For example, Demagalhaes et al. (2011) concluded that there is substantial agreement between students of the same generation in assessing values and preferences, which is applicable to self-efficacy factors driving their choices in life (e.g., employment choices). In contrast, Jackson (2013) found that age determines the successful desired outcome (e.g., attaining a job), and that older students are more mature and confident, thus they are assumed to possess higher self-efficacy values. Bui and Porter (2010), Bandura (2008), and Cheng and Chiou (2010), also found that more mature students exhibit greater confidence, which can lead to higher self-efficacy and better academic performance. Similarly, research in the medical field (Changrong et al. 2014; Luszczhynska et al. 2005) also showed a significant association between age and self-efficacy in patient recovery rates.

The present study, however, did not find significant differences in students' self-efficacy factors in relation to age. This could partially be due to the distribution of the sample data, as the majority of students fell in the age group between 21-30 years old. Demagalhaes et al. (2011) pointed out that students of a similar age group might share similar values. Thus, the study sample self-efficacy factors (initiative, effort and persistence) did not differ significantly with respect to age.

4.4.7 Summary on self-efficacy

This study addressed RQ1 by analysing the association between the students' individual characteristics and their self-efficacy factors. The study applied tests of association (using a Mann-Whitney U test and Pearson chi-square test) between the three factors (*initiative, effort* and *persistence*) and the variables *gender, age, language, residency* and *study mode,* to reveal any significant associations between students' characteristics and those three self-efficacy factors. The results of the tests of association are shown in Tables 38 and 39.

Significant associations were revealed between students' individual characteristics, such as language, residency and study mode, and their self-efficacy. Part-time students showed significantly higher levels of self-efficacy in all three factors (*initiative, effort* and *persistence*) compared to full-time students. NESB students had significantly lower levels of initiative compared to ESB students, while significant differences for the initiative and persistence factors were identified between domestic and international students, with the latter experiencing higher mean rank levels. The present study however did not find any significant difference in perceived self-efficacy based on gender or age.

The next stage of the research was to address RQ2.

4.5 Stage 4: Logistic regression (employment)

In addressing RQ2: '*What are the factors that influence the employment outcomes of accounting near-graduate students?'* a logistic regression analysis was undertaken.

The employment logistic model analysed the relationship among factors identified in Chapter 3. This resulted in the advent of three general hypotheses with nine specific hypotheses contained therein. The specific hypotheses assessed the relationship of the following variables *(i) gender, (ii) residency, (iii) language, (iv) age, (v) study mode, (vi) WIL, (vii) initiative, (viii) effort, and (ix) persistence* against the dependent variable, *employment*. The analysis commenced with the testing of the model's goodness-of-fit.

4.5.1 Validating the logistic regression model

As discussed in Chapter 3, the validation of the logistic regression employment model was performed by checking the accuracy rate of the estimated logistic regression model and by carrying out a split-sample validation cross-check.

4.5.1.1 Classification using by chance accuracy rate

In this research, the chance accuracy rate was calculated by considering the proportion of cases in two groups, based on the number of cases comprised in each. The proportion in the group (secured employment) was 55/337=0.163. Accordingly, the remaining proportion (not secured employment), equalled 282/337= 0.837. The calculated chance accuracy rate therefore equalled 0.701 (0.163^2 + 0.837^2). The model's accuracy rate computed at step 1 was 85.2 percent, which is greater than the by chance accuracy criteria of 70.1, by over 20 percent (85.2/70.1=21.6). This implies that the criteria for classification accuracy were satisfied.

4.5.1.2 Split–sample validation

According to Hair et al. (2010), and Field (2009), a split-sample for cross validation could result in a ratio of either 75:25 or 80:20. The present study employed an 80-20 split-sample, with the first group including 80 percent of cases (i.e., the training sample) and the second group (i.e., the hold-out sample) comprising the remaining 20 percent of the sample data.

The classification accuracy for the 20 percent of the sample data was used to estimate how well the model, based on the training sample, would perform on the total data set. The classification accuracy rate of the small sample (i.e. the hold-out set) needed to be within 10 percent of the training sample to be considered a valid logistic regression model (Field 2009). Moreover, in addition to the classification accuracy requirement, the study expected the significance of the relationships with individual predictors of the training sample to match the significant results for the model using the full sample data.

Validation analysis was carried out by computing the split variable by setting the target variable (split) in SPSS and using the formula (uniform (1) <=0.80). The uniform (1) function generated a random decimal number between 0 and 1 and compared it to the value of 0.80. For the random number less or equal than 0.80, the value of the formula was 1 and the SPSS numeric equivalent was deemed to be true. If the number was greater than 0.80, the formula would have returned to 0 and the numeric equivalent in SPSS would be deemed as false. The split sample validation, where 80 percent was assumed as a training sample and 20 percent as a hold-out sample, supported the interpretation of the overall relationship, the individual relationships and the classification accuracy of the logistic regression model developed for the employment outcome.

The goodness-of-fit, as an indication of how well the logistic regression model fits the study data, was estimated for the dependent variable *employment*, and is assessed by examining the predictive accuracy of the model (see Table 40). The classification matrix prediction accuracy was 83.7 percent, which is relatively high according to Hair et al. (2010). Classification occurred at the cut-off value of 0.500, while the constant was included in the model. Other statistical measures that assessed the goodness-of-fit of the estimated logistic regression model involved the examination of pseudo R^2 values.

Table 40: Goodness-of-fit statistics (logistic regression model for employment)

Measure	Statistic	Value
Significance of estimated equation	p-value	0.000***
Goodness-of-fit -2 log likelihood (pseudo R^2) Cox and Snell R^2 Nagelkerke R^2		 259.683 0.112 0.191
Chi-square (df=11)		40.210
Prediction accuracy		83.7
Omnibus test of model's coefficients	p-value	0.000***

'***'indicates the significance value below p=0.01

The initial pseudo R^2, represented by a -2 log likelihood (-2LL), assumes the minimisation criteria. The -2LL value was equal to 259.683, which was below the value of the baseline model (294.842). Thus, the -2LL statistics indicate a good fit of the estimated logistic model. Another pseudo R^2, the Nagelkerke R^2 value of 0.191, also confirmed that the model was appropriate. With respect to Cox and Snell's R^2 (i.e., the third pseudo R^2 measure), which is derived as N^{th} root of the -2LL improvement, the value of 0.112 also confirmed the goodness-of-fit of the estimated logistic regression model.

Finally, an omnibus test of model coefficients (p=0.000) also confirmed the goodness-of-fit of the estimated regression model.

4.5.2 Testing for the significance of coefficients and robustness

Table 41 shows the results of the logistic model, which estimates the relationship between employment (the binary dependent variable) and the independent variables (*gender, residency, language, age, study mode, WIL* and self-efficacy factors: *initiative, effort and persistence*). For the variable *age*, which is split into *age1*, *age2* and *age3, a* Bonferroni correction method is employed to adjust the p-value for valid comparisons (Abdi 2007).

This correction consists of the three multiple levels of the age variable being multiplied by three. The p-values in Table 41 below have already been adjusted to reflect the correction procedure.

Table 41: Variables in equation (employment model)

Variables	Standardised coefficient B	Standard Error	Wald	Sig	Exp (B)	95% C. I. for EXP(B)		Collinearity statistics	
						Lower	Upper	Tolerance	VIF
Gender (‘0’= Female)	-0.109	0.331	0.109	0.741	0.896	0.468	1.716	0.937	1.067
Residency (‘0’= domestic student)	-1.198	0.453	6.993	0.004***	0.302	0.124	0.733	0.642	1.558
Language (‘0’= NESB)	0.695	0.420	2.740	0.049*	2.004	0.880	4.566	0.691	1.447
Age 1 (21-30) (Age 0 (18-20))	0.780	0.489	2.544	0.167	2.182	0.837	5.692	0.756	1.323
Age 2 (31-40) (Age 0 (18-20))	1.030	0.866	1.415	0.351	2.800	0.513	15.276	0.748	1.338
Age 3 (>40) (Age 0 (18-20))	2.426	1.082	5.030	0.038*	11.313	1.358	94.254	0.828	1.208
Study mode (‘0’= Part-time)	-0.929	0.476	3.815	0.025*	0.395	0.156	1.003	0.805	1.242
WIL (‘0’= non-WIL participation)	2.021	0.531	14.485	0.000***	7.549	2.666	21.379	0.957	1.045
Initiative	-0.399	0.230	3.026	0.082*	0.671	0.429	1.052	0.742	1.347
Effort	0.025	0.371	0.004	0.947	1.025	0.496	2.120	0.899	1.112
Persistence	0.511	0.239	4.586	0.032**	1.667	1.044	2.660	0.768	1.302
Constant	-1.895	1.797	1.112	0.292	0.150				

‘*’indicates the significance value below p=0.10
‘**’ indicates the significance value below p=0.05
‘***’ indicates the significance value below p=0.01

Based on the results shown in Table 41 above, the estimates and impact of the relationships of the dependent variable *employment* are:

$$Log\ (odds\ of\ employment) = -1.895 - 0.109gender - 1.198residency + 0.695language + 0.780age1 + 1.030age\ 2 + 2.426age3 - 0.929study\ mode + 2.021wil - 0.399initiative + 0.025effort + 0.511persistence$$

The results in Table 41 show that multicollinearity tests were conducted in accordance with Midi et al. (2010). Specifically, the collinearity diagnostics performed to assess multicollinearity were: (i) tolerance, which is an indication of the percentage of variance in the predictor that cannot be accounted for by the other predictors; and (ii) VIF, which is the reciprocal of tolerance and indicates the magnitude of the inflation in the standard errors associated with a particular beta weight that is due to multicollinearity. The threshold for indicating multicollinearity is tolerance levels of less than 0.1 and VIF values that exceed 10. As Table 41 illustrates, multicollinearity was not an issue.

The relationships among the independent variables in the logistic model were assessed by examining their direction and their influence on the dependent variable *employment*. This was undertaken by examining the original logistic coefficients and the exponentiated coefficients (Exp (B)). The original coefficients interpreted the directions of the relationships that were directly associated by their values. Positive coefficients indicated positive relationships and negative coefficient values indicated a negative relationship between the independent variables and the dependent variables (Hair et al. 2010).

The variables *language, age, WIL, effort and persistence* had positive coefficients, suggesting positive relationships between these variables and the dependent outcome *(employment)*, while negative directions were identified for the variables *gender, residency, study mode and initiative*.

With respect to significance, the results show that seven independent variables out of the nine variables included in the logistic regression model demonstrated a significant relationship with employment. These were: *WIL* (p=0.000), *residency* (p=0.004), *study mode* (p=0.025), *persistence* (p=0.032), *age3* (p=0.038), *language* (p=0.049) and *initiative* (p=0.082).

Prior to examining the results of the odds ratio shown in Table 41, the overall relationships between the dependent outcome *(employment)* and independent variables (*gender, residency, language, age, study mode, WIL, initiative, effort, and persistence*) were further re-examined by running the logistic regression with exclusion of each variable (one at a time) from the model, to ensure robustness. The results showed the significance of *WIL* (p=0.000) in all nine regressions variations. Similarly, *residency* showed significance in all nine variations (p<0.10); and the significance of variable *age* (p<0.10) was confirmed in eight out of nine cases; the same results were obtained for variables *initiative* and *persistence*.

Furthermore, to confirm the best regression model subject to constraint on the magnitude of the coefficients, the study continued with the Lasso statistical technique (Hastie et al. 2015) used for the employment model. As discussed in Chapter 3, for a linear model, the usual least squares estimate is based on minimising the squared error loss function, which is presented in Appendix F. The Lasso estimator (Hastie et al. 2015, p. 8) is based on a modified loss function called the l_1 norm. The increased penalty coefficients becoming zero would allow the selection of the variables for the models. The best choice of variables is determined by cross-validation with (for example) ten folds choosing the value of the variable that gives the smallest cross-validation error. Lasso also uses the "one-standard-error-rule" (Hastie et al. 2015, p. 13), as discussed in Chapter 3, taking the smallest value of *t* yielding a CV error no more than one standard error above its minimum value.

As a result of running the initial Lasso, the coefficient plot shown in Figure 9 below illustrates that the best fitting model involved eight independent variables. The results depended on the random seed used for cross-validation. As a result of running the procedure again, the best fitting model included only seven variables, while the one standard error rule suggested that four independent variables could be included in the model.

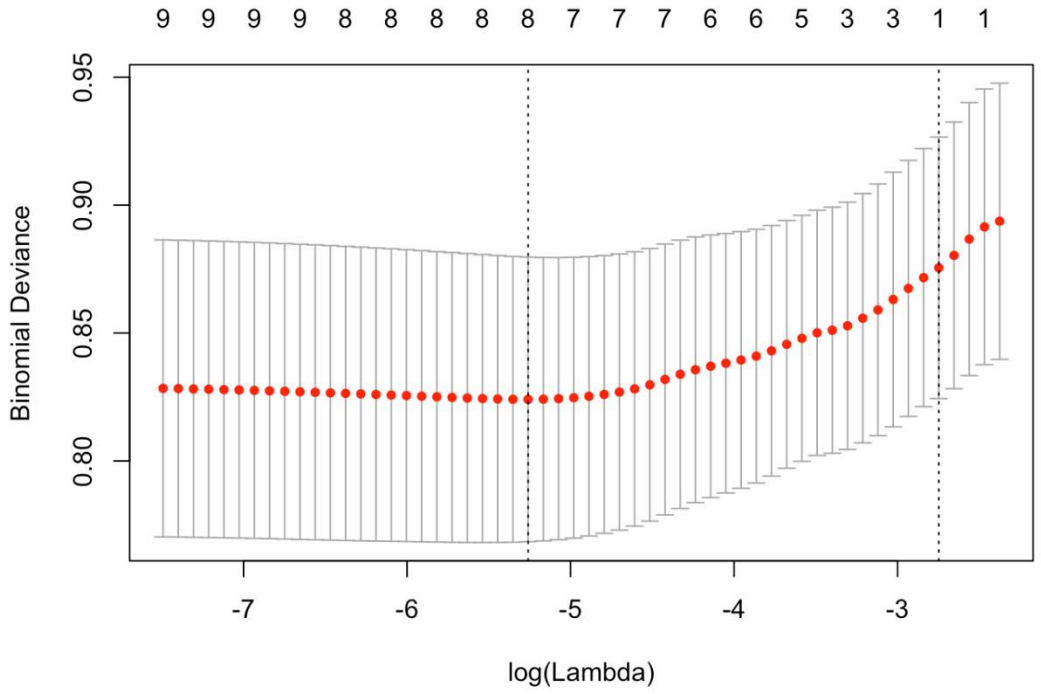

Figure 9: Lasso coefficients plot – Employment model

Further testing of the model occurred with the R statistical package, glmulti, (Calcagno 2013). The employment model, which included nine independent variables (*gender*, *residency*, *language*, *age*, *study mode*, *WIL* and self-efficacy factors *initiative*, *effort* and *persistence*), was tested. After running all possible models (2^9 =512), the glmulti testing found the best fit for the employment model comprised only seven independent variables: *residency*, *language*, *age*, *study mode*, *WIL* and self-efficacy factors *initiative* and *persistence*. The two variables, *gender* and *effort*, initially included in the employment model, were also the two non-significant outcomes identified in this model. This confirms the nature of the original employment logistic model.

As discussed in Chapter 3, the glmulti software allows the fittings of all possible models to be assessed (Calcagno & Mazancourt 2010) in accordance with information criterion: AIC. Hence, in addition, the glmulti provided information on the importance of variables by using the sum of the Akaike weights for all the models, including the variable in question. The AIC provided twice the negative of the maximised log-likelihood plus two times the number of parameters[15].

[15] The present research also performed AIC tests, a small-sample corrected AIC, but found similar results.

The rule of thumb suggests labelling the variables with a variable importance level above 0.8 as 'important'. The diagram of model-averaged importance of independent variables in the *employment* model signified the importance of four variables, which showed significance above the arbitrary threshold. This is shown in the R Plot diagram below (Figure 10). The independent variable *WIL* revealed a maximum value of 1.0, followed by variables *residency, study mode* (>0.80) and *persistence* (just below 0.80).

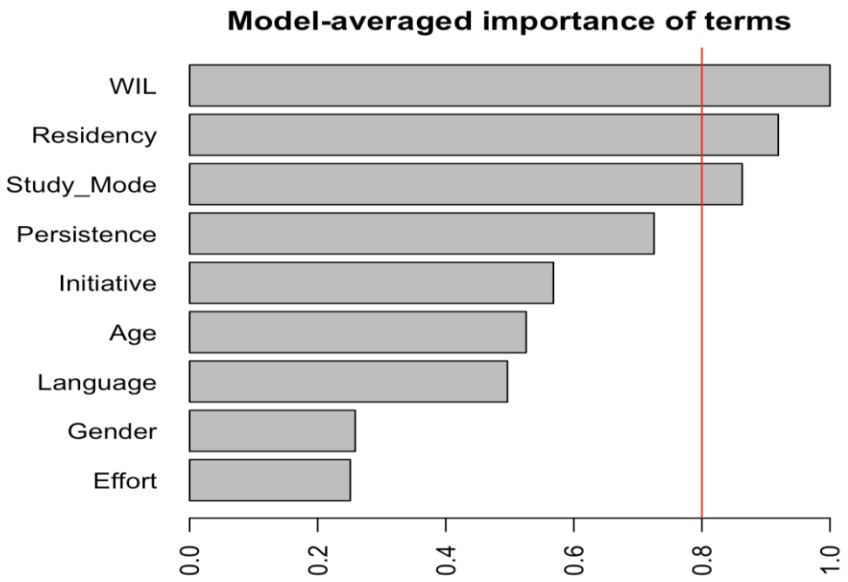

Figure 10: The R-glmulti – Importance of independent variables in the employment model

Although in measuring variable *age* the study used three levels (i.e. *age 1, age 2, age 3*), the variable *age* is shown in the above diagram as one variable. This is due to the variable importance of a variable being the sum of the Akaike weights for all the models, including the variable in question, where the Akaike weight can be interpreted as the probability of the model being the best one.

The BIC was also employed in this study. This assumes a more severe penalty on the number of variables in the model. The BIC revealed in the diagram of the model showed on average importance of the variables *study mode* and *residency* and *persistence* to below the 0.8 significance level. The variable *WIL* consistently showed maximum importance (1.0) verifying the inclusion of this variable in employment model.

Additional testing was employed on the employment model with seven independent variables via SPSS[16]. The standard coefficient results were very close to those in the original logistic regression model, which included nine variables. The following table shows the comparison of the results, which also includes the standard coefficients obtained from the R-glmulti analysis.

Table 42: Comparison of standard coefficients of independent variables in the employment model

	Standard coefficients		
	SPSS	**SPSS2**	**R-glmulti**
Gender ('0'= Female)	-0.109	n/a	-0.019
Residency ('0'= Domestic student)	-1.198	-1.220	-4.899
Language ('0'= NESB)	0.695	0.691	0.296
Age 1 (21-30) Age 2 (31-40) Age 3 (>40) Age 0 (18-20: the baseline)	0.780 1.030 2.426	0.759 1.034 2.434	0.413 0.566 1.292
Study mode ('0'= part-time)	-0.929	-0.939	-0.951
WIL ('0'= non-WIL participation)	2.021	2.037	2.026
Initiative	-0.399	-0.391	-0.206
Effort	0.025	n/a	0.007
Persistence	0.511	0.236	0.324
Constant	-1.895	-1.830	-1.5155

As shown in Table 42 above, the R-glmulti statistical technique confirms the significance of the variables in the original employment model. The glmulti coefficients were smaller in magnitude than the SPSS (9 independent variables) coefficients, although the shrinkage was less for the most important variables. Consequently, the glmulti coefficients for *gender* and *effort* were very small and indicate non-significance, supporting the results obtained in the original model (see Table 41).

4.5.3 Results of the employment logistic model

Based on the robustness of the tests undertaken for the logistic regression model for employment, this section presents the results of the original employment model, shown in the aforementioned Table 41.

[16] This is shown in Table 42 above via SPSS2.

The *WIL* variable (p=0.000) indicates a strong significant relationship between the variable *WIL* and *employment* outcomes for the accounting near-graduate students. The *WIL* variable had the strongest impact during the study period. The result showed that the likelihood of securing employment nearing the completion of their accounting degree was 7.549 times greater for accounting students who participated in a WIL program during their degree course compared with those who did not undertake a WIL training program.

The variable *residency* (p=0.004) showed a strong significant relationship with the *employment* outcome for accounting near-graduates. The result showed that the likelihood of securing employment nearing the completion of an accounting degree for international students was 3.31 times less likely compared to domestic students[17].

The p-value of the variable *age3* was 0.038, indicating a significant relationship between variable *age3* (of students above 40 years old) and *employment* outcomes for accounting near-graduates. The result showed that the likelihood of securing employment for students above 40 years of age was 11.313 times greater compared to students below 40 years old.

The variable *persistence* (p=0.032) indicated a strong significant relationship with *employment* outcomes for accounting near-graduates. The result showed that the likelihood of securing employment nearing the completion of an accounting degree for students with higher persistence levels was 1.667 times greater compared to students with lower levels of persistence.

The variable *study mode* (p=0.025) indicated a significant relationship with *employment* outcomes for accounting near-graduates. The result showed that students who studied part-time were 2.532 times more likely to have secured employment compared to students who studied in a full-time mode.

The variable *initiative* (p=0.082) indicated a moderately significant relationship with *employment* outcomes for accounting near-graduates. The result showed that the

[17] For variables with an odds ratio of less than one, which signifies a negative coefficient (e.g., residency, study mode and initiative), the following interpretation, using residency as an example, was followed. Table 41 shows that the coefficient of the variable residency is negative (-1.198), therefore the Exp(B) is <1 (i.e., 0.302). The negative relationship indicates that the occurrence is 0.302 times more likely when the residency value is 1 (international) than when is it 0 (domestic). That is equivalent to saying the occurrence is 1/0.302= 3.31 times less likely for international students, than for domestic students. In other words, the probability of securing employment decreases as the value of the variables with negative coefficients increases (i.e., the higher number of international students will result in fewer students who secured employment).

likelihood of securing employment nearing completion of an accounting degree for students with higher levels of initiative was 1.490 times greater compared to students with lower levels of initiative.

The variable *language* (p=0.049) showed a significant relationship with *employment* outcomes for accounting near-graduates. The result showed that the likelihood of securing employment nearing completion of an accounting degree for students with English language as their first language was 2.004 times greater compared to students from a NESB.

The variables *gender* (p=0.741) and *effort* (p=0.947) were demonstrated to have an insignificant relationship with *employment* outcomes for accounting near-graduates. The results of the logistic model for employment are discussed in the following section.

4.5.4 Discussion - Logistic regression analysis (employment)

The present study's findings generally support and confirm the findings of prior studies regarding the relationship between student characteristics and their influence on the employment outcomes of accounting near-graduate students (Jackson 2013, 2014a; Tymon 2011; Bui & Porter 2010). A discussion on each of the variables is provided below.

4.5.4.1 WIL and employment

The independent variable *WIL* was significant (p=0.000) and suggests a very strong relationship between near-graduate employment outcomes and participation in WIL training programs. Specifically, accounting students who had completed WIL were almost eight times (7.549) more likely to secure employment than accounting students who did not undertake WIL training.

Data collected as part of the study provides a more complete understanding of the impact of WIL on securing the employment. For example, out of the 21 students who participated in a WIL program, 52.4 percent secured employment compared to only 4 percent of students who did not participate in WIL.

In addition, the present study's data showed that 85.7 percent of the surveyed students secured employment in the same organisation where their WIL training was provided. This supports the work of Bui and Porter (2010), and Freudenberg et al. (2010b), which claimed that students undertake WIL to enhance their employment outcomes.

Another potential reason for this result was identified in Stoner and Milner's (2010) study, which emphasised that it is via WIL training that students become engaged and motivated to learn in a social context relevant to the expectations of employers. Thus, students develop in an environment relevant to their future employment as WIL training prepares them in 'realistic ways of thinking' about the expectations of the accounting profession. Thus, the WIL experience prepares students psychologically for work (Purdie et al. 2013). In the WIL programs, students spent between 50 percent and 90 percent of their time on accounting-related tasks, such as 'using accounting software', 'bank reconciliation', 'auditing' and 'budgeting tasks. Their work-related training provided them with meaningful experiences beyond generic skills (see Freudenberg et al. 2010b), as well as providing greater employment opportunities (Crebert et al. 2004b; Smith 2012).

Hence, universities use WIL programs to build students' competencies and to shape their graduate identity. They aim to make students aware of the demands and expectations of the workplace, and thus avoid "reality shock" (Bui & Porter 2010, p. 37) upon commencing employment. At the same time, WIL programs are likely to help employers obtain a realistic perception of the quality of graduates, particularly any gaps and limitations that need to be addressed. Consequently, WIL training programs could be seen as an effective tool for improving the quality of accounting near-graduates.

Moreover, WIL programs can prove beneficial in bringing together different stakeholders, including employers, the profession and academia (Bui & Porter 2010; Tymon 2011; Richardson 2009), since each group shares a common goal to prepare graduates for professional accounting employment.

However, some researchers have questioned the association of employment outcomes and participation in WIL training. For example, Cranmer (2006) found no significant positive outcomes for employment as a result of structured work experiences provided to students, arguing that students' abilities and skills did not significantly differ as a result of WIL training. Supporting this view, Wilton (2011) also indicated that the value of WIL was not so much in enhancing the skills and abilities of students, but rather in students' personal development, fostering their understanding of the demands of employment.

Overall, however, many studies have emphasised the critical role of universities in the process of transitioning graduates from the learning environment to the real workplace (Candy & Crebert 1991; Crebert et al. 2004b; Tomlinson 2012; Gracia 2010). As

previously discussed, Little (2003) indicated that the employment problem related more to transition into the labour market than a longer term mismatch of skills. Accordingly, many studies have encouraged higher education to implement WIL on a larger scale, recognising that WIL programs may represent a realistic opportunity for enhancing students' employment outcomes (Jackson 2013, 2014a; Freudenberg et al. 2010b, Smith et al. 2010). This is supported by the results of the present research.

The study results are further supported by data collected from students who completed WIL training (see Appendix H). The feedback from WIL participants provided further insight to their perception on the benefits of the programs, including the time spent on accounting related tasks and activities and development of their skills. The results revealed students' positive perception of the importance of WIL with respect to how the program: made students aware of the demands and expectations in the workplace; and informed them about the most required skills and attributes relevant for accounting professional employment.

On the other hand, as the literature shows (e.g. Bui and Porter, 2010), WIL programs help employers to obtain a realistic perception of the quality of graduates they hire for employment. This enables employers to be aware of the limitations in hiring near graduates due to their perceived lack of knowledge and experience.

This study's findings revealed the strong and significant influence WIL has in obtaining employment for near-graduate accounting students. The realisation of the importance of WIL in accounting higher education, and the benefits of WIL training, can assist in reducing the expectation gap that exists between employers regarding accounting near-graduates' preparedness for the accounting workplace.

4.5.4.2 Residency and employment

The variable *residency* showed a strong significance (p=0.004) in the relationship with *employment* outcomes, suggesting that international students are 3.31 times less likely to secure employment compared to domestic students.

These study results supported findings in other research. The current study's findings imply that domestic students are given recruitment preference for accounting employment while international students appear to be less employable. For instance, James and Otsuka

(2008) and Bui and Porter (2010) showed in their research that international students found it difficult to obtain employment due to their lack of Australian working experience, lack of knowledge of Australian culture and society, and insufficient levels of English proficiency. One key reason for this result could be that international students are restricted by visa conditions from working full-time and can work only up to 20 hours per week. In addition, employers could be reluctant to employ an international student on a full-time basis due to the uncertainty of whether they will stay in the country or not (Gribble, 2014). Furthermore, it is reasonably expected that potential long-term and full-time employment commitment requires further training of employees in the workplace. This is problematic for international students as they are limited by the number of hours per week they can work (Christopher & Hayes 2008; Knight & Yorke 2004; Australian Government Educational Department 2014).

The process for an employer to recruit an international graduate is expensive and complicated; therefore, employers prefer to employ domestic graduates. However, since international students comprise, on average, a quarter of the total national cohort of students (Australian Government Educational Department Research Paper, 2014), the employment prospects of international students continues to be a problem and a key issue facing Australian education (Gribble, 2014).

It is clear that for an international graduate to be successful in a competitive global market, work experience should become an important component of the overseas study package (Gribble, 2014). The situation could be improved if universities make WIL programs more attractive to international students by offering programs that fit with their visa requirements.

In addition, since evidence suggests that ‘a one size fit all’ model is not appropriate for international students due to their language and soft skills deficiencies, tailored work-integrated learning programs with additional support services could assist in bridging the employability gap between international students and domestic students (Gribble, 2014).

4.5.4.3 Study mode and employment

The *study mode* variable was significant in the employment model (p=0.025), with part-time students almost 2.5 times more likely to secure employment compared to full-time students. There is limited research on the dependency of employment outcomes on the study mode variable. However, the present study’s results correspond with those of

Jackling and Anderson (1998), which also showed a strong association between part-time students and positive employment outcomes when compared to full-time students. These findings could be explained by the fact that many part-time students were already employed in professional accounting positions while studying for their accounting degree qualifications.

In addition, since part-time students are more likely to be exposed to the workplace, the working environment is less of a challenge for them and securing employment is a relatively easy task. Conversely, obtaining employment seems to be more problematic for full-time students since they do not have this exposure. For the most part, full-time students also lack the networks that could assist them in finding professional employment and are more likely to lack confidence in the application and job interview process. Another explanation is that full-time students may be committed solely to graduating, aiming to finish their degree before looking to find professional employment (Guan et al. 2013; Cable & Judge 1996).

4.5.4.4 Persistence and employment

The p-value of 0.032 for the variable *persistence* reveals a strong significant relationship to employment outcomes, with accounting near-graduate students with higher levels of persistence being 1.667 times more likely to secure employment compared to students with lower levels of persistence.

From a GSES perspective, the present research supported results in prior research, which investigated and questioned the relationship of employment and self-efficacy. For example, it was confirmed that self-efficacy used as a self-management employability skill was a significant contributor to graduate employment outcomes (Jackson 2016). Positive associations were also found between self-efficacy and the employment of people who were out of work and looking for a job (Kanfer et al. 2001).

Many researchers found positive associations between the two variables, and confirmed that employment is dependent on an individual's self-efficacy (Bandura 1997; van der Velde & van den Berg 2003; Jackson 2016). Bernston et al. (2008) supported that belief, arguing that education and training needs to be viewed as an employment enhancing activity; and that the students' perceptions of employment are associated with their self-efficacy. Researchers agree that self-efficacy and employment are related, since beliefs represent an important dimension of successful employment (Knight & Yorke 2003).

According to Bandura (1977), expectations of self-efficacy are the most crucial determinants of human behaviour. This is because persistence in pursuing an intended outcome determines the decisions an individual makes to behave in a certain way in a changing environment (Sherer et al. 1982). This may help them achieve a positive result, which, in this study, is to successfully secure employment.

With respect to persistence specifically, no prior accounting studies have examined this separately. However, studies from non-accounting disciplines have shown a dependency between the overall self-efficacy concepts and desired positive outcomes. The positive outcomes of designated types of performance (Bandura 1986) are considered in different fields of research. This includes medical research into the rates of recovery of ill patients and improved physical activities (Luszczynska et al. 2005); sociological research into the level of capabilities of aging populations (Bosscher & Smit 1998); military research into achievements (Sherer et al. 1982); and vocational and educational research into academic performance and employment outcomes (Allen 1999; Jackson 2013; Sherer et al. 1982). These studies have emphasised that high levels of GSE lead to improved positive outcomes in particular areas of concern. Since the GSE measure has a persistence component in it (Bosscher & Smit 1998), it has been concluded that a higher level of persistence leads to positive outcomes. According to previous findings, individuals with high levels of persistence are believed to be more successful in their ambitions, in job searches and in overall performance, including academic performance (Pascarella et al. 1980; Markman et al. 2008). Researchers claim that persistence needs to be recognised as a crucial predictor of behaviour in unknown situations, since the challenges of a changing environment lead to different behaviours and, accordingly, produce different outcomes (Bandura 1986; Luszczynska et al. 2005).

4.5.4.5 Age and employment

This study confirmed that independent variable *age3* (p=0.038) was statistically significant in the logistic regression model for *employment*. This indicates a significant relationship between students above 40 years old and employment outcomes, with them being 11.313 times more likely to be employed in accounting than students aged between 18 and 20 years.

Prior findings have shown that employers prefer candidates for professional positions who are older, perceiving them as more responsible, better prepared for employment

(Coates & Edwards 2011), and in possession of the stronger critical thinking abilities desired for employment (Jackson 2013; Smith et al. 2010). Older students may appear more confident and willing to learn on the job (Stoner & Milner 2010). In addition, older students have more life experience and better networks, assisting them in successfully securing employment (Phillips & Bond 2004; Tymon 2011).

Although Purcell et al. (2007) stated that discriminatory practices among employers indicate that older candidates are not always preferred with respect to employment, most studies cite otherwise. Jackson (2013), for example, showed that mature-age graduate students had a significant labour market advantage. Jackson did indicate, as consistent with this present study, that the age variable was insignificant for younger groups of students.

4.5.4.6 Language and employment

The variable *language* showed significance (p=0.049) in relation to employment outcomes, with students from an ESB approximately two times (2.004) more likely to secure employment compared to students from a NESB.

Prior studies have shown that the level of language proficiency affects students' employment outcomes, as employers prefer students with well-developed English skills, expecting high levels of articulation and critical thinking (Bui & Porter 2010; Keneley & Jackling 2011; Stoner & Milner 2010). Problems with English deficiency in students from a NESB have been recognised in various studies (Kavanagh & Drennan 2008; Crebert et al. 2004b). The issue was also addressed by the Australian Government Education Department (2014), in which the development of English for NESB students was analysed.

In the accounting profession, proficient English language is needed for communication with clients, interactions in the workplace and for working in a team environment. In fact, the level of English is critical not only at the transitional stage (i.e., at commencing employment), but also for further advancement in a graduates' professional career. James and Otsuka (2008) found that students of NESB find employment much more challenging due to their English language deficiency. Coates and Edwards (2011) also found that graduates from a NESB are less likely to be employed in full-time professional positions in the first year after graduating from an accounting degree course.

The present study's results confirm the findings of previous studies (Coates & Edwards 2011; Bui & Porter 2010; James & Otsuka 2008), which also indicated the significance of language in relation to positive the employment outcomes of the accounting graduates. The findings indicate that university NESB students face greater challenges in finding professional accounting employment.

4.5.4.7 Initiative and employment

The variable *initiative* showed moderate significance (p=0.082) in relation to the employment outcomes of accounting near-graduates. Students with higher levels of the self-efficacy factor *initiative* were 1.49 times more likely to have secured employment compared to students with lower levels of *initiative*.

With respect to initiative specifically, no prior studies from accounting and non-accounting research have examined this via a three-factor self-efficacy construct. However, analysis of the overall GSES in prior research showed that higher levels of GSE lead to a positive desired outcome. Hence, since the GSES measure comprises an initiative component, previous findings imply that higher levels of initiative lead to positive outcomes. Within this context, the present study's results correspond with findings in previous studies (Smit & Fotty 1998; Sherer et al. 1982; Jerusalem & Schwarzer 1992; Luszczynska et al. 2005; Bosscher & Smit 1998; Bernston et al. 2008). These confirm the significant relationship between positive outcomes and higher levels of initiative[18]. In addition, according to Tymon (2011), students with proactive personalities, recognised via the *initiative* factor, are: committed to self-driven activities; demonstrate high motivation; and are more likely to be successful in obtaining employment. Hence, the present study supports prior findings insofar as near-graduate accounting students with higher levels of initiative are more likely to secure employment.

4.5.4.8 Gender and employment

The results of the *gender* variable were insignificant (p=0.741) in relation to the employment outcomes of accounting near-graduate students. These results are not altogether surprising given the mixed results identified in prior studies. For example, Coates and Edwards (2011) found significant differences in the employment outcomes of

[18] The present research assumes that accounting near-graduates desire to be employed. This is reflected in the logistic regression model for employment, where the dependent variable was coded as 0 = not secured employment and 1 = secured employment; where 1 equals the desired outcome.

male graduates compared to female graduates[19]. Confirming these findings, Webster et al. (2011) found that gender differences were predetermined by the social state of women in terms of long-term employment and remuneration, to which female students assigned greater importance. However, Jackson (2013), whose study on employment outcomes utilised a national database of Australian higher education with a large sample size (n=28,246 in 2011 and n=28,009 in 2012) identified that gender was an insignificant factor in relation to employment outcomes. In fact, Jackson's p-value for the gender variable was 0.741, which is exactly the same as the present study. Thus, prior results are confirmed by the findings in this research.

4.5.4.9 Effort and employment

The variable *effort* was statistical insignificant (p=0.947) in relation to employment outcomes. Thus, unlike *persistence* and *initiative,* which both indicated significance in contributing to employment outcomes, the variable *effort* did not seem to be significantly associated with the employment outcomes of students in the sample data. Students ranked the *effort* factor higher than *initiative* and *persistence* (see Table 33), demonstrating their perception of *effort* as most important in the GSES. However, the logistic regression analysis did not reveal significance of the variable *effort* in the employment model.

The current research's results for this aspect contradict the findings of previous studies, even though the three-factor construct was not implemented in those works, but rather the overall GSE. With respect to effort specifically, no prior accounting studies have examined this. However, studies from non-accounting disciplines have shown dependency between self-efficacy and positive outcomes (as discussed in Section 4.5.4.4). Since the self-efficacy measure has an effort component in it (Bosscher & Smit 1998; Jerusalem & Schwarzer 1992*),* it could be concluded that a higher level of effort should lead to positive outcomes. For example, Guan et al. (2013) suggested that positive job search outcomes for Chinese graduates were the result of greater effort. Similarly, Luszczynska et al. (2005) noted low recovery rates for patients with low levels of effort in their GSE. Yet, this current study did not reveal a significant dependency between near-graduate accounting students' effort and their employment outcomes, indicating a need for further research in this context. A possible reason for this could be that during the final stage of completing a university course, most accounting students focused their

[19] The graduates were surveyed five years after their graduation.

efforts on passing their final assessments and completing their degree courses, rather than searching for professional employment. Thus, although effort levels in the GSES were high (see Table 34), they were not necessarily specifically directed at securing employment. Hence, securing full-time professional employment may not have appeared to be the highest priority at this point in the students' lives (Kanfer et al. 2001).

4.5.5 Summary – Logistic regression model (employment)

The logistic regression model of employment included nine independent variables: *residency, age, study mode, language, gender, WIL* and the three GSES factors of: *initiative, effort* and *persistence.* The results of the logistic regression analyses showed that seven variables: *WIL, residency, age3, persistence, study mode*, *initiative* and *language* significantly contributed to obtaining employment. These findings support those of earlier research (Jackson 2013; Freudenberg et al. 2010b; Demagalhaes et al. 2011; Christopher & Hayes 2008; Tomlinson 2012; Tymon 2011). This study, however, did not find any statistical significance for the *gender* variable, supporting the work of Jackson (2013). Similarly, *effort* showed no statistical significance in the employment model.

Given the importance of WIL training programs for obtaining employment (Freudenberg et al. 2010b; Patrick et al. 2008; Purdie et al. 2013; Smith et al. 2010), and the universities' ability to potentially impact WIL participation (Richardson et al. 2009; Jackson 2013), the present research provides further analysis of WIL and its relationship with self-efficacy factors. This is discussed in the following section.

4. 6 Stage 5: Logistic regression (WIL)

In addressing RQ3: *'Do self-efficacy factors influence accounting near-graduate students' participation in WIL?'* a WIL logistic regression analysis was undertaken. This resulted in the advent of the fourth, and final, general hypothesis, with three specific hypotheses contained therein. The specific hypotheses assessed the relationship of the following self-efficacy variables: *(i) initiative, (ii) effort,* and *(iii) persistence* against the dependent variable, *WIL* participation. The selection of the variables for the model was discussed in Chapter 3 and was driven by a review of the prior literature that emphasised the importance of self-efficacy factors on WIL participation (Subramaniam & Freudenberg 2007). The logistic regression analysis commenced with the testing of the model's goodness-of-fit.

4.6.1 Validating of the logistic regression model

As already discussed, validation of the logistic regression employment model was performed by checking the accuracy rate of the estimated logistic regression model and by carrying out a split-sample validation cross-check.

Validation of the logistic regression WIL model was initially employed by examining the standard errors for the beta coefficients, since a standard error greater than 2.0 would indicate numeric problems such as multicollinearity among the independent variables. As shown in Table 45, none of the independent variables had a standard error greater than 2.0. Further validation of the logistic regression WIL model was performed by both checking the accuracy rate of the estimated logistic regression model and by carrying out a split-sample cross-check.

4.6.1.1 Classification using by chance accuracy rate

The usefulness and validity of predictors are determined when the classification accuracy rate is higher than the accuracy attainable by chance alone. Specifically, the classification accuracy should be 20 percent or more than the proportional by chance accuracy rate (Hair et al. 2010). Thus, the study calculated the by chance accuracy rate by considering the proportion of cases in two groups, based on the number of cases in each. The proportion of the first group (participated in WIL) was 21/337=.062. Accordingly, the remaining proportion (did not participate in WIL), equalled 316/337 = 0.932. The calculated chance accuracy rate equalled 0.871 (0.0622 + 0.9322). The WIL model's accuracy rate calculated at step 1 of the logistic regression analysis equalled 0.938, higher than 0.871. Note that Hair's criteria cannot be achieved for chance accuracy rates above 1 / 1.2 = 0.833. However, comparing odds, the chance accuracy odds = 0.833 / (1-0833) = 6.605, while the accuracy odds for the WIL model was 0.938 / (1 - 0.938) = 15.129, an increase of over 125%, thus implying that the criteria for classification accuracy was satisfied.

4.6.1.2 Split–sample validation

According to Hair et al. (2010) and Field (2009), a split-sample for cross validation could be either a ratio of 75:25 or 80:20. The cross validation method of 75 or 80 percent of cases was used to derive the logistic regression model, where the accuracy of the model was evaluated on the remaining 25 to 20 percent of the data. The present study employed an 80-20 split-sample, where the first group included 80 percent of cases (i.e., the training

sample) and the second group (i.e., the hold-out sample) included the remaining 20 percent of the sample data.

The classification accuracy for the 20 percent of the sample data was used to estimate how well the model, based on the training sample, would perform on the total data set. The classification accuracy rate of the small sample (i.e., the hold-out set) should be within 10 percent of the training sample to be considered a valid logistic regression model (Field 2009). Moreover, in addition to the classification accuracy requirement, the study expected the significance of the relationships with individual predictors of the training sample to match the significant results for the model using the full sample data.

Validation analysis was carried out by computing the split variable, setting the target variable (split) in SPSS and using the formula (uniform (1) <=.80). The uniform (1) function generated a random decimal number between 0 and 1 and compared it to the value of .80. For a random number less or equal than 0.8, the value of the formula was 1 and the SPSS numeric equivalent was deemed to be true. If the number was greater than 0.8, the formula would have returned to 0 and the numeric equivalent in SPSS would be deemed as false. The split-sample validation, where 80 percent was assumed as the training sample and 20 percent as the hold-out sample, supported the interpretation of the overall relationship, the individual relationships and the classification accuracy of the logistic regression model developed for the *WIL* outcome.

The goodness-of-fit, as an indication of how well the logistic regression model fits the study data, was estimated for the dependent variable *WIL*, and is assessed by examining the predictive accuracy of the model (see Table 43). The classification matrix prediction accuracy was 93.8 percent, which is high according to Hair et al. (2010). Classification was done at the cut value of 0.500, and the constant was included in the model. Other statistical measures that assessed the goodness-of-fit of the estimated logistic regression model involved the examination of R^2, which was also analysed in this study data.

Table 43: Goodness-of-fit statistics (logistic model for WIL)

Measure	Statistic	Value
Significance of estimated equation	p-value	0.000***
Goodness-of-fit -2 log likelihood (pseudo R^2) Cox and Snell R^2 Nagelkerke R^2		 153.354 0.011 0.031
Chi-square (df=3)		3.883
Prediction accuracy		93.80
Omnibus test of model's coefficients	p-value	0.274

'***'indicates the significance value below p=0.01

The initial pseudo R^2, represented by -2LL, assumes the minimisation criteria. The -2LL value was equal to 153.354, which is below the value of the baseline model comprising the constant value. Thus, the -2LL statistic indicates a good fit of the estimated logistic model. Another pseudo R^2, the Nagelkerke R^2, had a value of 0.031, which also confirmed that the model was appropriate. With respect to Cox and Snell's R^2, which is derived as the N^{th} root of the -2LL improvement, the value of 0.011 indicates above one percent probability of the positive WIL outcomes that could be explained by the estimated logistic model. While the figure was not high, it nonetheless confirmed the goodness-of-fit of the estimated logistic regression model.

Finally, an omnibus test of model coefficients confirmed the goodness-of-fit of the estimated regression model as shown in Table 43.

4.6.2 Results: Testing for the significance of coefficients and robustness

Table 44 shows the results of the logistic model, which estimates the relationship between *WIL* (the binary dependent variable) and the independent variables (*initiative, effort* and *persistence*).

Table 44: Variables in equation (WIL model)

	Standardised coefficient B	Standard Error	Wald	Sig	Exp (B)	95% C.I. for EXP(B)		Collinearity statistics	
						Lower	Upper	Tolerance	VIF
Initiative	0.483	0.339	2.031	0.154	1.621	0.834	3.151	0.795	1.258
Effort	0.562	0.531	1.119	0.290	1.754	0.619	4.697	0.927	1.078
Persistence	-0.331	0.319	1.077	0.299	.178	0.384	1.342	0.782	1.278
Constant	-5.669	2.300	6.073	0.014	0.003				

Based on Table 44 above, the estimates and impact of the relationships of the dependent variable *WIL* are:

$$Log\ (odds\ of\ WIL) = -5.669 + 0.483initiative + 0.562effort - 0.331persistence$$

The results indicate that multicollinearity tests were conducted in accordance with Midi et al. (2010). Specifically, the collinearity diagnostics performed to assess multicollinearity were (i) tolerance, which is an indication of the percentage of variance in the predictor that cannot be accounted for by the other predictors; and (ii) VIF, which is the reciprocal of tolerance and indicates the magnitude of the inflation in the standard errors associated with a particular beta weight that is due to multicollinearity. The threshold for indicating multicollinearity is tolerance levels of less than 0.1 and VIF values that exceed 10. As Table 44 illustrates, multicollinearity was not an issue.

The relationships of the independent variables in the logistic model were assessed by examining their direction and impact on the dependent variable *WIL*. This was done by examining the original logistic coefficients and the exponentiated coefficients (Exp (B)). The original coefficients interpreted the directions of the relationships that were directly associated by their values: positive coefficients deemed positive relationships and the negative values of the coefficients indicated the negative relationship between the independent and the dependent variables (Hair et al. 2010).

Prior to discussing the results of the odds ratio shown in Table 44, the overall relationships between dependent outcome *WIL* and independent variables *initiative, effort* and *persistence* were re-examined. To confirm the best regression model subject to the

constraint on the magnitude of the coefficients, the study continued with the Lasso statistical technique (Hastie et al. 2015) used for the WIL model. As discussed earlier (Chapter 3 and Section 4.5.2), for a linear model, the usual least squares estimate is based on minimising the squared error loss function. The Lasso estimator (Hastie et al. 2015) is based on a modified loss function called the l_1 norm. The increased penalty coefficients becoming zero would allow the selection of the variables for the models. The best choice of variables is determined by cross-validation with (for example) ten folds choosing the value of the variable that gives the smallest cross-validation error. As previously discussed, Lasso also uses a "one-standard-error-rule"' or an ISE rule (Hastie et al. 2015, p. 13), taking the smallest value of t yielding a CV error no more than one standard error above its minimum value.

The WIL model represents the sparse statistical model due to the small number of non-zero parameters in the sample size (i.e., 0=non-WIL participation [n=316]; 1=WIL participation [n=21]). While it appears to be easier to estimate and interpret such models, as compared to dense models (Hastie et al. 2015), the sparsity issue needed to be addressed. Therefore, further testing of goodness-of-fit was performed by using the R-glmulti model.

The glmulti revealed the AIC values for all variations of the models, suggesting that WIL fits all possible models with self-efficacy factors. The Akaike weights computed for the variables in the WIL model (presented in Appendix G) allowed an interpretation of the probability of the model as being the best.

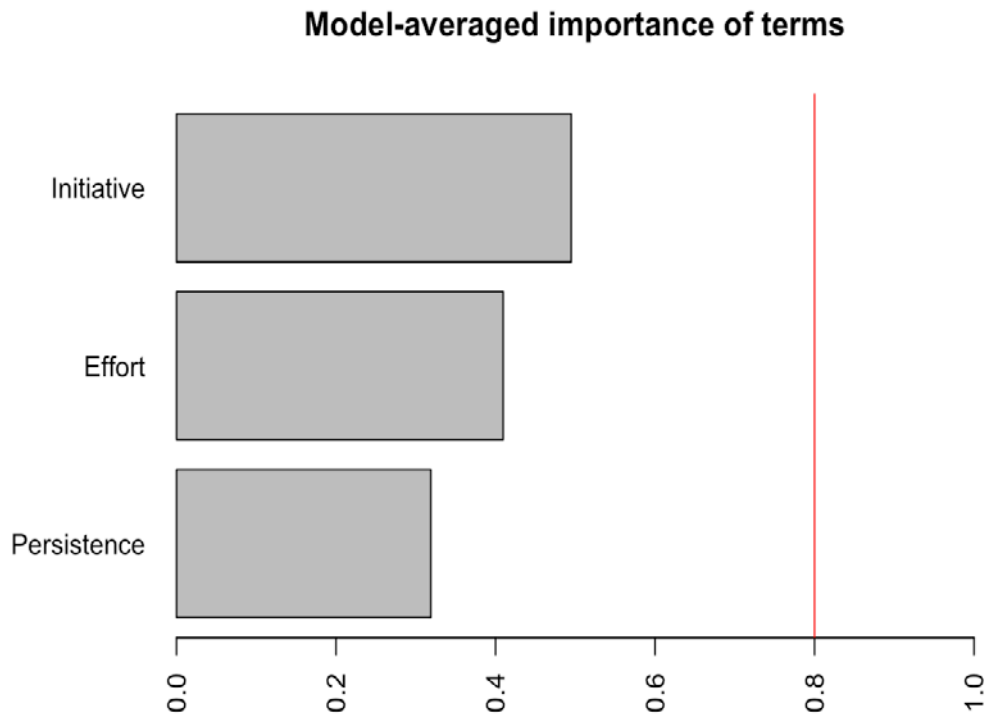

Figure 11: The R-glmulti – Importance of independent variables in the WIL model

The diagram above illustrates that all three self-efficacy factors showed reasonable importance in the model-averaged importance of terms, since *initiative* was close to 0.6, *effort* equalled 0.4 and *persistence* was just below the 0.4 importance level.

The present study also used the BIC, which assumes a more severe penalty on the number of variables in the model. The BIC revealed in the diagram of the model showed on average importance of the independent variables *initiative, effort* and *persistence* to below the 0.8 significance level.

The glmulti tests, in justifying the relaxation of the EPV rule of thumb to less than 10 variables per event for the WIL model, suggest three independent variables as predictors. The results of the glmulti tests on the best fit of the WIL model supports the inclusion of the three self-efficacy factors, *initiative, effort* and *persistence*.

4.6.3 Results of the WIL logistic model

Based on the robustness of the tests undertaken for the logistic regression model for WIL, this section presents the results of the WIL model. With respect to the independent

variables, the results show that none of the three self-efficacy factors exhibited a significant relationship with WIL participation. Specifically, Table 44 illustrates that the *initiative* variable was not statistically significant (p=0.154), neither was *effort* (p=0.290) or *persistence* (p=0.299).

The WIL model was tested by R-glmulti software, which showed that the WIL model had the best fit with the three self-efficacy variables in it and confirmed the results of the original logistic regression model for WIL. The findings are discussed in the section below.

4.6.4 Discussion – Logistic regression analysis (WIL)

The findings of the present research showed that all three components of self-efficacy, *initiative, effort* and *persistence,* were insignificant in relation to WIL participation. As far as can be ascertained, the three-factor construct of self-efficacy has not been examined before in association with WIL participation, therefore this study could not compare and confirm results due to the absence of prior evidence in this context. However, there are prior research results on the relationship between WIL and the overall self-efficacy of students towards a performance outcome (i.e., students' academic performance as per Hendry et al. 2005). The researchers suggested that although, as a result of training, students reported greater self-awareness of their own learning and acceptance of others' styles, their self-efficacy was not significantly associated with learning during the workshop training programs.

On the other hand, Reddan (2016) emphasised the significant role of WIL in developing students' perceived work self-efficacy. Freudenberg et al. (2010b) also confirmed that a WIL program in an undergraduate degree in partnership with industry assisted students in improving their self-efficacy. In addition, Green (2011) found that students felt better as a result of gained work experience. Furthermore, Laguna (2013) indicated the relationship between the self-efficacy and entrepreneurial intentions of unemployed people, claiming that self-efficacy beliefs are important predictors of positive intention. This could be applicable to participation in WIL.[20]

[20] The present research assumes that accounting near-graduates desired to participate in WIL. This is reflected in the logistic regression model for WIL, where the dependent variable was coded as 0 = non-WIL participation and 1 = WIL participation; where 1 equals the desired outcome.

Similarly, Carpara et al. (2011) studied the impact of students' personality traits and self-efficacy beliefs on their academic achievements and found a significant and positive relationship between them. This accords with the findings of Gracia (2010), indicating that students' positive attitudes towards WIL and greater expectations are associated with satisfaction and better outcomes from the WIL experience.

Thus, in relation to the current study, it could be implied that higher levels of self-efficacy result in a greater awareness of benefits and opportunities, such as participation in WIL, since this participation would improve students' chances of securing employment. This, however, was not evident in the results of the present research. Specifically, no significant relationship was revealed between self-efficacy factors on the dependent variable (*WIL* participation). Thus, this study's results indicate that self-efficacy levels (*initiative*, *effort* and *persistence*), whether high or low, did not impact on WIL participation. This would imply that near-graduate accounting students do not view WIL as an important part of their degree program.

While examining the perceptions of different stakeholders on WIL in foundation degrees, Burke et al. (2009) revealed the mixed understanding and interpretation of work-based learning across stakeholder groups. Harvey et al. (1997) found that employers generally had positive views of students who had undertaken WIL training, while the students themselves may not fully realise the benefits that such training offers. This attitude towards WIL training programs is evidenced by the relatively low participation rate of students' in WIL programs overall: less than 10% as per historic university data.[21] The study findings imply that even students with high levels of self-efficacy did not view WIL participation as essential for their degree completion. Gracia (2010) highlighted that there is little understanding of students' views on WIL and the benefits they could derive form work-related training during transition from university to real workplaces. The effectiveness of WIL could be achieved if students had a better understanding of the transition phase of WIL learning, and its importance in contributing to their employment prospects. As a consequence, students would exhibit greater initiative, effort and persistence in utilising the opportunities provided by WIL training.

Accordingly, this study suggests that perhaps universities need to take a greater responsibility in making WIL more attractive and accessible in degree programs. This

[21] The statistics were provided by the Centre for Work Integrated Learning (WIL) of Victoria University.

would assume a more proactive approach from education, which in turn would require extra resourcing. Smith (2010), and Richardson et al. (2009) emphasised the need for stronger and longer-term partnerships with industry and the accounting profession to assist in designing and implementing work-related courses in accounting degree programs and promoting them to students.

Regardless of the degree of involvement of industry and professional stakeholders in this process, universities remain the most responsible stakeholders (Gracia 2010) and would need to take a stance in order to change the current WIL situation.

While these issues are outside of the scope of this study, further studies are suggested to explore and provide more insight on the strengths and opportunities of different approaches to WIL, to make work-training a compulsory part of degree programs, and subsequently to change student attitudes and motivation towards participation in work-related training.

4.6.5 Summary – Logistic regression model (WIL)

The logistic regression model of WIL included three self-efficacy factors: *initiative, effort* and *persistence* in an attempt to identify the relationship between students' self-efficacy and WIL participation. The present study's WIL model did not find any significant association between the three self-efficacy factors and students' participation in WIL. This implies that the self-efficacy factors of students in the sample data had no impact on their participation in WIL. It also suggests that students do not view WIL as a critical or important part of their degree program, particularly when compared to their focus on finding and securing employment. Such findings might be due to the fact that WIL may not be easily accessible to all students. Moreover, students may not see WIL training as valuable, failing to appreciate that such programs could provide work-related experience and improve their future employment prospects.

The results of the study suggest the need for greater university involvement in promoting and implementing work-related training programs. The motivation of students could be improved by revising existing practices, perhaps by incorporating WIL as a compulsory part of degree programs. More generally, universities should utilise WIL programs to broaden and deepen the scope of their degree programs.

4.7 Chapter summary

This chapter opened with a discussion on testing assumptions for the applicability of the statistical techniques undertaken in this research. This was followed by a presentation of the descriptive statistics, including correlation analysis of the variables and a discussion of the correlation results.

A factor analysis of the GSES identified three factors: initiative, effort and persistence, as evident in Bosscher and Smit (1998). To address RQ1 of this study, Mann-Whitney U tests and Pearson chi-square tests were employed, revealing statistically significant associations between the variables *language, residency* and *study mode*, and the self-efficacy factors.

Addressing RQ2 involved analysis of the employment logistic regression model and additional statistical techniques, such as Lasso and R-glmulti. The results revealed that seven independent variables (*WIL*, *residency*, *age3*, *persistence*, *study mode*, *initiative* and *language*) of the logistic regression model were significantly associated with securing employment. The results of the analyses were discussed with reference to prior research findings. Finally, addressing RQ3 involved an analysis of the WIL logistic regression model, supplemented by Lasso and R-glmulti statistical techniques. The study did not find any statistical significance between *initiative, effort* and *persistence* and WIL participation.

The next chapter concludes this study, providing a summary of the findings, as well as implications and critical reflections for future research.

Chapter 5: Summary, conclusion and implications

5.1 Introduction

The purpose of this chapter is to provide a summary of the research, together with conclusions obtained from the results of the statistical analyses. The implications arising from these results are then presented, followed by the limitations of the study and recommendations for future research.

5.2 Research summary

As set out in Chapter 1, the research problem for this study was:

- To assess whether there is any significant association between near-graduate accounting students' self-efficacy, individual characteristics and participation in WIL training on their employment outcomes.

The specific research questions arising from the research problem were:

RQ1: Is there any association between accounting near-graduate students' individual characteristics and the self-efficacy components of the GSES?

RQ2: What are the factors that influence the employment outcomes of accounting near-graduate students?

RQ3: Do self-efficacy factors influence accounting near-graduate students' participation in WIL?

The research objectives pursued to answer the research questions were:

1. To examine the relationship between the individual characteristics and self-efficacy of accounting near-graduates.

2. To estimate the relationship between *employment* and the following independent variables: accounting students self-efficacy factors (*initiative, effort* and *persistence*) as well as *gender, residency, language, age, study mode* and *WIL* participation.

3. To estimate the association between *WIL* participation and accounting students' self-efficacy factors (*initiative, effort* and *persistence*) to identify whether their self-efficacy influences their involvement in WIL.

The research sample comprised data (n=337) collected via questionnaire from accounting near-graduate students from two Melbourne-based universities. The first research objective was achieved by employing factor analysis via PCA with oblique rotation. The structure matrix revealed three factors: initiative, effort and persistence. These were further analysed by using Mann-Whitney U-tests and Pearson chi-square tests of association, to examine their relationship with students' individual characteristics: *language*, *residency*, *gender*, *study mode* and *age* (see Chapter 4, Section 4.4.6). In addition, the mean ranks of the self-efficacy in different categorical groups of students were analysed. The second and third research objectives were achieved via the use of two logistic regression models (for employment and WIL) and further supplementing this with Lasso and R-glmulti statistical packages. The validation of the models was achieved by undertaking split-sample validation, goodness-of-fit via -2LL (pseudo R^2), as well as Cox and Snell R^2 and Nigelkerke R^2. The validity of the models was supported by applying Lasso and R-glmulti techniques. The results of the logistic regression model for employment and for WIL are shown in Table 41 and Table 44 respectively.

The next section below summarises the major conclusions.

5.3 Conclusions

The first research objective of this study was addressed via analysis of RQ1, and the second and third research objectives were addressed via RQ2 and RQ3 respectively. This is briefly discussed in the following subsections.

5.3.1 RQ1: Student individual characteristics and self-efficacy

The first research question examined the association between student individual characteristics and the three-factor GSE via Mann-Whitney U tests and Pearson chi-square tests of association. The results revealed significant associations with the following variables: *study mode* (*effort* p=0.011*;* and *persistence* p=0.047); *residency* (*initiative* p=0.000*; persistence* p=0.008); and *language* (*initiative* p=0.000). The study also found that *gender* and *age* were not significantly associated with the three-factor GSE.

According to the mean ranks, the findings indicate that international students possess significantly higher initiative and persistence compared to domestic students, while students from an ESB had higher levels of initiative. Students who studied on a part-time basis appeared to have significantly higher levels of effort and persistence.

The SCT theoretical framework was taken into account in developing the conceptual framework. From an overall perspective, the data analysis of this study demonstrated significant associations between students' individual characteristics and their self-efficacy factors, which consequently impact peoples' behaviour in achieving desired outcomes.

5.3.2 RQ2: Key employment outcome factors

The second research question investigated the main factors associated with the employment outcomes of near-graduate accounting students, which comprised individual characteristics, the three-factor GSE structure and WIL participation. This question led to three general hypotheses, as indicated in the conceptual framework of this study. The first general hypothesis was whether a relationship exists between individual characteristics and employment outcomes. To answer this, five specific hypotheses were developed and tested. The second general hypothesis was whether a relationship exists between the three-factor GSE and employment outcomes. To answer this, three specific hypotheses were developed and tested. The third general hypothesis of the present research was whether there is a relationship between WIL and employment. The summary results are presented in Table 45 below.

Table 45: Summary of hypotheses tests for RQ2

Hypothesis	Outcome	Odds Ratio
H1a: There is a relationship between gender and employment	Insig	0.896
H1b: There is a positive relationship between residency and employment	Sig	0.302
H1c: There is a positive relationship between age and employment	Sig	11.313
H1d: There is a positive relationship between English language and employment	Sig	2.004
H1e: There is a positive relationship between part-time study mode and employment	Sig	0.395
H2a: There is a relationship between initiative and employment	Sig	0.671
H2b: There is a relationship between effort and employment	Insig	0.496
H2c: There is a relationship between persistence and employment	Sig	1.667
H3: There is a positive relationship between WIL and employment	Sig	7.549

Note: Sig -= Significant; Insig = Insignificant

The results presented in Table 45 indicate that seven of the nine variables in the employment logistic regression model showed significance, implying their influence on employment. These were: *residency* (p=0.004), *age3* (p=0.038), *language* (p=0.049), *study mode* (p=0.025), self-efficacy factors *initiative* (p=0.082) and *persistence* (p=0.032), as well as *WIL* (p=0.000). These results were confirmed via Lasso and R-glmulti analysis and are briefly contextualised below.

Thus, the current study confirms some prior findings on associations between categorical variables r*esidency*, *language*, *age*, *study mode* and *WIL* variables, with the e*mployment* outcomes of accounting students (Subramaniam & Freudenberg 2007; James & Otsuka 2008; Coates & Edwards 2011). Furthermore, the study also supports previous findings on *gender*, since it appears that gender differences do not impact accounting students' employment prospects (p=0.741) (Jackson 2013, 2014a; Paisey & Paisey 2004). For students with *WIL* training, the likelihood of securing employment is 7.549 times greater; while for non-residents (international students) it is 3.32 times less likely; students of older age (*age3* or above 40) have 11.313 times greater likelihood of securing employment; for students with higher *persistence*, the likelihood is 1.667 times greater; and with higher *initiative* 1.49 times greater; for part-time students the likelihood of securing employment is 2.540 times greater and for students with an ESB, it is also 2.004 times greater.

While the three-factor GSES has not been used previously (thus constituting one of the key contributions of this study), prior studies that have employed an overall self-efficacy construct seemed to confirm the general effect of self-efficacy on employment. However, the present research goes further than those studies as it is able to show that two of the three factors (initiative and persistence), based on trait-like measures (Chen et al. 2001), were significant for student employment, while one (effort) was not. This would not have been identified if the overall self-efficacy construct had been employed. With respect to WIL and individual characteristics, the present research findings confirmed most of the prior findings on their relationship with employment.

The significance of WIL in the employment model (p=0.000) supported the results of the logit regression via R-glmulti analysis, signifying that students who complete WIL have 7.549 times greater likelihood of securing employment. In addition, the strong emphasis in the research literature on the importance of WIL in preparing accounting students for

employment (Freudenberg et al. 2010a; Patrick et al. 2008; Richardson et al. 2009; Jackson 2013) prompted the development of the third and final research question in this study.

5.3.3 RQ3: Self-efficacy factors and WIL participation

The third research question investigated the three-factor GSE structure on WIL participation. This question led to the development of the fourth general hypothesis, which is reflected in the conceptual framework of this study and examines whether a relationship exists between the three-factor GSE and WIL. This comprises three specific research hypotheses, which were developed and tested. The summary results are presented in Table 46 below.

Table 46: Summary of hypotheses tests for RQ3

Hypothesis	Outcome	Odds Ratio
H4a: There is a relationship between initiative and WIL	Insig	1.621
H4b: There is a relationship between effort and WIL	Insig	1.754
H4c: There is a relationship between persistence and WIL	Insig	0.178

Note: Insig = Insignificant

The table above shows that none of the variables in the WIL logistic regression model showed significance, as evidenced by their p-values: *initiative* (p=0.154), *effort* (p=0.290) and *persistence* (p= 0.299). These results were confirmed via Lasso and R-gmulti analysis and are briefly contextualised below. Although prior literature shows mixed findings between overall GSE and WIL (Freudenberg et al. 2010a; Hendry et al. 2005), it should be pointed out that these studies did not use the three-factor structure of self-efficacy employed in the present research.

The findings suggest that accounting near-graduate students do not see sufficient benefit in participating in WIL, and the perceived advantages of WIL are not being effectively communicated to students, as evident in the low participation rates (less than 10 percent). Specifically, the results show that even students with high levels of effort, initiative and persistence still did not see any real benefit in WIL participation. This leads to implications regarding the better promotion of WIL and other factors that require further investigation in future research.

5.4 Contribution of the study

The study contributes to accounting education research by analysing GSE as a three-factor construct rather than a composite self-efficacy variable. This has not been used

previously in the accounting educational context. The three-factor construct enables an analysis of each factor specifically and independently of each other. This process provides a more in-depth analysis of self-efficacy when addressing accounting near-graduate students' employment outcomes, as well as WIL participation. Furthermore, there are no studies that have analysed the employment outcomes of accounting students as they approach graduation. This is an important consideration since, as Little (2003) indicated, employment problems are associated more with transition into the labour market than with longer term issues.

5.5 Implications

The results of this study provide some important implications for various stakeholders in relation to improving near-graduate accounting students' employment prospects. The study's recommendations are based on research findings, which indicate the significance of WIL participation; the self-efficacy factors of initiative and persistence; and students' individual characteristics: residency, age, language and study mode. The implications of these findings are discussed below.

5.5.1 Implications for accounting higher education

The findings of the research provide information to policy developers in the academic accounting environment as to what factors influence the employment outcomes of accounting students. While such factors as age, language and residency are difficult to alter or affect, other factors could be of benefit if there is a greater focus on them. For instance, it appears important that students build up their levels of confidence and self-belief while studying for their degree qualification. This requires the development of positive student mindsets about their future profession. Moreover, students need not be restricted to the acquisition of academic knowledge and skill sets, but should be exposed to a broader scope of real-life experience and learn to adapt to changing circumstances in life. Students need to become strong, assertive when facing challenges in their life, be more self-reliant, flexible and articulate, possessing critical but positive and realistic attitudes towards life expectations beyond university walls and office desks.

Consequently, there are some important implications for accounting HE with regard to improving the employment outcomes of accounting near-graduates. The findings suggest that accounting schools within universities need to develop closer links with industry in order to improve student familiarity with the workplace environment. These links could

result in the development of internship opportunities that could be embedded as compulsory units of the curriculum. Integrating such initiatives into the accounting degree course would provide opportunities to build on the levels of *effort* among accounting students, a factor that was insignificantly associated with employment outcomes in the present research. Although a difficult task, it is one which is worth pursuing. In addition, other program opportunities need to reinforce the *persistence* and *initiative* factors, which were shown to be significant for employment outcomes.

The role of universities is very important in equipping students with conceptual knowledge and capabilities. However, practical experience and confidence is effectively developed in a real workplace, often after graduation from university courses. The introduction of an embedded practical training or cadetship on completion of the accounting degree course would provide a realistic chance to solve the long-standing issue of a lack of work-ready graduates.

5.5.2 Implications for the public and private accounting sectors

To achieve the objectives suggested above, universities and the accounting profession should consult with state and federal governments about the possibility of developing a policy or arrangements for a cadetship program, or something akin to it, upon completion of an accounting degree. For example, governments could introduce a form of subsidy to organisations that are willing to assist with a cadetship program. Areas where skill shortages are felt the most, such as remote and rural areas, could be the recipient of this type of program. This proposal would require consultation with key stakeholders to arrive at a more specific program to suit the needs of all key stakeholders. Caution would be needed to eliminate any distortions that could lead to favouring or disadvantaging students of different educational institutions and different cultural backgrounds.

Although existing graduate programs do operate (e.g., in the ‘Big Four’ firms), a more organised and regulated approach to providing accounting students (domestic and international) with work placement upon completion of their degree, and other modes of work-related training during their degree, would provide better and long-lasting opportunities for both accounting graduates and the accounting profession.

5.5.3 Implications for WIL

The study results show that WIL dramatically improves the employment prospects of accounting near-graduates ($p=0.000$) with an odds ratio of 7.549. The findings imply that

universities and practitioners could improve students' employment prospects by effective use of WIL programs on a larger scale; for instance, making it a compulsory part of a potential (or existing) accounting professional degree program. These findings are in accordance with the results of prior research, which highlighted the benefits of WIL in improving students' employment prospects (Jackson 2013; Crebert et al. 2004; Hinchliffe & Jolly 2011).

The present study findings suggest there is an issue with the perceived benefits of WIL, as all three self-efficacy factors (*initiative, effort* and *persistence*) were not significantly associated with WIL participation. This could be due to the perception that any benefit of WIL is countered by having the degree course typically extending from three years to four years. Hence, the awareness of WIL being a source of valuable work-related experience that could improve their future employment prospects is not being effectively relayed to accounting students. Furthermore, the low participation in WIL training and the insignificance in the *initiative, effort* and *persistence* factors in the WIL logistic regression model could also be the result of WIL not being easily accessible for all students - both domestic and international.

Hence, the study suggests that WIL accounting activities need to be better designed to create a broader range of opportunities that could be promoted to students in classes, seminars, workshops and any other teaching and learning settings. In addition, more focus needs to be given to improve international student access to WIL participation during their degree course.

Future research is required to explore the factors that might significantly influence accounting students' motivation for participation in WIL, including evaluation of the effectiveness of WIL programs, so that the issue of improving student involvement in WIL could be appropriately addressed.

5.6 Limitations and future directions for research

To fulfil the intent of this research as a basis for future research, it is important to reflect critically and suggest directions for further studies. Prior to this, however, the limitations of the present research are identified below.

5.6.1 Limitations of the variables' measurement

WIL programs are offered at different times and are of different length, content and assessment. This implies that no unified approach is used in delivering the curriculum. However, for the purpose of this study, the different programs were all treated as being representative of the same WIL experience.

In addition, some of the part-time students could already have been employed in the accounting profession prior to undertaking their degree studies. Thus, some limitations may exist for the study mode variable.

5.6.2 Data limitations

The number of students who completed WIL was quite low (n=21). Although a limitation of sorts, the low WIL response rate is symptomatic of the low WIL participation rates at universities. For example, at VU, WIL participation is less than 10 percent of student enrolments across the different degree programs. Consequently, the present research employed Lasso and R-glmulti supplement statistical techniques to justify the inclusion of WIL in the logistic regression models.

5.6.3 Limitations of scope

The present research is limited to accounting near-graduates at two Melbourne-based universities. This represents less than 10 percent of accounting degree courses in Australia. Therefore, the results are not necessarily generalisable to all Australian, or overseas, universities.

5.6.4 Future directions

The study provides a foundation for further academic research and suggests an approach that could be used by policy-makers in academia and the accounting profession.

For further academic research, studies could incorporate a greater sample of universities in order to further examine the three-factor self-efficacy structure on employment from an accounting education context. In addition, future studies could provide a more granular analysis of WIL programs in order to differentiate between WIL programs and identify which produce better employment outcomes for accounting near-graduate students. This would assist in the allocation of resources to the most effective modes of WIL.

Further research could adopt either a qualitative or mixed methods approach by employing primary and/or secondary data sources on self-efficacy, WIL and employment

outcomes. This could involve interviews with key stakeholders from industry, accounting academics and WIL organisers. Such an approach would provide a more in-depth analysis of the main factors associated with accounting near-graduate student employment.

A further possible research area is to undertake a longitudinal analysis to determine variable patterns over time, which would be more effective in identifying trends.

In addition, there is scope to compare the success of WIL programs in obtaining professional employment from competing universities. Such an approach has the potential to build via scale, commencing with within state university, followed by national and then international university WIL program.

The inclusion of cross-cultural settings as opposed to the more traditional international student versus domestic student setting could be considered.

Another potential avenue for study is to undertake closer examination of the inter-professional collaborations between different stakeholders, including academics, industry and accounting students. This avenue could provide deeper insight to the potential of WIL training as a means to further improve accounting student employment outcomes.

Finally, the three-factor self-efficacy model should be further investigated within the WIL context as a potential means to redesign university curriculum programs aimed at maximising student employment prospects.

In the context of these future research possibilities, this study has provided a strong foundation and opening up the potential for more in-depth analysis of this important area of academic accounting research.

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Appendix A: Questionnaire

Self-efficacy, individual characteristics and employment of accounting near-graduate students

Dear Student,

Welcome!

You are invited to participate in this research which examines students' self-efficacy, individual characteristics and the employment outcome of near-graduate accounting students.

The following survey contains a series of questions about your demographic characteristics, perception of your self-efficacy and work-integrated learning (WIL) program (if any).

The survey examines students' perspective on factors impacting employment outcomes in order to improve future students' employment outcomes.

Your completion and return of the questionnaire implies your consent to participate. However, you have the right to decline to particular question(s) and/or ask any questions about the study at any time during the study.

Your privacy is fully protected since you are NOT required to provide any identifiable information about yourself. Your participation is much appreciated.

Thank you.

Section 1: General demographics

Please tick (✓) the appropriate box that best applies to you.

1. Your gender

Female ☐ Male ☐

2. Mode of study of your current enrolment

Full time ☐ Part time ☐

3. Your initial enrolment at the commencement of your degree

Full time ☐ Part time ☐

4. Your Age group (years)

18-20 ☐ 21-30 ☐ 31-40 ☐ Over 40 ☐

5. Are you in your final year of studying accounting degree?

YES ☐ NO ☐

6. For how many years have you been studying your accounting degree? _____Years

7. What major/majors are you undertaking? _____

8. Are you presently enrolled as an Australian domestic student?

YES ☐ NO ☐

9. Is English your first language at home?

YES ☐ NO ☐

If No, what is your first language? _____

10. Are you the first in your family to attend university?

YES ☐ NO ☐

11. Have you secured full-time employment in your discipline area?

YES ☐ NO ☐ (***If your answer is No, please go to Section 2 Q.13)***

12. What best describes the type of organisation you will be working in

a) Big Four firms (e.g. PWC, Ernest and Young, Deloitte, KPMG) _____

b) 2nd tier Accounting firm (e.g. Grant Thornton) _____

c) Suburban Accounting firm _____

d) Regional Accounting firm (e.g. Bendigo) _____

e) Large Public Company (e.g. BHP) _____

f) Small to Medium size business (up to 50 employees) _____

g) Any other (give the name of the organisation) _____

Section 2: Work integrated learning (WIL) and employability

Please read carefully and answer all of the sections as it applies to you.

13. Have you completed a WIL program as part of your accounting course?

YES ☐ NO ☐ ***(If you answered No, go to Section 5 Q. 28)***

14. In which year of your course did you undertake WIL?

First year ☐ Second year ☐ Final year ☐

15. Was your WIL an industry placement outside of university?

YES ☐ NO ☐

If no, go to question 17.

16. If YES, please provide the name of the organisation

_____

17. How long was the overall duration of your WIL program? (Select one option)

2 weeks ☐

1 month ☐

3 months ☐

6 months ☐

12 months ☐

Other _____

18. What best describes the type of organisation you had WIL training in?

a) Big Four Firms (e.g. PWC, Ernest and Young, Deloitte, KPMG) _____

b) 2nd tier Accounting Firm (e.g. Grant Thornton) _____

c) Suburban Accounting Firm_ _____

d) Regional Accounting Firm (e.g. Bendigo) _____

e) Large Public Company (e.g. BHP) _____

f) Small to Medium size business (up to 50 employees)_____

g) Any other (give the name of the organisation) _____

19. Did you obtain employment as a result of your WIL placement?

YES ☐ NO ☐

If no, go to question 21

20. Did you obtain an ongoing position in the SAME organisation, where WIL was provided?

YES ☐ NO ☐

21. What is your overall satisfaction of the WIL experience at your university?

(Tick only one box):

Not at all satisfied ☐

Not satisfied ☐

Don't know ☐

Satisfied ☐

Very satisfied ☐

22. If you answered <u>Not at all satisfied/Not satisfied</u>, please provide reasons as to why?

_____
_____
_____
_____
_____
_____
_____
_____

23. If you answered <u>Satisfied/Very satisfied</u>, please provide reasons as to why?

_____
_____
_____
_____
_____
_____
_____

Section 3: Tasks performed during WIL training

24. What is an approximate percentage of your time spent on ACCOUNTING RELATED TASKS during your WIL placement?

Less than 30% ☐

30-50% ☐

51-80% ☐

More than 80% ☐

25. What type of tasks did you perform during your WIL program?

a) Record financial transactions manually

YES ☐ NO ☐

b) Record financial transactions using accounting software (e.g., MYOB, QuickBooks)

YES ☐ NO ☐

c) Assist in the preparation of Income Tax Returns

YES ☐ NO ☐

d) Reconcile accounts including Bank Reconciliation

YES ☐ NO ☐

e) Analyse financial statements using ratios

YES ☐ NO ☐

f) Perform financial investigations (audits)

YES ☐ NO ☐

g) Prepare budgets for revenue and/or expenses

YES ☐ NO ☐

h) Costing products, including break even analysis

YES ☐ NO ☐

i) Other tasks (specify, even if it is a non-accounting task)

_____
_____
_____
_____
_____
_____
_____
_____
_____

26. For each of the statements below indicate the extent to which agree or disagree with types of the tasks and activities, that you performed during your WIL placement. Tick one box only for each statement.

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
I spend my placement doing tasks and activities, relevant to my field of study	☐	☐	☐	☐	☐
I worked with considerable autonomy / responsibility during my placement	☐	☐	☐	☐	☐
I had plenty of opportunities to do the work that was relevant to what I have been learning at university	☐	☐	☐	☐	☐
Work placement gave me opportunity to learn skills that I could not acquire at university	☐	☐	☐	☐	☐
The work that I did at the placement was relevant and consequential (not a one-off task)	☐	☐	☐	☐	☐
The activities that I performed were important in achieving the organisational objectives / goals	☐	☐	☐	☐	☐

Section 4: Generic Skills

27. For each of the statements below indicate the extent to which you believe you improved in following skills - as a result of WIL placement. Tick one box only for each statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
WIL helped me develop my ability to work as a team member	☐	☐	☐	☐	☐
WIL sharpened my analytic skills	☐	☐	☐	☐	☐
WIL developed my problem-solving skills	☐	☐	☐	☐	☐
WIL improved my skills in written communications	☐	☐	☐	☐	☐
As a result of WIL training, I feel confident about tackling unfamiliar problems	☐	☐	☐	☐	☐
WIL helped me to develop the ability to plan my own work	☐	☐	☐	☐	☐

Section 5: Self-efficacy

28. For each of the statements below indicate the extent to which you agree or disagree by placing a tick in one of the box for each statement that applies to you.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. If I make plans, I am convinced I will succeed in executing them	☐	☐	☐	☐	☐
2. If I have a failure the first time, I bite into it until it is going better	☐	☐	☐	☐	☐
3. If I absolutely want something, it usually goes wrong	☐	☐	☐	☐	☐
4. If I have the impression something new is complicated, I do not start it	☐	☐	☐	☐	☐
5. Even with unpleasant tasks I hold on until I am finished	☐	☐	☐	☐	☐
6. I have difficulties solving problems well in my life	☐	☐	☐	☐	☐
7. If I have made a decision to do something, I will do it.	☐	☐	☐	☐	☐
8. If I start something new, I soon have to have the idea I'm on the right track, otherwise I quit.	☐	☐	☐	☐	☐
9. Unexpected problems make me quickly lose my balance	☐	☐	☐	☐	☐
10. If I make a mistake I try even harder	☐	☐	☐	☐	☐
11. I do not start learning new things if I think they are too difficult	☐	☐	☐	☐	☐
12. I doubt myself.	☐	☐	☐	☐	☐

Appendix B: Summary of the research methods employed in similar prior studies

Name of researchers; Year of study	Sample size; Subjects; Country	Dependent variable	Independent variables	Research methods employed	Objective of the study
Sherer et al. (1982)	N=376; Students of psychology classes; USA	n/a	n/a	Factor analysis Scree test (Cartell 1966) 14-point Likert scale from Strongly disagree to Strongly agree	To test construction, reliability and construct validity of GSE and social self-efficacy of sub-scales applied for social skills and a Cronbach alpha 0.86 and 0.71 respectively
Bosscher and Smit (1998)	N=2,860; Part of 10-year Longitudinal Aging Study Amsterdam (LASA); NL	n/a	n/a	CFA with max likelihood, LISRELL VIII (Joreskog & Sorbom 1993)	To replicate the factor structure of the 12-item GSES (Sherer et al., 1982) Cronbach alpha 0.69
Tymon (2011)	N= percentage of sample population: 50% of 1st year; 65% of 2nd year and 5% of final year students in business studies of UK university	n/a	n/a	Qualitative research using predominantly focus groups for data collection and subsequent comparison and alignment of views	To explore students' and other stakeholders' views on employability and role of education in improving employment outcomes
Freudenberg et al. (2011)	N=176; Students of professional degree (PD) programs; Australia	WIL	Self-efficacy Generic skills	Longitudinal survey Descriptive stats compared to control group	To assess the impact of PD on student attributes commonly associated with WIL, such as satisfaction, self-efficacy and generic skills
Jackson (2013)	N=28,246 (2011) N=28,146 (2012);	Job attainment	Course quality	Logistic regression	To investigate the determinants of full-time job attainment in

	National data from Australian Graduate Survey; Australia				graduates of bachelor degree programs
Rothwell et al. (2008)	N=344; Students of degree programs in three universities; UK	–2 and 4 factor regression models	Ambition; university commitment; self-perceived employability; internal and external employability	Monte Carlo PCA of 16-item self-perceived employability scale; multiple hierarchical regression analysis; varimax rotation; Kaiser-Meyer-Olkin (KMO) for sample adequacy	To explore the dimensions of employability
Jackson (2012)	N=1008 Skill Audit database Australia (data represented 42% born in Asia, 10% in Africa, 8% in Europe and 40% in Australasia	Employability skills performance	Continent; sex; stage; age; importance; quality; working status; work experience; major; life spheres	Online audit; histograms; regression analysis; bivariate correlations; VIF and tolerance for testing multicollinearity	To test the model of undergraduate competence in employability skills
Jackson (2013)	N=131 Undergraduate students with WIL completed Australia	Employability	Age; sex; degree type; year of study; hours of placement; organisation type; size of organisation	Surveys carried before and after placements; scales of 1 to 7 were used for self-assessment of skills via ANOVA	To investigate the role of WIL on employability of undergraduate students
Purdie et al. (2013)	N=716 Self-selected sample of undergraduate students from all academic schools of a UK university	Trait hope, academic self-efficacy, study motivation	Gender; school; current marks; WIL	T-tests, mean scores, standard deviation for two groups – with WIL and without WIL training	To investigate whether there are psychological differences in students who completed and who did not compete WIL training; the impact of WIL on employability

Hazenberg et al. (2015)	N=213 Group of unemployed graduates UK	GSE	Age, gender, degree qualification, time spent unemployed	Quasi-experimental, longitudinal approach; questionnaire surveys at time 1 (induction) and online survey at time 2 (after the intervention program); descriptive statistics and one-way ANOVA for relationships between demographic data and GSE; histograms and Q-Q plots and t-tests	To analyse the impact of demographic characteristics and educational expertise on GSE
Guan et al. (2013)	N=270 University graduates China	Job-search efficacy; employment status; fit perception	Faculty; gender; age; education; family income; father education; mother education; career concerns; career control; career curiosity; career confidence; job search self-efficacy	CFA (factor structure); linear regression (job-search self-efficacy); logistic regression analysis (employment status); hierarchical regression analysis (fit perception)	To examine the role of career adaptability in Chinese university graduates
Bui and Porter (2010)	N=30 Final year university students (n=8) academics (n=6), recent graduates (n=5), employers (n=11); NZ	n/a	n/a	Qualitative research, data collected by semi-structured interviews transcribed and coded, cross comparison of responses from different stakeholders	To explore and test the accounting education outcomes from different stakeholder perspectives

Appendix C: Assumptions testing for the GSES

Chi-Square test; frequencies

Q28-1 If planned - confident to succeed

	Observed N	Expected N	Residual
Strongly disagree	1	67.4	-66.4
Disagree	12	67.4	-55.4
N/A	5	67.4	-62.4
Agree	199	67.4	131.6
Strongly agree	120	67.4	52.6
Total	337		

Q28-2 Failed first time-will do better

	Observed N	Expected N	Residual
Disagree	17	84.3	-67.3
N/A	4	84.3	-80.3
Agree	186	84.3	101.8
Strongly agree	130	84.3	45.8
Total	337		

Q28.3 Rev

	Observed N	Expected N	Residual
1.00	13	67.4	-54.4
2.00	59	67.4	-8.4
3.00	13	67.4	-54.4
4.00	220	67.4	152.6
5.00	32	67.4	-35.4
Total	337		

Q28.4 Rev

	Observed N	Expected N	Residual
1.00	10	67.4	-57.4
2.00	72	67.4	4.6
3.00	9	67.4	-58.4
4.00	210	67.4	142.6
5.00	36	67.4	-31.4
Total	337		

Q28-5 Will finish even unpleasant tasks

	Observed N	Expected N	Residual
Strongly disagree	2	67.4	-65.4
Disagree	24	67.4	-43.4
N/A	6	67.4	-61.4
Agree	227	67.4	159.6
Strongly agree	78	67.4	10.6
Total	337		

Q28.6 Rev

	Observed N	Expected N	Residual
1.00	13	67.4	-54.4
2.00	71	67.4	3.6
3.00	9	67.4	-58.4
4.00	197	67.4	129.6
5.00	47	67.4	-20.4
Total	337		

Q28-7 If made decision to do will do it

	Observed N	Expected N	Residual
Strongly disagree	1	67.4	-66.4
Disagree	13	67.4	-54.4
N/A	7	67.4	-60.4
Agree	186	67.4	118.6
Strongly agree	130	67.4	62.6
Total	337		

Q28.8 Rev

	Observed N	Expected N	Residual
1.00	36	67.4	-31.4
2.00	123	67.4	55.6
3.00	17	67.4	-50.4
4.00	133	67.4	65.6
5.00	28	67.4	-39.4
Total	337		

Q28.9 Rev

	Observed N	Expected N	Residual
1.00	20	67.4	-47.4
2.00	100	67.4	32.6
3.00	8	67.4	-59.4
4.00	184	67.4	116.6
5.00	25	67.4	-42.4
Total	337		

28-10 If made mistake will try harder

	Observed N	Expected N	Residual
Disagree	28	84.3	-56.3
N/A	9	84.3	-75.3
Agree	200	84.3	115.8
Strongly agree	100	84.3	15.8
Total	337		

Q28.11 Rev

	Observed N	Expected N	Residual
1.00	14	67.4	-53.4
2.00	49	67.4	-18.4
3.00	9	67.4	-58.4
4.00	199	67.4	131.6
5.00	66	67.4	-1.4
Total	337		

Q28.12Rev

	Observed N	Expected N	Residual
1.00	26	67.4	-41.4
2.00	83	67.4	15.6
3.00	19	67.4	-48.4
4.00	143	67.4	75.6
5.00	66	67.4	-1.4
Total	337		

Test statistics

	Q28-1	Q28-2 r	Q28.3	Q28.4	Q28-5	Q28.6	Q28-	Q28.8	Q28.9	Q28-10	Q28.11	Q28.12
Chi-Square	466.724[a]	277.849[b]	452.955[a]	416.131[a]	526.932[a]	350.077[a]	430.285[a]	185.062[a]	329.840[a]	266.739[b]	354.914[a]	148.623[a]
df	4	3	4	4	4	4	4	4	4	3	4	4
Asymp. Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 67.4.
b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 84.3.

Runs test

	Q28 1	Q28 2	Q28 3	Q28 4	Q28 5	Q28 6	Q28 7	Q28 8	Q28 9	Q2 10	Q28 11	Q28 12
Test Value[a]	4	4	4.00	4.00	4	4.00	4	3.00	4.00	4	4.00	4.00
Cases < Test Value	18	21	85	91	32	93	21	159	128	37	72	128
Cases >= Test Value	319	316	252	246	305	244	316	178	209	300	265	209
Total Cases	337	337	337	337	337	337	337	337	337	337	337	337
Number of Runs	27	41	114	121	57	131	43	144	176	67	105	154
Z	-4.410	0.291	-2.044	-1.780	-0.614	-0.638	1.234	-2.733	1.880	0.035	-1.502	-0.668
Asymp. Sig. (2-tailed)	0.000	0.771	0.041	0.075	0.539	0.523	0.217	0.006	0.060	0.972	0.133	0.504

a. Median

PPlot

Model description

Model name		MOD_1
Series or sequence	1	Q28-1 If planned - confident to succeed
	2	Q28-2 Failed first time-will do better
	3	Q28.3Rev
	4	Q28.4Rev
	5	Q28-5 Will finish even unpleasant tasks
	6	Q28.6Rev
	7	Q28-7 If made decision to do will do it
	8	Q28.8Rev
	9	Q28.9Rev
	10	Q28-10 If made mistake will try harder
	11	Q28.11Rev
	12	Q28.12Rev
Transformation		None
Non-seasonal differencing		0
Seasonal differencing		0
Length of seasonal period		No periodicity
Standardisation		Not applied
Distribution	Type	Normal
	Location	estimated
	Scale	estimated
Fractional Rank Estimation Method		Blom's
Rank assigned to ties		Mean rank of tied values

Applying the model specifications from MOD_1

Case processing summary

		Q28 1	Q28 2	Q28 3	Q28 4	Q28 5	Q28 6	Q28 7	Q28 8	Q28 9	Q28 10	Q28 11	Q28 12
Series or Sequence Length		337	337	337	337	337	337	337	337	337	337	337	337
Number of Missing Values in the Plot	User-Missing	0	0	0	0	0	0	0	0	0	0	0	0
	System-Missing	0	0	0	0	0	0	0	0	0	0	0	0

The cases are unweighted.

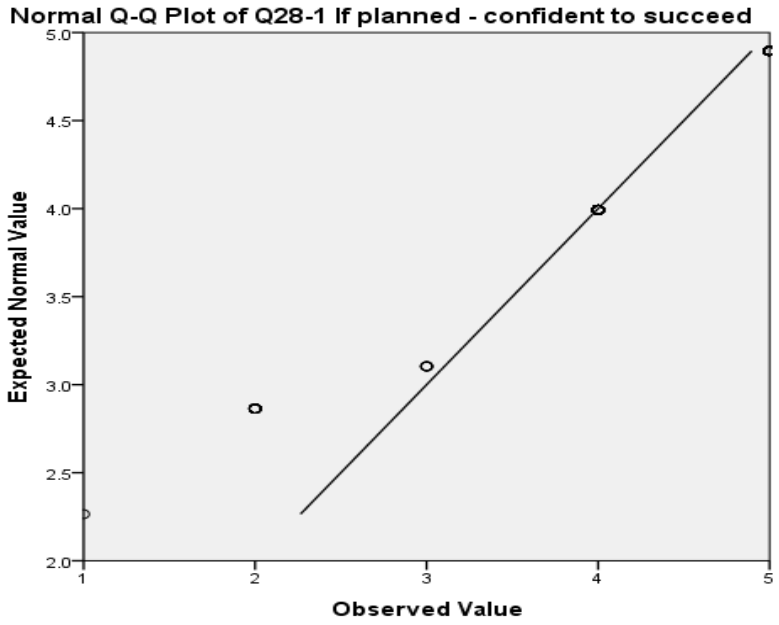
Estimated Distribution Parameters

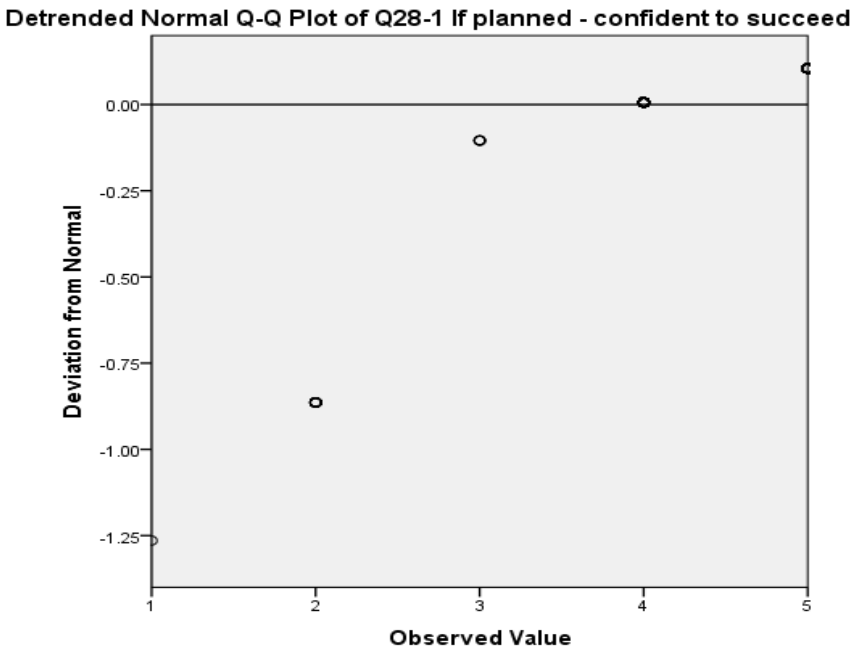
		Q28 1	Q28 2	Q28 3	Q28 4	Q28 5	Q28 6	Q28 7	Q28 8	Q28 9	Q28 10	Q28 11	Q28 12
Normal Distribution	Location	4.26	4.27	3.59	3.56	4.05	3.57	4.27	2.98	3.27	4.10	3.75	3.41
	Scale	0.68	.725	1.00	1.03	0.76	1.08	0.71	1.23	1.14	0.80	1.05	1.24

The cases are unweighted.

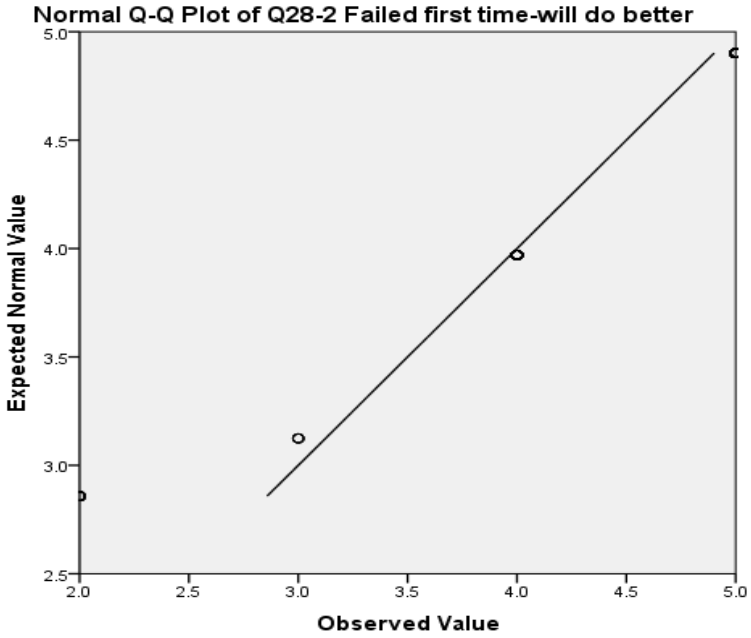
Normality tests

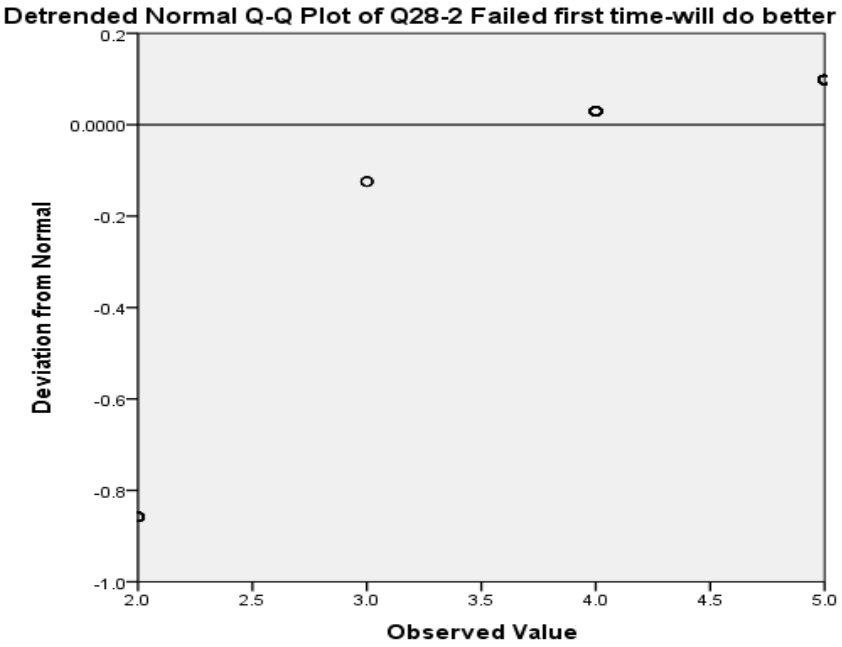
GSES Item 1



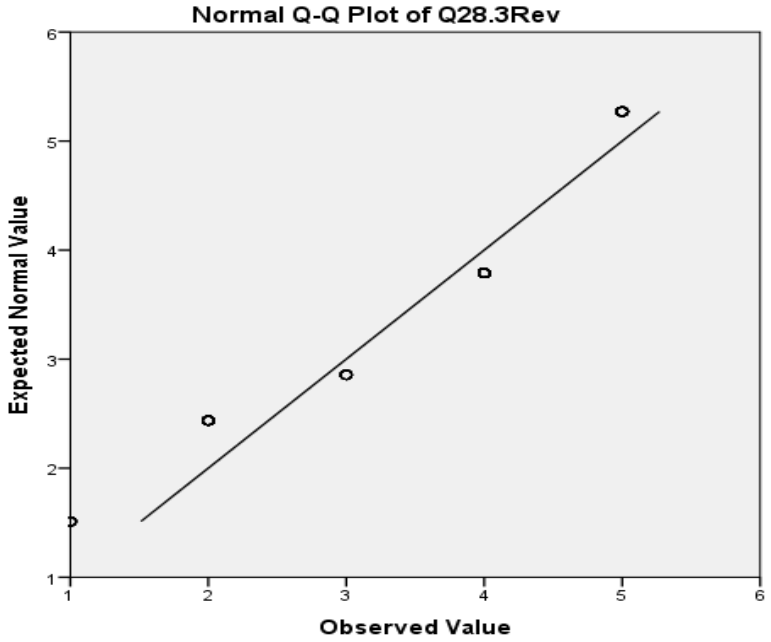


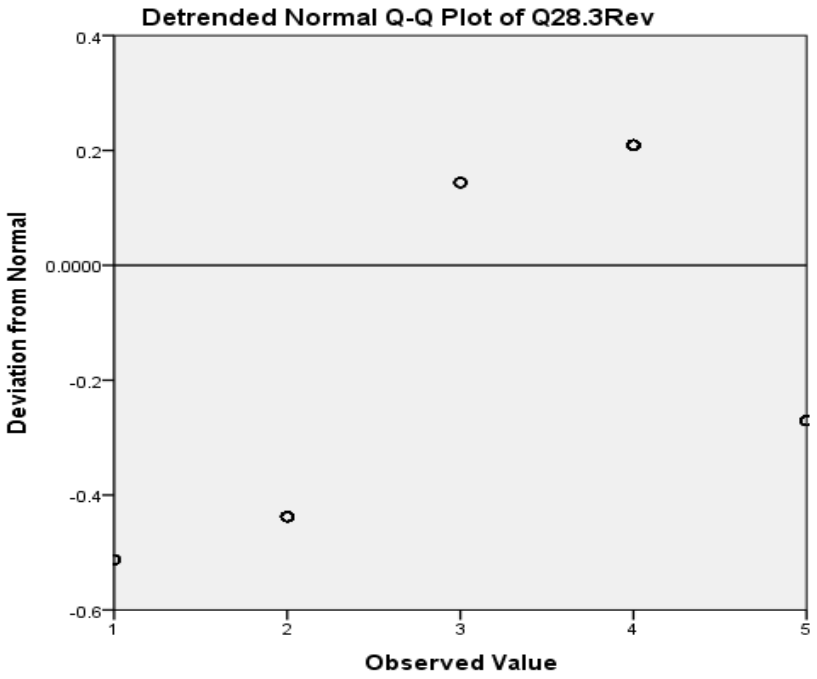
GSES Item 2


Normal Q-Q Plot of Q28-2 Failed first time-will do better
Expected Normal Value
Observed Value
5.0
4.5
4.0
3.5
3.0
2.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

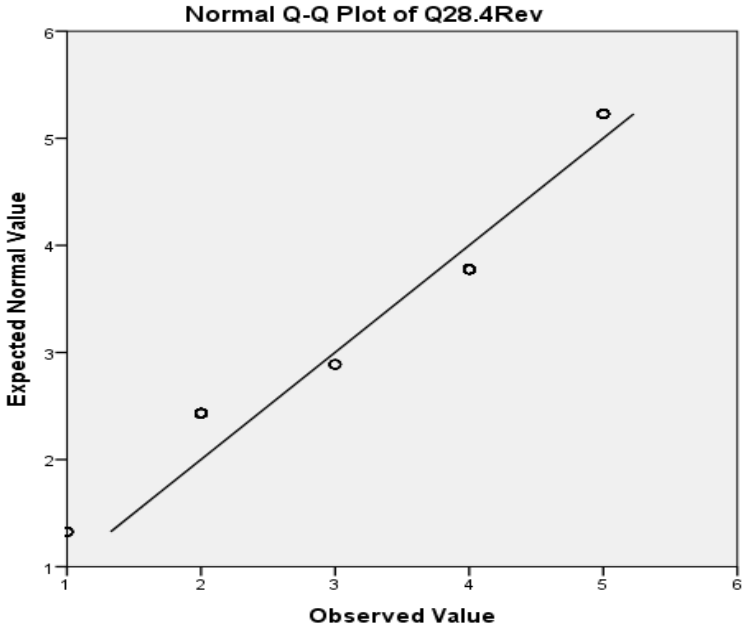

Detrended Normal Q-Q Plot of Q28-2 Failed first time-will do better
Deviation from Normal
Observed Value
0.2
0.0000
-0.2
-0.4
-0.6
-0.8
-1.0
2.0
2.5
3.0
3.5
4.0
4.5
5.0

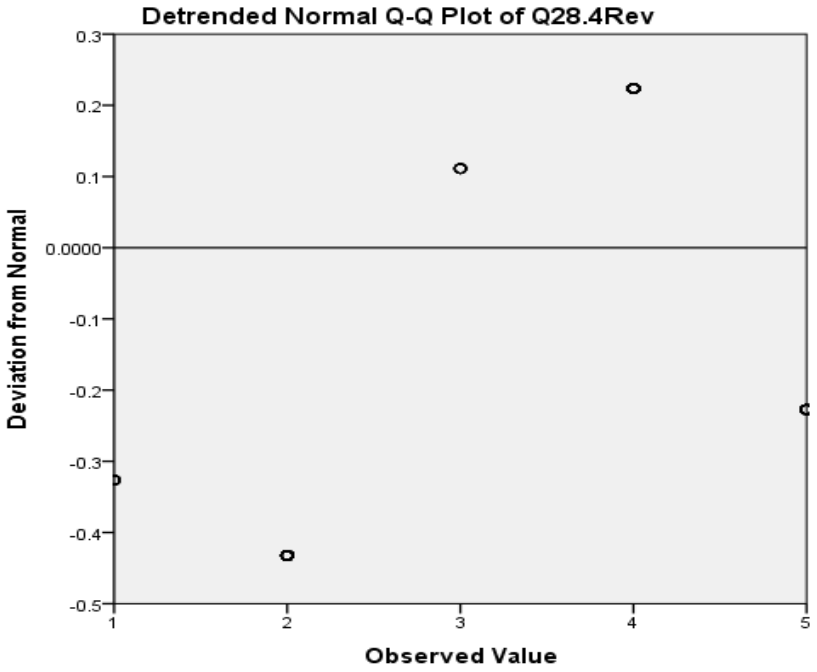
GSES Item 3


Normal Q-Q Plot of Q28.3Rev
Expected Normal Value
Observed Value
1
2
3
4
5
6

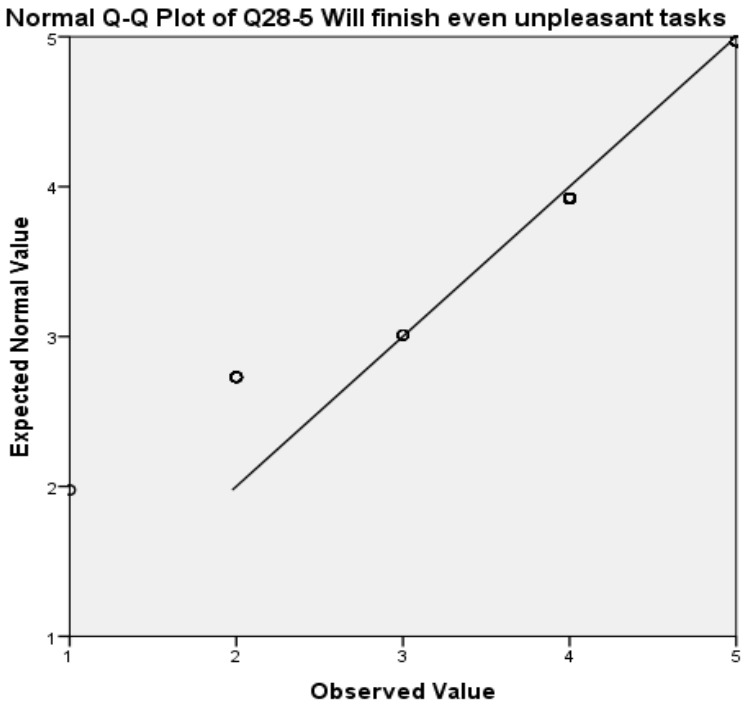

Detrended Normal Q-Q Plot of Q28.3Rev
Deviation from Normal
Observed Value
0.4
0.2
0.0000
-0.2
-0.4
-0.6
1
2
3
4
5

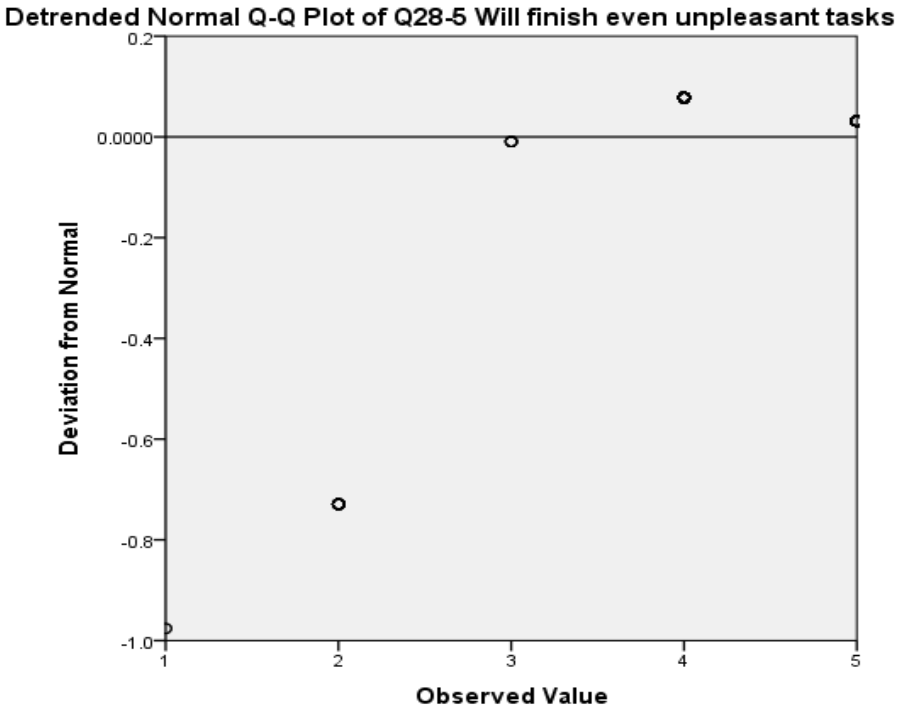
GSES Item 4


Normal Q-Q Plot of Q28.4Rev
Expected Normal Value
Observed Value
1
2
3
4
5
6

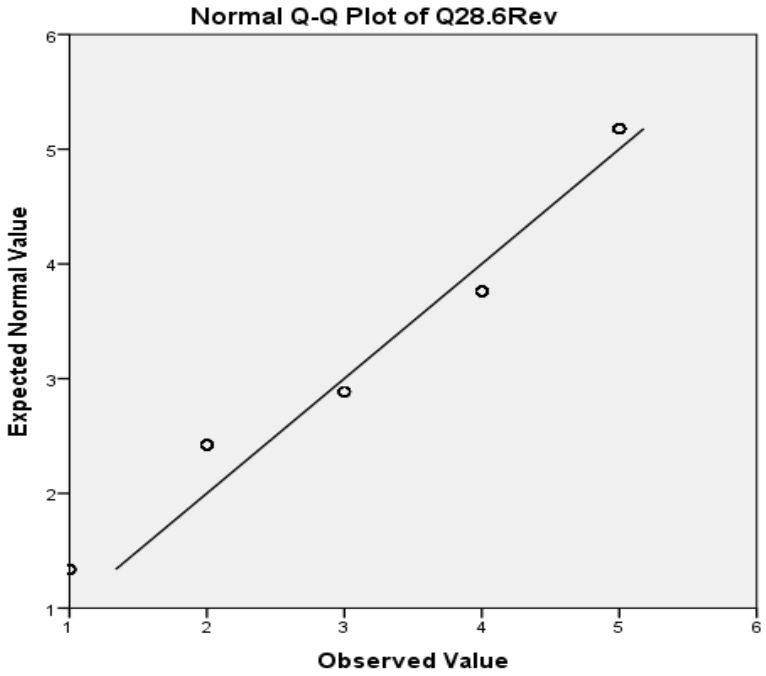

Detrended Normal Q-Q Plot of Q28.4Rev
Deviation from Normal
Observed Value
0.3
0.2
0.1
0.0000
-0.1
-0.2
-0.3
-0.4
-0.5
1
2
3
4
5

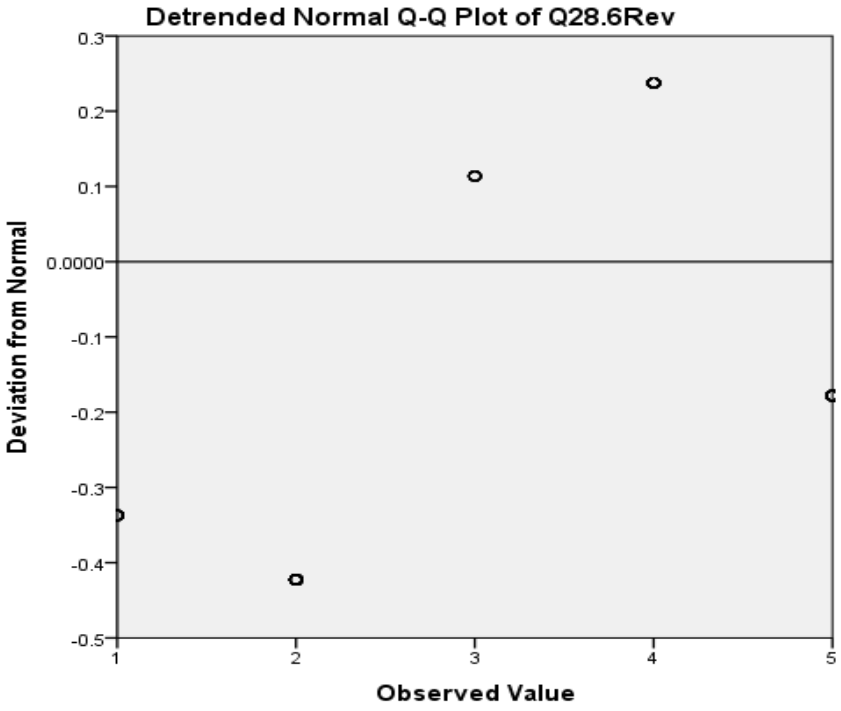
GSES Item 5


Normal Q-Q Plot of Q28-5 Will finish even unpleasant tasks
Expected Normal Value
Observed Value
1
2
3
4
5

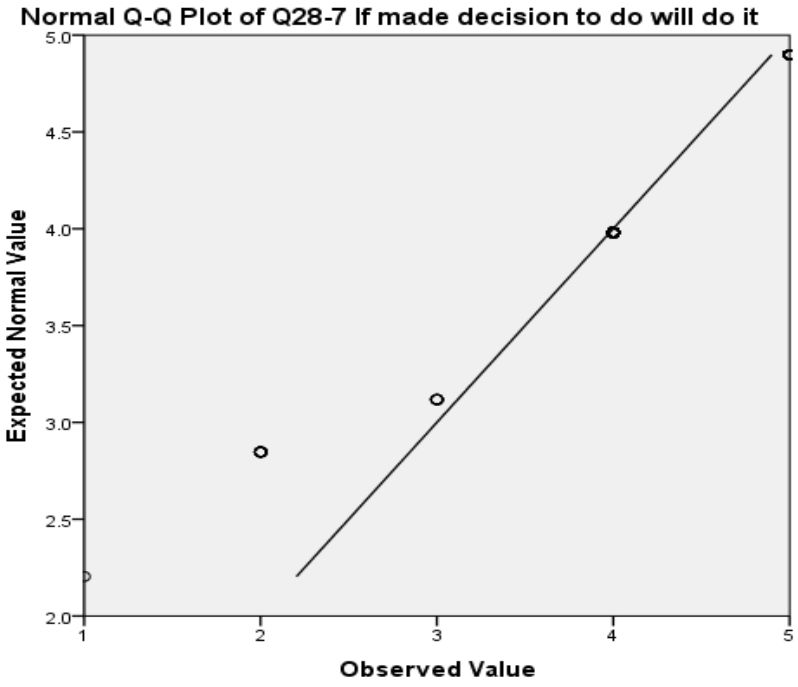

Detrended Normal Q-Q Plot of Q28-5 Will finish even unpleasant tasks
Deviation from Normal
Observed Value
0.2
0.0000
-0.2
-0.4
-0.6
-0.8
-1.0
1
2
3
4
5

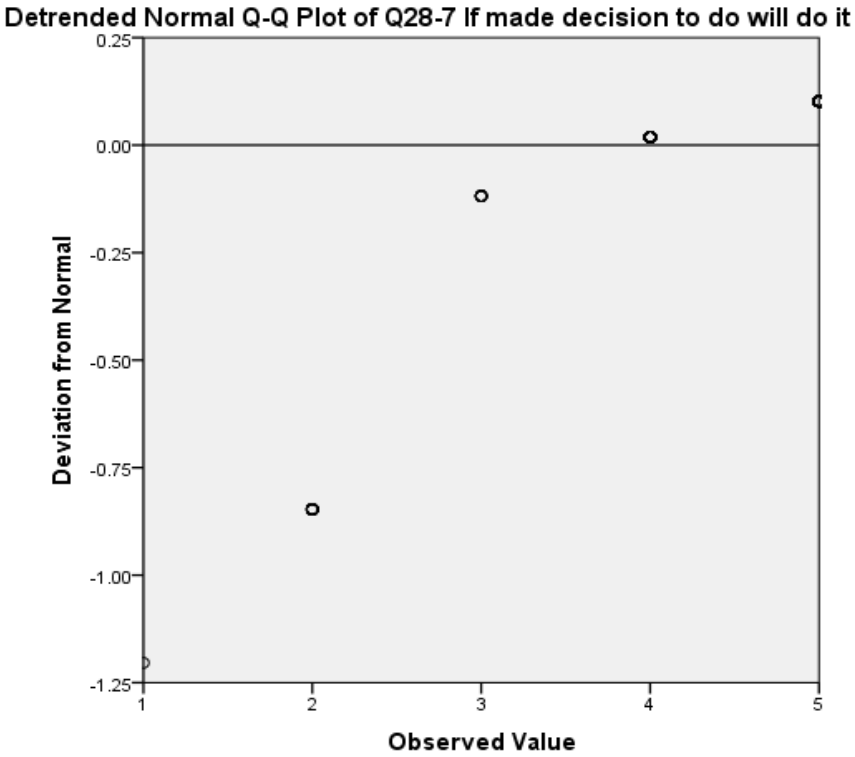
GSES Item 6


Normal Q-Q Plot of Q28.6Rev
Expected Normal Value
Observed Value
1
2
3
4
5
6

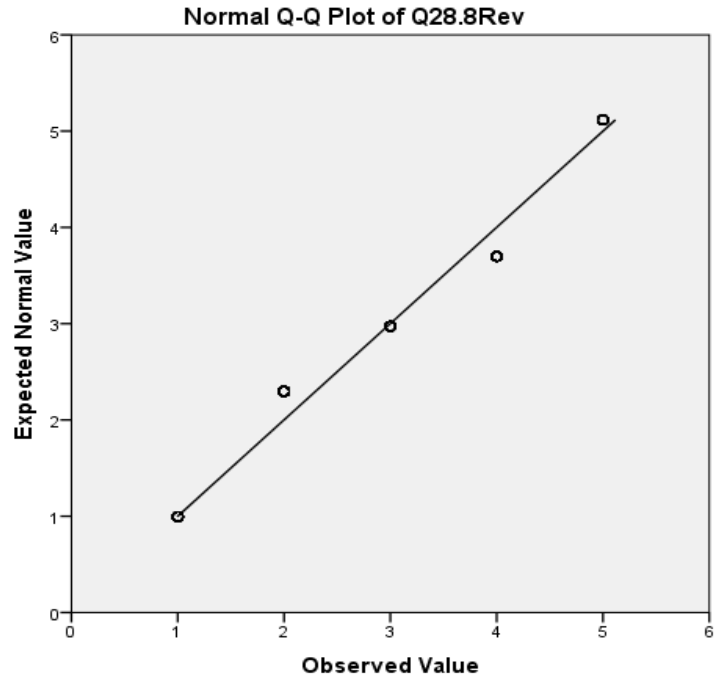

Detrended Normal Q-Q Plot of Q28.6Rev
Deviation from Normal
Observed Value
0.3
0.2
0.1
0.0000
-0.1
-0.2
-0.3
-0.4
-0.5
1
2
3
4
5

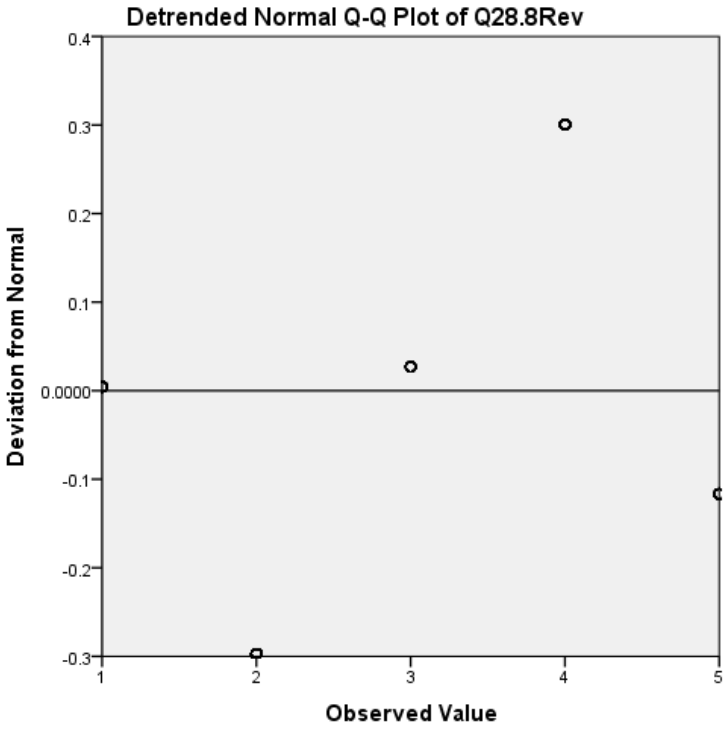
GSES Item 7


Normal Q-Q Plot of Q28-7 If made decision to do will do it
Expected Normal Value
Observed Value
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1
2
3
4
5

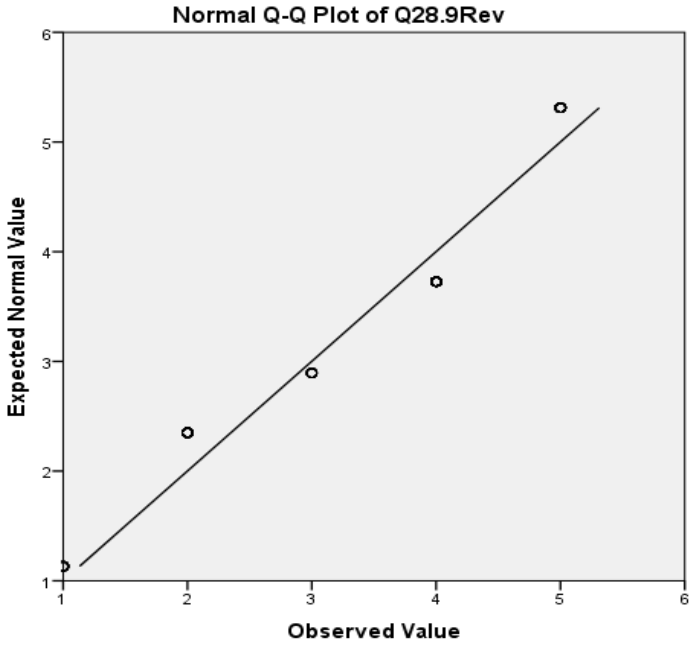

Detrended Normal Q-Q Plot of Q28-7 If made decision to do will do it
Deviation from Normal
Observed Value
0.25
0.00
-0.25
-0.50
-0.75
-1.00
-1.25
1
2
3
4
5

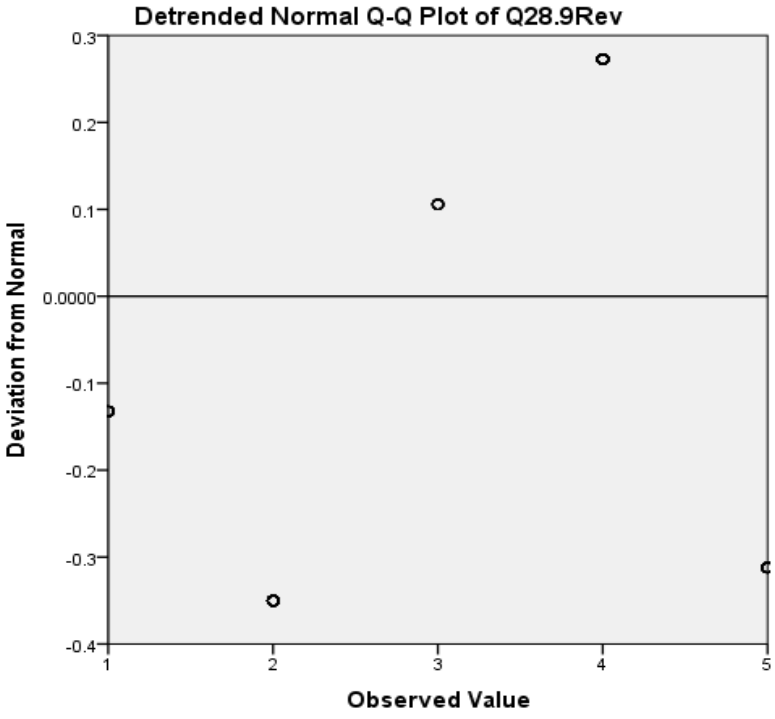
GSES Item 8


Normal Q-Q Plot of Q28.8Rev
Expected Normal Value
Observed Value
0
1
2
3
4
5
6

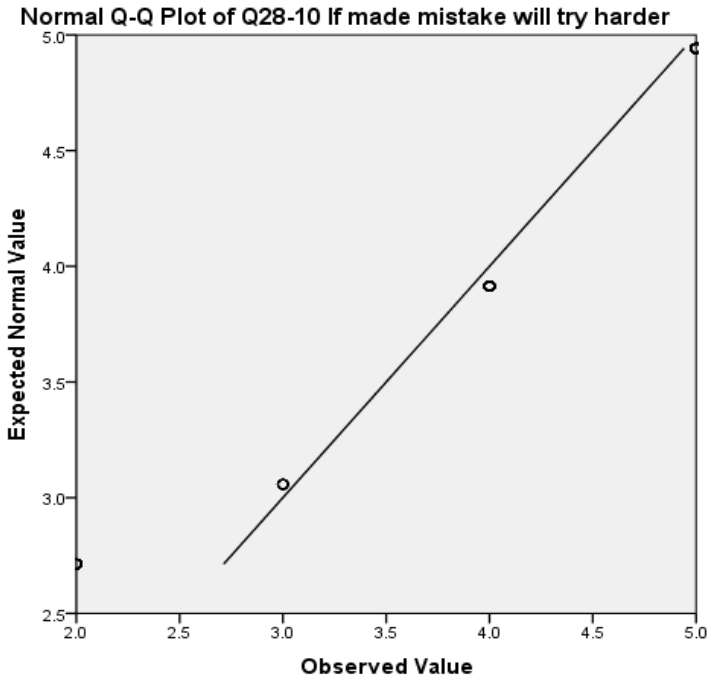

Detrended Normal Q-Q Plot of Q28.8Rev
Deviation from Normal
Observed Value
0.4
0.3
0.2
0.1
0.0000
-0.1
-0.2
-0.3
1
2
3
4
5

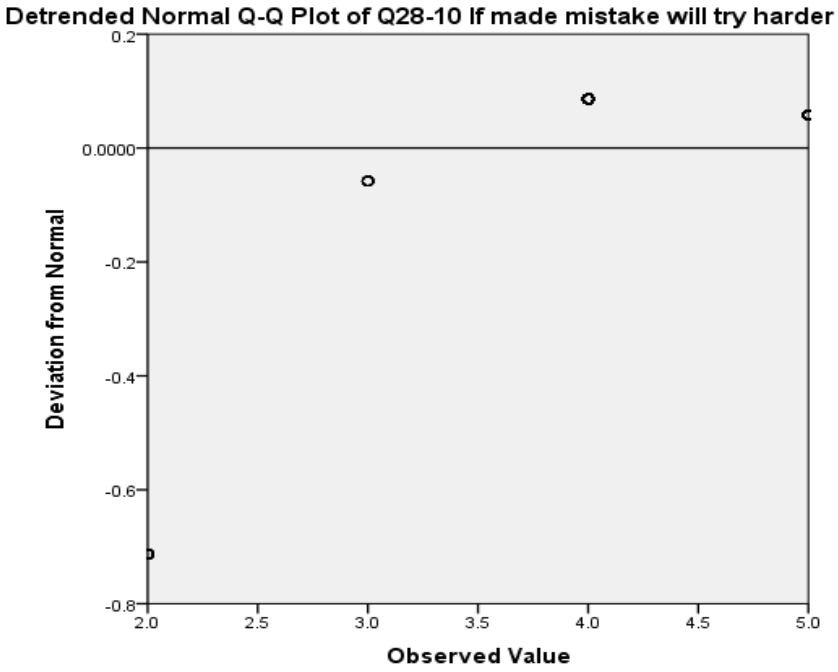
GSES Item 9


Normal Q-Q Plot of Q28.9Rev
Expected Normal Value
Observed Value
1
2
3
4
5
6

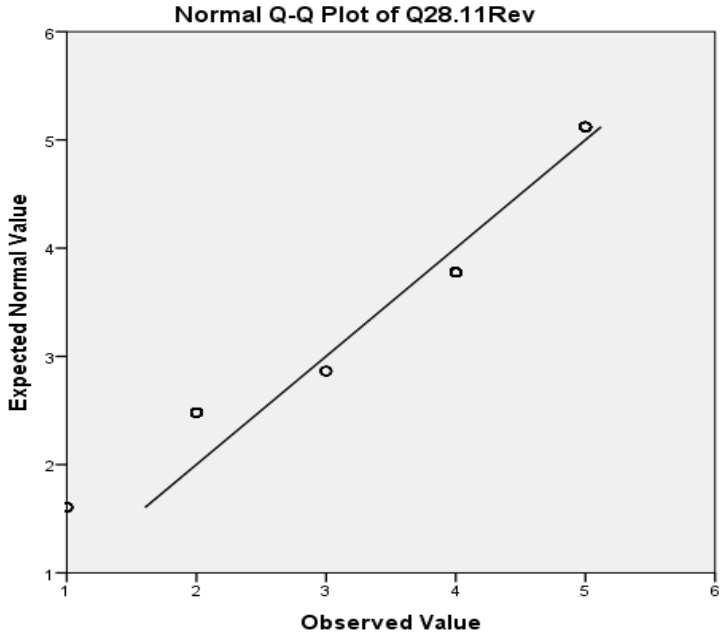

Detrended Normal Q-Q Plot of Q28.9Rev
Deviation from Normal
Observed Value
0.3
0.2
0.1
0.0000
-0.1
-0.2
-0.3
-0.4
1
2
3
4
5

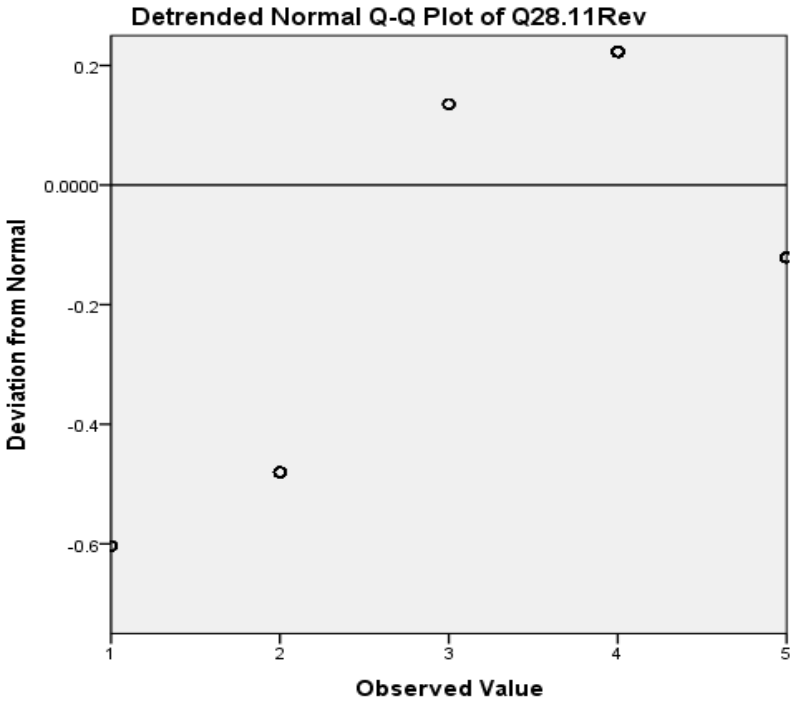
GSES Item 10


Normal Q-Q Plot of Q28-10 If made mistake will try harder
Expected Normal Value
Observed Value
5.0
4.5
4.0
3.5
3.0
2.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

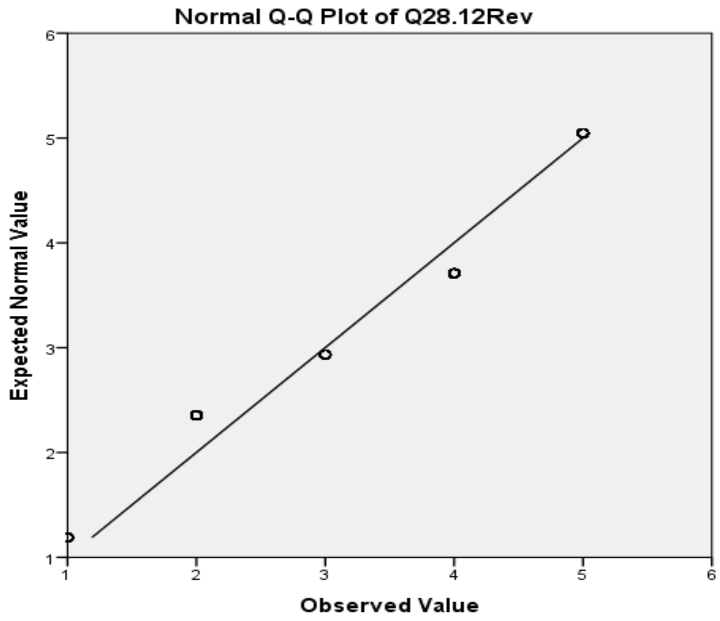

Detrended Normal Q-Q Plot of Q28-10 If made mistake will try harder
Deviation from Normal
Observed Value
0.2
0.0000
-0.2
-0.4
-0.6
-0.8
2.0
2.5
3.0
3.5
4.0
4.5
5.0

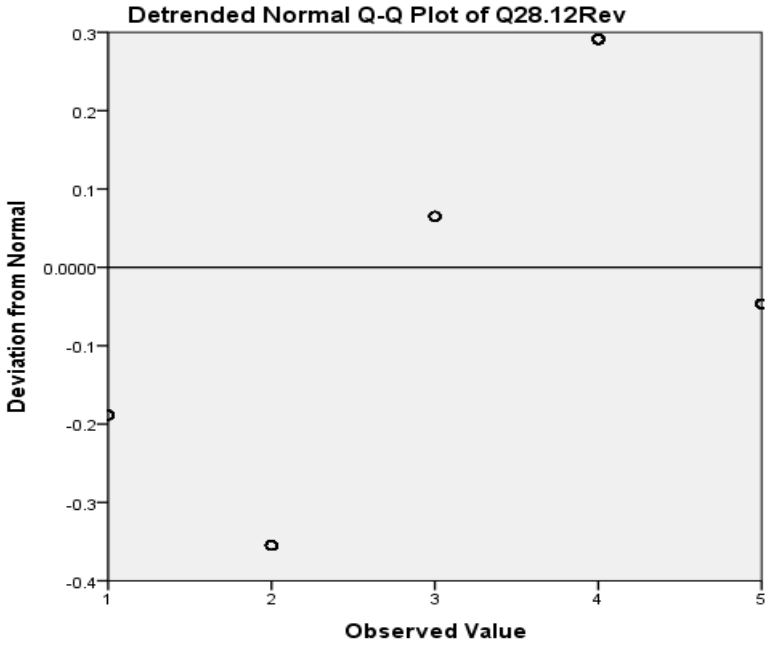
GSES Item 11


Normal Q-Q Plot of Q28.11Rev
Expected Normal Value
Observed Value
1
2
3
4
5
6


Detrended Normal Q-Q Plot of Q28.11Rev
Deviation from Normal
Observed Value
0.2
0.0000
-0.2
-0.4
-0.6
1
2
3
4
5

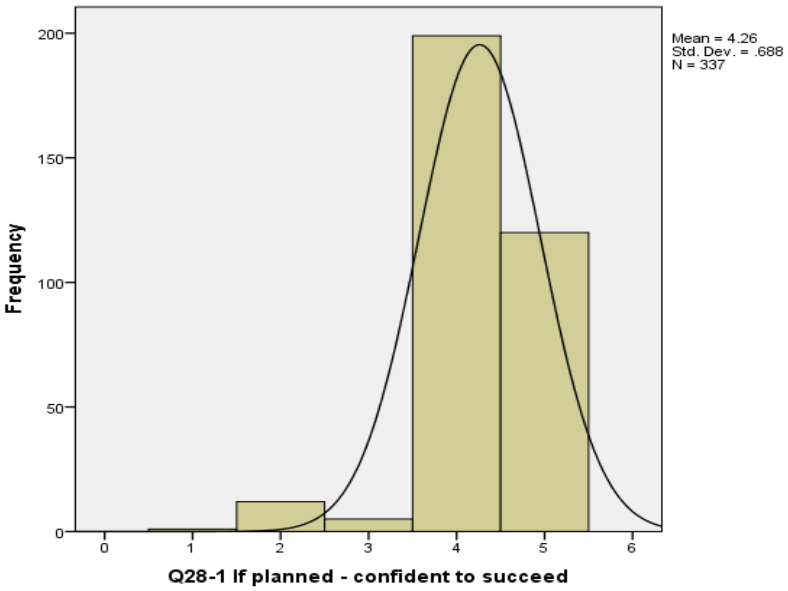
GSES Item 12


Normal Q-Q Plot of Q28.12Rev
Expected Normal Value
Observed Value
1
2
3
4
5
6


Detrended Normal Q-Q Plot of Q28.12Rev
Deviation from Normal
Observed Value
0.3
0.2
0.1
0.0000
-0.1
-0.2
-0.3
-0.4
1
2
3
4
5

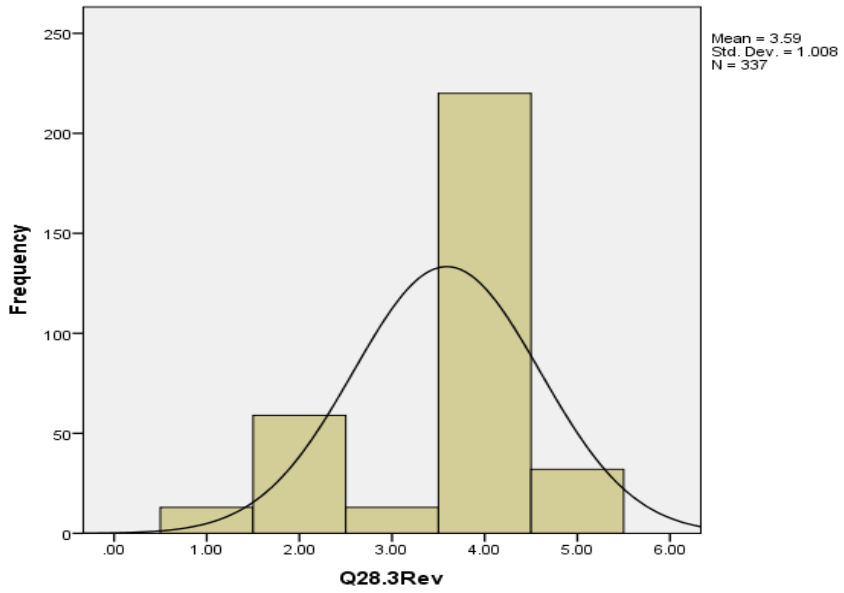
Histograms

GSES Item 1

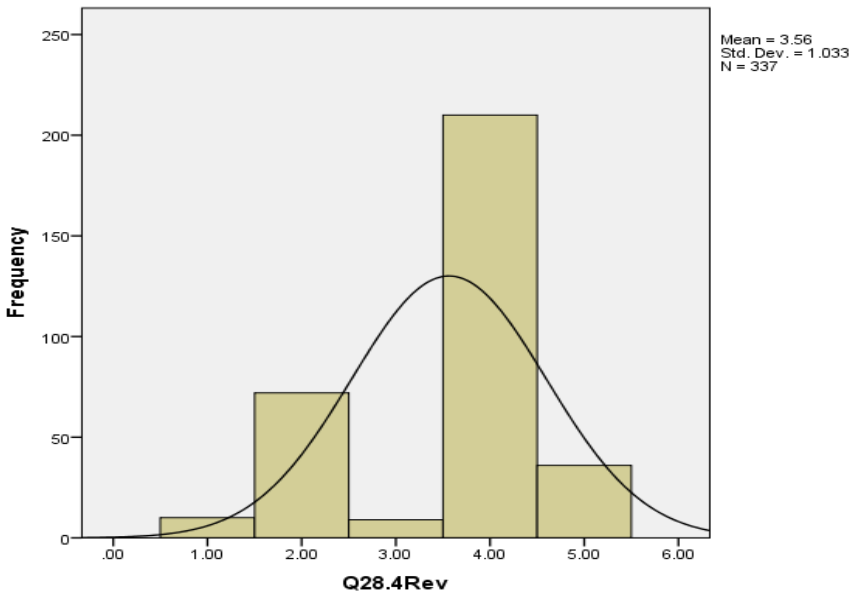


GSES Item 2

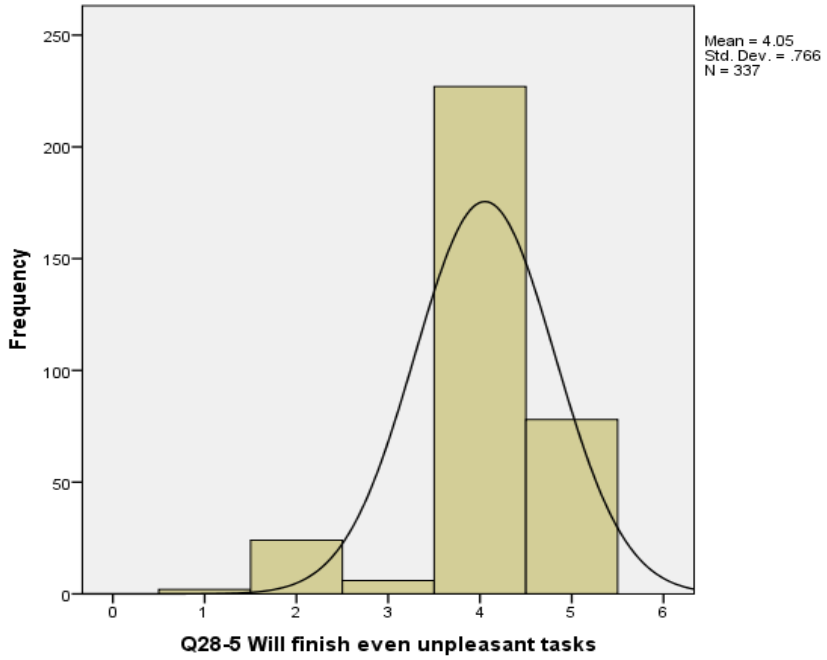
GSES Item 3



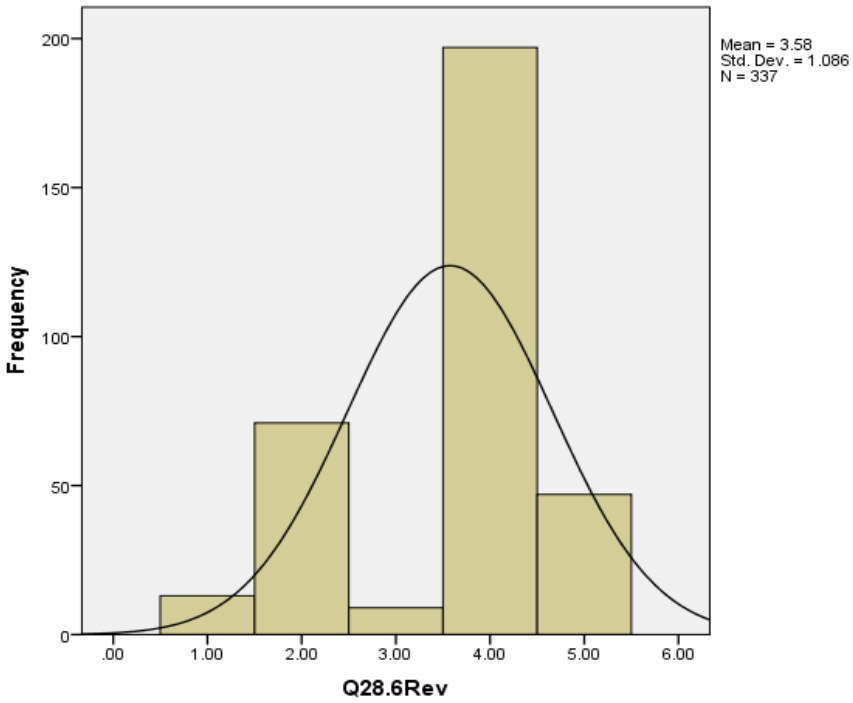
GSES Item 4



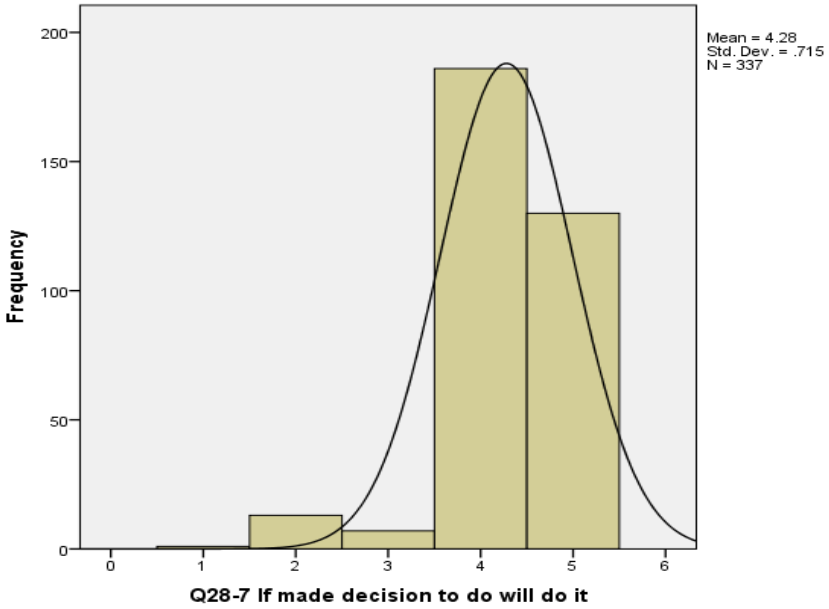
GSES Item 5



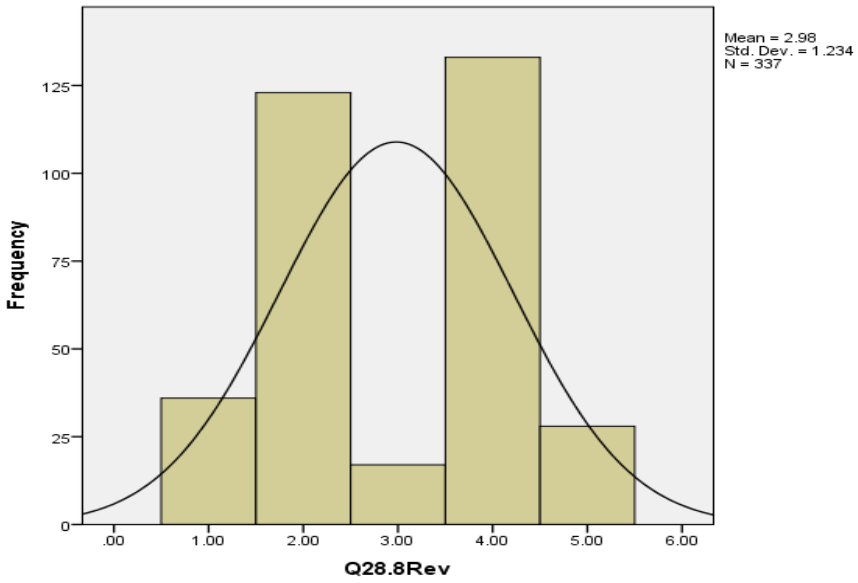
GSES Item 6



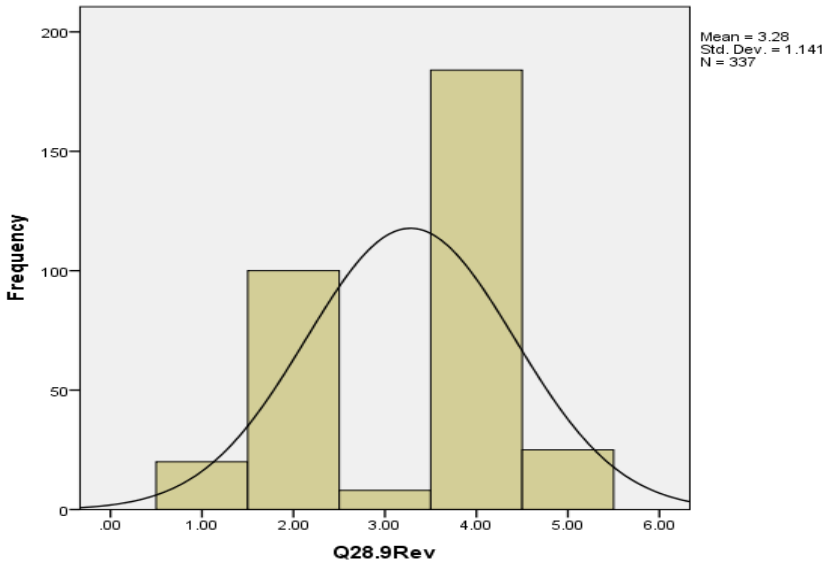
GSES Item 7



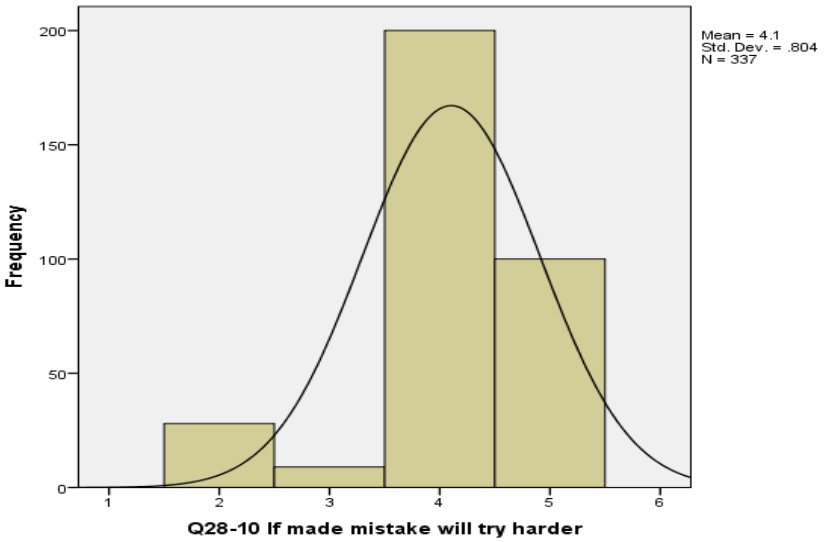
GSES Item 8



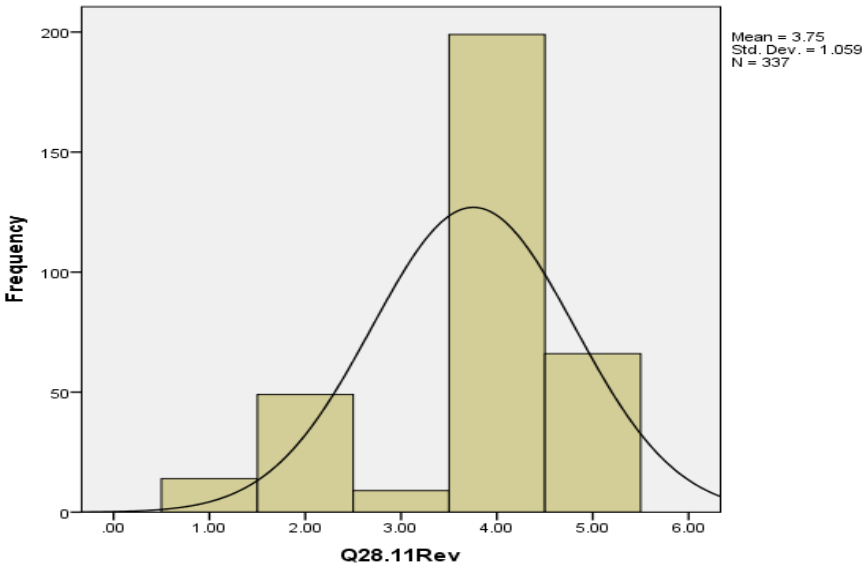
GSES Item 9



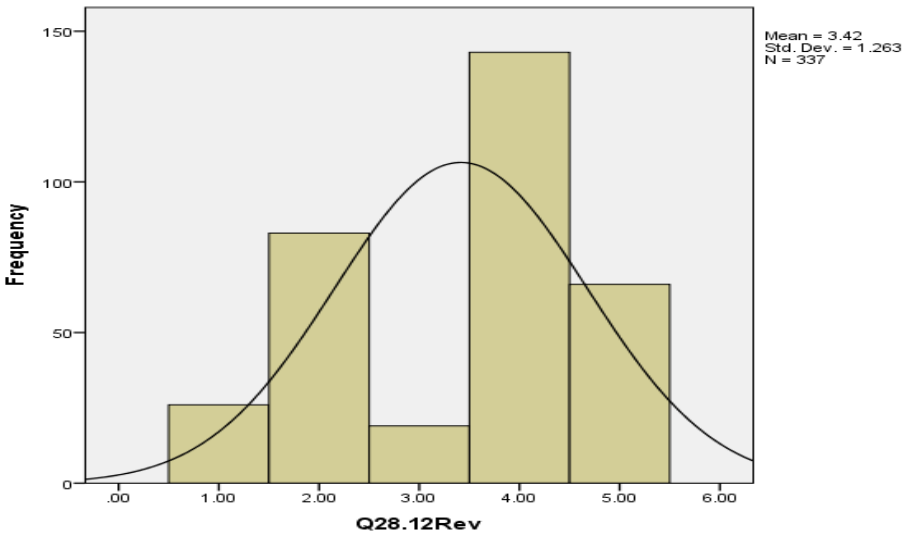
GSES Item 10



GSES Item 11



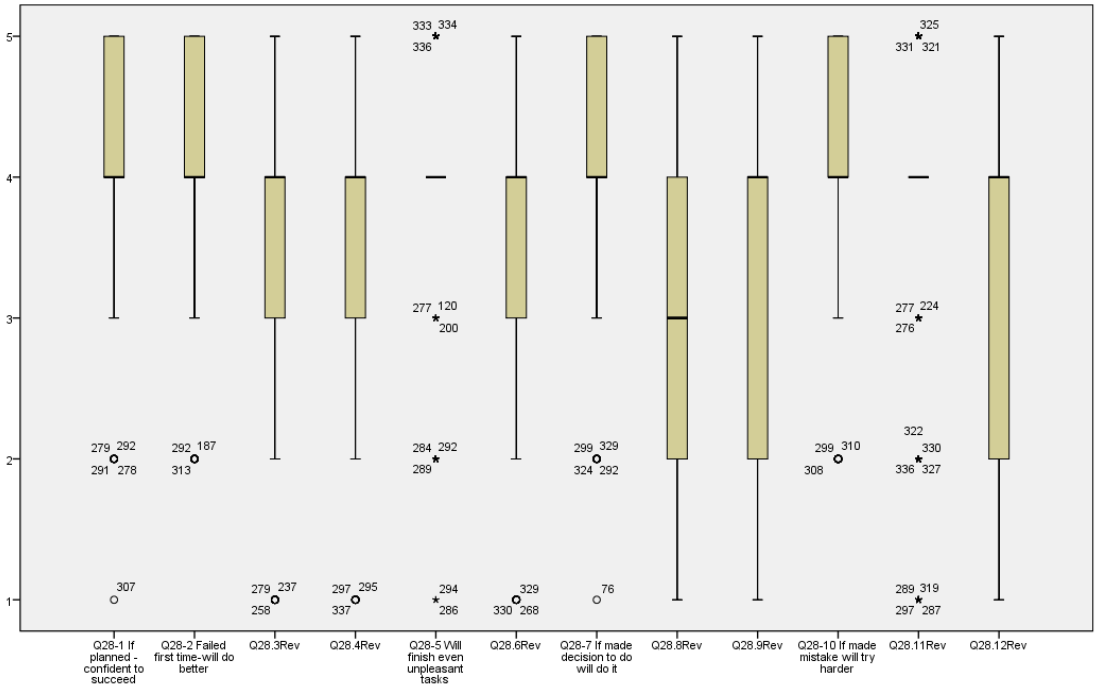
GSES Item 12



Boxplots

Case processing summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q28-1 If planned - confident to succeed	337	100.0%	0	0.0%	337	100.0%
Q28-2 Failed first time-will do better	337	100.0%	0	0.0%	337	100.0%
Q28.3 Rev	337	100.0%	0	0.0%	337	100.0%
Q28.4 Rev	337	100.0%	0	0.0%	337	100.0%
Q28-5 Will finish even unpleasant tasks	337	100.0%	0	0.0%	337	100.0%
Q28.6 Rev	337	100.0%	0	0.0%	337	100.0%
Q28-7 If made decision to do will do it	337	100.0%	0	0.0%	337	100.0%
Q28.8 Rev	337	100.0%	0	0.0%	337	100.0%
Q28.9 Rev	337	100.0%	0	0.0%	337	100.0%
Q28-10 If made mistake will try harder	337	100.0%	0	0.0%	337	100.0%
Q28.11 Rev	337	100.0%	0	0.0%	337	100.0%
Q28.12 Rev	337	100.0%	0	0.0%	337	100.0%



Appendix D: Bootstrap, crosstab, chi-square and outliers

Bootstrap specifications

Sampling Method	Simple
Number of Samples	337
Confidence Interval Level	95.0%
Confidence Interval Type	Percentile

Crosstabs

Case processing summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Q1 Gender * University	337	100.0%	0	0.0%	337	100.0%
Q2 Study_Mode * University	337	100.0%	0	0.0%	337	100.0%
Q4 Age * University	337[a]	100.0%	0	0.0%	337	100.0%
Q4 Age * University	337[a]	100.0%	0	0.0%	337	100.0%
Q4 Age * University	337[a]	100.0%	0	0.0%	337	100.0%
Q8 Enrolled as Aust domestic student * University	337[a]	100.0%	0	0.0%	337	100.0%
Q9 English is first language * University	337[a]	100.0%	0	0.0%	337	100.0%
Q11 Have secured employment * University	337[a]	100.0%	0	0.0%	337	100.0%
Q13 WIL Completed * University	337[a]	100.0%	0	0.0%	337	100.0%
initiative * University	337[a]	100.0%	0	0.0%	337	100.0%
Effort * University	337[a]	100.0%	0	0.0%	337	100.0%
Persistence * University	337[a]	100.0%	0	0.0%	337	100.0%

a. Number of valid cases is different from the total count in the crosstabulation table because the cell counts have been rounded.

Q1 Gender * University

Crosstab

Count

		University		
		Swinburne	VU	Total
Q1 Gender	Female	66_a	117_a	183
	Male	44_a	110_a	154
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-square tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.136[a]	1	0.144		
Continuity Correction[b]	1.809	1	0.179		
Likelihood Ratio	2.147	1	0.143		
Fisher's Exact Test				0.162	0.089
Linear-by-Linear Association	2.130	1	0.144		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 50.27.

b. Computed only for a 2x2 table

Q2 Study_Mode * University

Crosstab

Count

		University		
		Swinburne	VU	Total
Q2 Study_Mode	Part time	8_a	35_b	43
	Full time	102_a	192_b	294
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.417[a]	1	0.036		
Continuity Correction[b]	3.715	1	0.054		
Likelihood Ratio	4.813	1	0.028		
Fisher's Exact Test				0.037	0.024
Linear-by-Linear Association	4.404	1	0.036		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.04.
b. Computed only for a 2x2 table

Q4 Age * University

Crosstabs

Count

		University		Total
		Swinburne	VU	
Q4 Age	18-20	26_a	66_a	92
	21-30	84_a	161_a	245
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.104[a]	1	0.293		
Continuity Correction[b]	0.847	1	0.357		
Likelihood Ratio	1.122	1	0.289		
Fisher's Exact Test				0.361	0.179
Linear-by-Linear Association	1.101	1	0.294		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 30.03.
b. Computed only for a 2x2 table

Q4 Age * University

Crosstab

Count

		University		
		Swinburne	VU	Total
Q4 Age	18-20	103_a	217_a	320
	21-30	7_a	10_a	17
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.593[a]	1	0.441		
Continuity Correction[b]	0.255	1	0.614		
Likelihood Ratio	0.572	1	0.449		
Fisher's Exact Test				0.437	0.300
Linear-by-Linear Association	0.591	1	0.442		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.55.
b. Computed only for a 2x2 table

Q4 Age * University

Crosstab

Count

		University		Total
		Swinburne	VU	
Q4 Age	18-20	109_a	221_a	330
	21-30	1_a	6_a	7
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.095[a]	1	0.295		
Continuity Correction[b]	0.409	1	0.523		
Likelihood Ratio	1.262	1	0.261		
Fisher's Exact Test				0.434	0.274
Linear-by-Linear Association	1.092	1	0.296		
N of Valid Cases	337				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.28.
b. Computed only for a 2x2 table

Q8 Enrolled as Aust domestic student * University

Crosstab

Count

		University		Total
		Swinburne	VU	
Q8 Enrolled as Aust domestic student	Domestic	28_a	115_b	143
	International	82_a	112_b	194
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	19.272[a]	1	0.000		
Continuity Correction[b]	18.254	1	0.000		
Likelihood Ratio	19.984	1	0.000		
Fisher's Exact Test				0.000	0.000
Linear-by-Linear Association	19.215	1	0.000		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 46.68.
b. Computed only for a 2x2 table

Q11 Have secured employment * University

Crosstab

Count

		University		Total
		Swinburne	VU	
Q11 Have secured employment	no	99_a	183_b	282
	yes	11_a	44_b	55
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.777[a]	1	0.029		
Continuity Correction[b]	4.115	1	0.043		
Likelihood Ratio	5.129	1	0.024		
Fisher's Exact Test				0.029	0.019
Linear-by-Linear Association	4.763	1	0.029		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.95.
b. Computed only for a 2x2 table

Q13 WIL Completed * University

Crosstab

Count

		University		
		Swinburne	VU	Total
Q13 WIL Completed	No	103_a	213_a	316
	Yes	7_a	14_a	21
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.005[a]	1	0.944		
Continuity Correction[b]	0.000	1	1.000		
Likelihood Ratio	0.005	1	0.944		
Fisher's Exact Test				1.000	0.558
Linear-by-Linear Association	0.005	1	0.944		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.85.
b. Computed only for a 2x2 table

Initiative * University

Crosstab

Count

		University		
		Swinburne	VU	Total
initiative	1.00	0_a	2_a	2
	1.33	0_a	4_a	4
	1.67	0_a	7_a	7
	2.00	3_a	16_a	19
	2.33	3_a	10_a	13
	2.67	4_a	27_b	31
	3.00	5_a	13_a	18
	3.33	28_a	53_a	81
	3.67	12_a	23_a	35
	4.00	33_a	45_b	78
	4.33	14_a	14_b	28
	4.67	5_a	6_a	11
	5.00	3_a	7_a	10
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.166[a]	12	0.026
Likelihood Ratio	28.052	12	0.005
Linear-by-Linear Association	17.796	1	0.000
N of Valid Cases	337		

a. 9 cells (34.6%) have expected count less than 5. The minimum expected count is .65.

Effort * University

Crosstab

Count

		University		
		Swinburne	VU	Total
Effort	2.00	0_a	1_a	1
	2.60	1_a	0_a	1
	2.80	1_a	3_a	4
	3.00	1_a	0_a	1
	3.20	1_a	9_a	10
	3.40	1_a	6_a	7
	3.60	11_a	8_b	19
	3.80	6_a	14_a	20
	4.00	22_a	53_a	75
	4.20	17_a	46_a	63
	4.40	14_a	40_a	54
	4.60	14_a	19_a	33
	4.80	8_a	15_a	23
	5.00	13_a	13_b	26
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.142[a]	13	0.070
Likelihood Ratio	21.868	13	0.057
Linear-by-Linear Association	1.395	1	0.238
N of Valid Cases	337		

a. 11 cells (39.3%) have expected count less than 5. The minimum expected count is .33.

Persistence * University

Crosstab

Count

		University		
		Swinburne	VU	Total
Persistence	1.25	0_a	1_a	1
	1.50	1_a	3_a	4
	1.75	0_a	5_a	5
	2.00	4_a	8_a	12
	2.25	6_a	5_a	11
	2.50	6_a	19_a	25
	2.75	2_a	13_a	15
	3.00	10_a	29_a	39
	3.25	7_a	12_a	19
	3.50	23_a	30_a	53
	3.75	8_a	12_a	20
	4.00	22_a	48_a	70
	4.25	11_a	23_a	34
	4.50	6_a	10_a	16
	4.75	1_a	5_a	6
	5.00	3_a	4_a	7
Total		110	227	337

Each subscript letter denotes a subset of University categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.360[a]	15	0.498
Likelihood Ratio	16.466	15	0.352
Linear-by-Linear Association	1.119	1	0.290
N of Valid Cases	337		

a. 13 cells (40.6%) have expected count less than 5. The minimum expected count is .33.

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
University * Q1 Gender	337	100.0%	0	0.0%	337	100.0%
University * Q2 Study_Mode	337	100.0%	0	0.0%	337	100.0%
University * Q4 Age	337[a]	100.0%	0	0.0%	337	100.0%
University * Q4 Age	337[a]	100.0%	0	0.0%	337	100.0%
University * Q4 Age	337[a]	100.0%	0	0.0%	337	100.0%
University * Q8 Enrolled as Aust domestic student	337[a]	100.0%	0	0.0%	337	100.0%
University * Q9 English is first language	337[a]	100.0%	0	0.0%	337	100.0%
University * Q11 Have secured employment	337[a]	100.0%	0	0.0%	337	100.0%
University * Q13 WIL Completed	337[a]	100.0%	0	0.0%	337	100.0%
University * initiative	337[a]	100.0%	0	0.0%	337	100.0%
University * Effort	337[a]	100.0%	0	0.0%	337	100.0%
University * Persistence	337[a]	100.0%	0	0.0%	337	100.0%

a. Number of valid cases is different from the total count in the crosstabulation table because the cell counts have been rounded.

University * Q1 Gender

Count

		Q1 Gender		
		Female	Male	Total
University	Swinburne	66_a	44_a	110
	VU	117_a	110_a	227
Total		183	154	337

Each subscript letter denotes a subset of Q1 Gender categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.136[a]	1	0.144		
Continuity Correction[b]	1.809	1	0.179		
Likelihood Ratio	2.147	1	0.143		
Fisher's Exact Test				0.162	0.089
Linear-by-Linear Association	2.130	1	0.144		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 50.27.
b. Computed only for a 2x2 table

University * Q2 Study_mode

Count

		Q2 Study_Mode		
		Part time	Full time	Total
University	Swinburne	8_a	102_b	110
	VU	35_a	192_b	227
Total		43	294	337

Each subscript letter denotes a subset of Q2 Study_Mode categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.417[a]	1	0.036		
Continuity Correction[b]	3.715	1	0.054		
Likelihood Ratio	4.813	1	0.028		
Fisher's Exact Test				0.037	0.024
Linear-by-Linear Association	4.404	1	0.036		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.04.
b. Computed only for a 2x2 table

University * Q4 Age

Count

		Q4 Age		
		18-20	21-30	Total
University	Swinburne	26_a	84_a	110
	VU	66_a	161_a	227
Total		92	245	337

Each subscript letter denotes a subset of Q4 Age categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.104[a]	1	0.293		
Continuity Correction[b]	0.847	1	0.357		
Likelihood Ratio	1.122	1	0.289		
Fisher's Exact Test				0.361	0.179
Linear-by-Linear Association	1.101	1	0.294		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 30.03.
b. Computed only for a 2x2 table

University * Q4 Age

Count

		Q4 Age		
		18-20	21-30	Total
University	Swinburne	103_a	7_a	110
	VU	217_a	10_a	227
Total		320	17	337

Each subscript letter denotes a subset of Q4 Age categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.593[a]	1	0.441		
Continuity Correction[b]	0.255	1	0.614		
Likelihood Ratio	0.572	1	0.449		
Fisher's Exact Test				0.437	0.300
Linear-by-Linear Association	0.591	1	0.442		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.55.
b. Computed only for a 2x2 table

University * Q4 Age

Count

		Q4 Age		
		18-20	21-30	Total
University	Swinburne	109_a	1_a	110
	VU	221_a	6_a	227
Total		330	7	337

Each subscript letter denotes a subset of Q4 Age categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.095[a]	1	0.295		
Continuity Correction[b]	.409	1	0.523		
Likelihood Ratio	1.262	1	0.261		
Fisher's Exact Test				0.434	0.274
Linear-by-Linear Association	1.092	1	0.296		
N of Valid Cases	337				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.28.
b. Computed only for a 2x2 table

University * Q8 Enrolled as domestic student

Count

		Q8 Enrolled as Aust domestic student		
		Domestic	International	Total
University	Swinburne	28_a	82_b	110
	VU	115_a	112_b	227
Total		143	194	337

Each subscript letter denotes a subset of Q8 Enrolled as Aust domestic student categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	19.272[a]	1	0.000		
Continuity Correction[b]	18.254	1	0.000		
Likelihood Ratio	19.984	1	0.000		
Fisher's Exact Test				0.000	0.000
Linear-by-Linear Association	19.215	1	0.000		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 46.68.
b. Computed only for a 2x2 table

University * Q9 English is first language

Count

		Q9 English is first language		
		English-not first language	English - first language	Total
University	Swinburne	51_a	59_b	110
	VU	158_a	69_b	227
Total		209	128	337

Each subscript letter denotes a subset of Q9 English is first language categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16.989[a]	1	0.000		
Continuity Correction[b]	16.016	1	0.000		
Likelihood Ratio	16.770	1	0.000		
Fisher's Exact Test				0.000	0.000
Linear-by-Linear Association	16.938	1	0.000		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 41.78.
b. Computed only for a 2x2 table

University * Q11 Have secured employment

Count

		Q11 Have secured employment		
		no	yes	Total
University	Swinburne	99_a	11_b	110
	VU	183_a	44_b	227
Total		282	55	337

Each subscript letter denotes a subset of Q11 Have secured employment categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.777[a]	1	0.029		
Continuity Correction[b]	4.115	1	0.043		
Likelihood Ratio	5.129	1	0.024		
Fisher's Exact Test				0.029	0.019
Linear-by-Linear Association	4.763	1	0.029		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.95.
b. Computed only for a 2x2 table

University * Q13 WIL Completed

Count

		Q13 WIL Completed		
		No	Yes	Total
University	Swinburne	103_a	7_a	110
	VU	213_a	14_a	227
Total		316	21	337

Each subscript letter denotes a subset of Q13 WIL Completed categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.005[a]	1	0.944		
Continuity Correction[b]	0.000	1	1.000		
Likelihood Ratio	0.005	1	0.944		
Fisher's Exact Test				1.000	0.558
Linear-by-Linear Association	0.005	1	0.944		
N of Valid Cases	337				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.85.
b. Computed only for a 2x2 table

University * initiative

Count

		initiative												Total
		1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00	
University	Swinburne	$0_{a, b, c, d, e, f, g, h}$	$0_{a, b, c, d, e, f, g, h}$	$0_{c, d, g, h}$	$3_{b, d, f, h}$	$3_{a, b, c, d, e, f, g, h}$	$4_{e, f, g, h}$	$5_{a, b, c, d, e, f, g, h}$	$28_{a, b, c, d}$	$12_{a, b, c, d}$	33_{a}	14_{a}	$5_{a, b}$	$3_{a, b, c, d, e, f, g, h}$	110
	VU	$2_{a, b, c, d, e, f, g, h}$	$4_{a, b, c, d, e, f, g, h}$	$7_{c, d, g, h}$	$16_{b, d, f, h}$	$10_{a, b, c, d, e, f, g, h}$	$27_{e, f, g, h}$	$13_{a, b, c, d, e, f, g, h}$	$53_{a, b, c, d}$	$23_{a, b, c, d}$	45_{a}	14_{a}	$6_{a, b}$	$7_{a, b, c, d, e, f, g, h}$	227
Total		2	4	7	19	13	31	18	81	35	78	28	11	10	337

Each subscript letter denotes a subset of initiative categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.166[a]	12	0.026
Likelihood Ratio	28.052	12	0.005
Linear-by-Linear Association	17.796	1	0.000
N of Valid Cases	337		

a. 9 cells (34.6%) have expected count less than 5. The minimum expected count is .65.

University * Effort

Count

		Effort													Total
		2.00	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.00	4.20	4.40	4.60	4.80	5.00	
University	Swinburne	0[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	1[m, n, o, p, q, r, s, t, u, v]	1[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	1[h, i, j, k, l, r, s, t, u, v]	1[f, g]	1[d, e, g, k, l, p, q, u, v]	11[c, j, o, t]	6[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	22[a, b, d, e, f, g, h, i, k, l, m, n, p, q, r, s, u, v]	17[b, e, f, g, i, l, n, q, s, v]	14[b, e, f, g, i, l, n, q, s, v]	14[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	8[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	13[a, c, d, h, j, k, m, o, p, r, t, u]	110
	VU	1[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	0[m, n, o, p, q, r, s, t, u, v]	3[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	0[h, i, j, k, l, r, s, t, u, v]	9[f, g]	6[d, e, g, k, l, p, q, u, v]	8[c, j, o, t]	14[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	53[a, b, d, e, f, g, h, i, k, l, m, n, p, q, r, s, u, v]	46[b, e, f, g, i, l, n, q, s, v]	40[b, e, f, g, i, l, n, q, s, v]	19[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	15[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v]	13[a, c, d, h, j, k, m, o, p, r, t, u]	227
Total		1	1	4	1	10	7	19	20	75	63	54	33	23	26	337

Each subscript letter denotes a subset of Effort categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.142[a]	13	0.070
Likelihood Ratio	21.868	13	0.057
Linear-by-Linear Association	1.395	1	0.238
N of Valid Cases	337		

a. 11 cells (39.3%) have expected count less than 5. The minimum expected count is .33.

University * Persistence

Count

		Persistence															Total
		1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	
University	Swinburne	0[a, b, c, d, e]	1[a, b, c, d, e]	0[d, e]	4[a, b, c, d, e]	6[c]	6[a, b, c, d, e]	2[b, e]	10[a, b, c, d, e]	7[a, b, c, d, e]	23[a, c, d]	8[a, b, c, d, e]	22[a, b, c, d, e]	11[a, b, c, d, e]	6[a, b, c, d, e]	1[a, b, c, d, e]	3[a, b, c, d, e]	110
	VU	1[a, b, c, d, e]	3[a, b, c, d, e]	5[d, e]	8[a, b, c, d, e]	5[c]	19[a, b, c, d, e]	13[b, e]	29[a, b, c, d, e]	12[a, b, c, d, e]	30[a, c, d]	12[a, b, c, d, e]	48[a, b, c, d, e]	23[a, b, c, d, e]	10[a, b, c, d, e]	5[a, b, c, d, e]	4[a, b, c, d, e]	227
Total		1	4	5	12	11	25	15	39	19	53	20	70	34	16	6	7	337

Each subscript letter denotes a subset of Persistence categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.360[a]	15	0.498
Likelihood Ratio	16.466	15	0.352
Linear-by-Linear Association	1.119	1	0.290
N of Valid Cases	337		

a. 13 cells (40.6%) have expected count less than 5. The minimum expected count is .33.

Outliers

Logistic regression analysis assumes that study data did not include significant outliers. Outliers would be represented by high leverage points or highly influential points of the observations that are different from most others and could distort and bias statistics such as mean of data. For this study, where most of variables are non-parametric, therefore this was not an issue. Although the case processing summary displayed no missing cases, the study data might still have included some outliers. This required further testing to be applied during logistic regression and factor analysis.

The logistic regression analysis produced diagnostic statistics including standardised residuals and Cook's distance. The predicted accuracy rate for all cases at overall percentage of 83.7 might have included the outliers. As a result of running off the logistic procedure, additional variables were added to data file. The variable contained Cook's distances for identifying influential cases was identified as c00_1; and the variable for identifying outliers were identified as zre_1, and they represented the standardised residuals for dependent variable Employment.

The SPSS option 'Select Cases' from 'Data' menu with the formula (ABS(zre_1)<3and coo_1<1) were used to eliminate outliers and influential cases from the data set. The formula specified that cases in data set should include only those with standardised residual of less than 3 regardless of sign and the Cook's distance value of less than 1.0.

Therefore, SPSS excluded 7 cases by drawing a slash mark through the case numbers, these cases were shown below with the value of standardised residual exceeding +/-3.0. No influential cases were identified, only the 7 outliers as shown below.

Outliers

Research instrument ID	Standardised residual (zre_1)
24	3.92436
173	3.17655
194	3.43437
211	3.08774
255	4.01256
260	3.21062
411	3.02374

The logistic regression without outliers was run again, keeping all specifications from the previous analysis unchanged, except for request to save Cook's distance and standardised

residual. Prior to elimination of the outliers, the accuracy rate of logistic regression was 85.5 percent. It was 1.8 percent higher as compare to hypothetical accuracy assumed by SPSS (83.7 percent), as shown in block 0. After removing the 7 outliers, the classification accuracy rate of the logistic regression modes was 86.7 percent, which was 1.2 percent higher compare to the data set with outliers included. The following table provided summary on comparative accuracy prediction with and without outliers, performed on SPSS.

Prediction accuracy (with and without outliers)

Secured employment	With outliers						Without outliers					
	Block 0			Block 1			Block 0			Block 1		
	No	Yes	%	No	Yes	%	No	Yes	%	No	Yes	%
No	282	0	100.0	278	4	98.6	282	0	100.0	276	6	97.9
Yes	55	0	0	45	10	18.2	48	0	0	38	10	20.8
Overall %			**83.7**			**85.5**			**85.5**			**86.7**

Since logistic regression omitting outliers was less than 2.5 percent more accurate in classifying cases than logistic regression with all cases, the logistic regression with all cases in data was to be interpreted in this study. After restoring all cases by undoing ‘if’ command issued to remove outliers, the logistic regression analysis was run again with all cases included. All cases were restored in data set, including seven that could be designated as outliers.

Appendix E: Mann-Whitney U test - Mean ranks and test statistics

Residency – mean ranks

	Q8 Enrolled as Aust domestic student	N	Mean Rank	Sum of Ranks
Initiative	Domestic	143	142.06	20314.00
	International	194	188.86	36639.00
	Total	337		
Effort	Domestic	143	157.27	22489.50
	International	194	177.65	34463.50
	Total	337		
Persistence	Domestic	143	152.70	21836.00
	International	194	181.02	35117.00
	Total	337		

Residency – test statistics

	initiative	Effort	Persistence
Mann-Whitney U	10018.000	12193.500	11540.000
Wilcoxon W	20314.000	22489.500	21836.000
Z	-4.424	-1.921	-2.659
Asymp. Sig. (2-tailed)	0.000	0.055	0.008

Language- mean ranks

	Q9 English is first language	N	Mean Rank	Sum of Ranks
Initiative	English-not first language	209	153.75	32133.50
	English - first language	128	193.90	24819.50
	Total	337		
Effort	English-not first language	209	169.91	35510.50
	English - first language	128	167.52	21442.50
	Total	337		
Persistence	English-not first language	209	165.10	34506.50
	English - first language	128	175.36	22446.50
	Total	337		

Language – test statistics

	initiative	Effort	Persistence
Mann-Whitney U	10188.500	13186.500	12561.500
Wilcoxon W	32133.500	21442.500	34506.500
Z	-3.727	-0.221	-0.946
Asymp. Sig. (2-tailed)	0.000	0.825	0.344
Exact Sig. (2-tailed)		0.826	
Exact Sig. (1-tailed)		0.413	
Point Probability		0.000	

Gender - mean ranks

	Q1 Gender	N	Mean Rank	Sum of Ranks
Initiative	Female	183	172.25	31522.00
	Male	154	165.14	25431.00
	Total	337		
Effort	Female	183	173.45	31741.50
	Male	154	163.71	25211.50
	Total	337		
Persistence	Female	183	164.70	30140.50
	Male	154	174.11	26812.50
	Total	337		

Gender – test statistics

	initiative	Effort	Persistence
Mann-Whitney U	13496.000	13276.500	13304.500
Wilcoxon W	25431.000	25211.500	30140.500
Z	-0.678	-0.925	-0.890
Asymp. Sig. (2-tailed)	0.498	0.355	0.373

Study mode- mean ranks

	Q3 Initial-Enrolment	N	Mean Rank	Sum of Ranks
Initiative	Part time	24	172.00	4128.00
	Full time	308	166.07	51150.00
	Total	332		
Effort	Part time	24	213.85	5132.50
	Full time	308	162.81	50145.50
	Total	332		
Persistence	Part time	24	203.60	4886.50
	Full time	308	163.61	50391.50
	Total	332		

Study mode – test statistics

	initiative	Effort	Persistence
Mann-Whitney U	3564.000	2559.500	2805.500
Wilcoxon W	51150.000	50145.500	50391.500
Z	-0.296	-2.540	-1.983
Asymp. Sig. (2-tailed)	0.767	0.011	0.047
Exact Sig. (2-tailed)	0.769	0.011	0.047
Exact Sig. (1-tailed)	0.385	0.005	0.023
Point Probability	0.000	0.000	0.000

Appendix F: Lasso

For a linear model

$$y_i = \beta_0 + \sum_{j=1}^{p} x_{ij}\beta_j$$

the usual least squares estimate is based on minimising the squared error loss function

$$\text{minimise}_{\beta_0,\beta}\left\{\frac{1}{2N}\sum_{i=1}^{N}\left(y_i - \beta_0 - \sum_{j=1}^{p} x_{ij}\beta_j\right)^2\right\}.$$

The Lasso estimator (see, for example, Hastie et al. 2015, p. 8) is based on a modified loss function

$$\text{minimise}_{\beta_0,\beta}\left\{\frac{1}{2N}\sum_{i=1}^{N}\left(y_i - \beta_0 - \sum_{j=1}^{p} x_{ij}\beta_j\right)^2\right\} \text{ subject to } \sum_{j=1}^{p}|\beta_j| \leq t$$

which is equivalent to (see HTW page 9)

$$\text{minimise}_{\beta_0,\beta}\left\{\frac{1}{2N}\sum_{i=1}^{N}\left(y_i - \beta_0 - \sum_{j=1}^{p} x_{ij}\beta_j\right)^2 + \lambda\|\beta\|_1\right\}$$

where

$$\|\beta\|_1 = \sum_{j=1}^{p}|\beta_j|$$

is called the ℓ_1 norm. The best choice of t or equivalently λ is chosen by cross-validation with (say) ten folds choosing the value of t or equivalently λ giving the smallest cross-validation error. We also used the "one-standard-error rule" (see, for example, Hastie et al. 2015, p. 13) which is the smallest value of t yielding a CV error no more than one standard error above its minimum value.

For a logistic model the Lasso criterion is modified to be (see, for example, HTW, page 32)

$$\text{minimise}_{\beta_0,\beta}\left\{-\frac{1}{N}\sum_{i=1}^{N}\left[y_i\left(\beta_0 + \sum_{j=1}^{p} x_{ij}\beta_j\right) - \log\left(1 + e^{\beta_0 + \sum_{j=1}^{p} x_{ij}\beta_j}\right)\right] + \lambda\|\beta\|_1\right\}$$

and the value of λ is again chosen by cross-validation.

Appendix G: Akaike weights for WIL

The Akaike weights computed below can be interpreted as the probability of the model being the best one. First the delta AICs are computed. These are the differences between the AIC for the particular model and the minimum AIC for all models considered. Then the Akaike weight for a model is computed as exp(-delta AIC/2) and then normalised to add to 1. The Akaike weights are presented in the table below.

Akaike weights in the logistic regression model for WIL

Items	Model	AIC	Weights
1	WIL ~	1 159.2369	0.20447479
2	WIL ~ 1 + Initiative	159.2518	0.20294973
3	WIL ~ 1 + Effort	159.7322	0.15961580
4	WIL ~ 1 + Initiative + Effort	160.4037	0.11409347
5	WIL ~ 1 + Initiative + Persistence	160.5343	0.10688402
6	WIL ~ 1 + Persistence	161.2144	0.07607103
7	WIL ~ 1 + Initiative + Effort + Persistence	161.3541	0.07093855
8	WIL ~ 1 + Effort + Persistence	161.5298	0.06497262

The variable importance of a variable is the sum of the Akaike weights for all the models including the variable in question.

Appendix H: Descriptive statistics on WIL experience

Students' perception on tasks performed during WIL

Tasks performed during WIL training	Mean	Standard Deviation
Recorded financial transactions manually	0.69	0.479
Used Accounting software	0.88	0.332
Assisted in preparing Tax Returns	0.47	0.514
Bank Reconciliation	0.63	0.500
Ratio Analysis	0.47	0.514
Auditing	0.56	0.511
Budget (revenue/expenses)	0.53	0.514
Costing, break-even analysis	0.44	0.512

Students' perception on relevance of tasks performed

Types of tasks and activities	Mean	Standard Deviation
Did activities relevant to field of study	2.26	0.653
Worked with autonomy	2.47	0.513
Opportunity to do work relevant to what learned at University	1.89	0.875
Opportunity to learn new skills	2.72	0.461
Performed consequential tasks	2.65	0.493
Performed tasks important to achieving business goals	2.68	0.582

Students' perception on development of skills

Skills	Mean	Standard Deviation
WIL helped develop team skills	2.33	0.686
WIL helped to improve analytical skills	2.32	0.749
WIL helped to develop problem solving skills	2.26	0.733
Written communication skills improved	2.32	0.582
Confident to tackle unfamiliar problems	2.32	0.820
Ability to plan own work developed	2.26	0.733