The Role of Self-Efficacy Beliefs in Accounting Education

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Abstract

This thesis presents the findings from three studies which investigate the role of self-efficacy beliefs within accounting education. Non-cognitive variables including self-efficacy have been shown to improve learning outcomes in a broad educational setting (Bandura, 1977; 1980; 1981; 1984; 2001; Pajares & Schunk, 2002; Schunk, 1981; 1983); though whether this phenomenon can be generalized to an accounting student cohort is not well established in the literature (Byrne, Flood, & Griffin, 2014). Using Social Cognitive Theory as a theoretical lens, the study investigates the self-efficacy beliefs of accounting students enrolled in a mandatory first-year accounting course over two academic semesters.

It is important to consider the role of self-efficacy beliefs within the context of accounting education, as accounting is perceived as mathematically challenging for many students, thereby creating a sense of learning negativity and a challenging “persona” for the discipline. As all business students are required to complete an accounting course in their business core, it becomes an interesting discipline in which to study the impact of self-efficacy beliefs upon academic performance. Furthermore, the cohort is unique since it is naturally divided, as approximately half of the respondents have had prior learning in accounting at high school.

Data were gathered from students in class time via a survey. The first of the three studies presented in this thesis (n=567) investigates whether self-efficacy beliefs or prior learning have more predictor power for success in learning accounting. Results show that self-efficacy beliefs are more predictive of academic success than prior learning of accounting at high school. The second (n=88) empirically investigates whether enactive mastery can be used as a tool to change self-efficacy beliefs. The second study finds that feedback on enactive mastery can influence the level of self-efficacy beliefs over time. This is important, as higher levels of self-efficacy are more likely to lead to higher levels of academic success, and this study presents a tool in which to effect change.
The third study examines where self-efficacy comes from (n=181), using Bandura’s (2001) categorization scheme, and finding several sources of influence as well as gender differences between students. Male students are mostly influenced by both the physiological state and past experience, whereas female students are influenced by verbal persuasion and past experience. This research both provides a contribution to the literature and guidance for educators to help set accounting students up for success.
Acknowledgments

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CHAPTER ONE: INTRODUCTION

1.1 Setting the Scene

The following three paragraphs are a speech given as part of the three-minute thesis (3MT) competition in 2017.¹ It is included here, at the beginning of this thesis, as it succinctly covers many aspects of the project as a whole. The speech presents an overview of why this research is important, why the topic was chosen, and some of the early findings. As it is a speech, it is somewhat casual in language. The hope is that it sets the scene of this thesis in a unique but informative and interesting manner.

I began my literature review when I was 4 years old. I was given the book The Little Engine That Could’ and I was fascinated by this story. If you don’t know, the book is about the smallest engine in the train yard who is given the job of taking all the toys over the hill to the children waiting on the other side. As the little train goes up over the hill, it gets harder and harder, and the train says to himself ‘I think I can, I think I can’. Of course, he eventually gets over the hill and delivers the toys to the children. So, how does this relate to my PhD?

Well, it started a lifelong fascination with self-efficacy or confidence. Throughout my life, I have always been interested in self-belief and its power, so when it came time to choose a PhD topic, I was teaching accounting at the time to first year students, and I decided I wanted to investigate the role of self-efficacy within accounting education. Now I’m going to tell you something now that may shock you: not all students want to learn about accounting! In fact, accounting is one of those subjects that has a bit of a bad reputation, believe it or not,

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¹ I was successful in winning the 3MT PhD competition here at Otago, and competed in the Asia Pacific Championships late 2017 in Brisbane. Watch the speech on youtube at https://www.youtube.com/watch?v=3bZEuzseiAY
and yet all students learning about business, need to learn at least a little bit of accounting. Some of those students are really interested and keen and they want to be there, but other students see accounting as dull, boring and most of all hard. But they all have to be there, it’s not optional.

So what I’ve done is surveyed thousands of students across multiple semesters, all taking a mandatory accounting course at first year. I asked them about their level of self-efficacy with different aspects of the course, such as how confident are you with taking notes, asking for help and answering questions in class. I also asked them how confident are you to pass this course? What I have found so far, is that their self-efficacy or confidence in their ability to do well in the course predicts a student’s academic success more than any other variable that we gathered data on, including whether or not they have done accounting at high school or not. Meaning that self-efficacy is more powerful than prior learning in this context. Which is really cool for me, because I’ve taken this well-established theory and shown that it holds within an accounting education context. But excitingly it also has a practical contribution for learning, and teaching accounting. Because it doesn’t matter if you think accounting is boring, dull or hard, all that really matters at the end of the day is whether you think you can.
1.2 The Role of Self-Efficacy in Accounting Education

This thesis presents a series of studies that investigate the role of self-efficacy beliefs in accounting education. Chapter one introduces the key ideas within this project, outlines the nature of the study, and discusses what this thesis examines as a whole. Also included in this chapter is why the study is important, the influences that have led to this study being undertaken, and why the research is needed.

The overarching aim of this research is to examine student success in the first year of their accounting studies, and by understanding success, to be able to begin to understand failure. By using Bandura’s (1986) Social Cognitive Theory (SCT) as a theoretical underpinning, the relationship of self-efficacy beliefs and academic performance within accounting education is explored. I present a series of studies which examine different aspects of this relationship including the source of self-efficacy, and how self-efficacy can change with feedback. This research holds the potential to have an impact on many stakeholders of accounting education, including students, educators, accountants, and institutions.

1.3 Accounting Education

Accounting education is a growing field of research (Apostolou, Dorminey, Hassell, & Rebele, 2017). As the professional nature of accounting changes, so must the education of future accountants (Evans, Burritt, & Guthrie, 2010; Hancock, Howieson, Kavanagh, Kent, Tempone, & Segal, 2010). Students who choose to study business or commerce at university are often required to study the discipline of accounting. For some, accounting is enjoyable and is easily learnt, but for others it may not be a subject they have any interest in or aptitude for. Students who are required to take introductory accounting courses, who have not chosen to specialise in accounting, have less chance of academic success (Guney, 2009; Lane &
The reasons behind this lack of success often have to do with non-cognitive variables. The focus of this thesis is the non-cognitive aspects of student success in learning accounting within a mandatory course in the first year.

1.4 Non-Cognitive Variables in Education

Succeeding in education is complex, as it is more than just cognitive ability that students need to be able to perform at their potential (Lipnevich, MacCann, & Roberts, 2013; Parker, Summerfeldt, Hogan, & Majeski, 2004). Non-cognitive variables in education are ‘non-intellectual’ influences in a student’s learning process (Paunesku, Walton, Romero, Smith, Yeager, & Dweck 2015). Non-cognitive aspects of the learning environment are critical in determining success, as many factors beyond cognitive function can influence the acquisition of knowledge (Bandura, 1986; Hamilton, 2010; Ransdell, 2001).

For many years, research has been undertaken on cognitive aspects of learning. More recently, research has acknowledged the importance of non-cognitive variables for student outcomes, as it is widely recognised that an individual needs more than cognitive processing to be able to succeed in education (Becker, Hubbard, & Murphy, 2010; Lipnevich, et al., 2013; Lleras, 2008). Within an accounting educational context, the examination of non-cognitive aspects that influence students is growing in momentum (Christensen, Fogarty, & Wallace, 2002; Byrne, Flood, & Griffin, 2014; Stone, Arunachalam, & Chandler 1996). One of these aspects is self-efficacy, which is the task-specific belief in one’s ability to perform (Bandura 1977; 1980; 1981; 1984). The unique setting of accounting education allows the exploration of self-efficacy beliefs within a discipline that is perceived as challenging for many students.
1.5 Context

The research project is set in New Zealand at a large university, the University of Otago. The University of Otago is unique in New Zealand, as many of its students are domestic\(^2\), and a large percentage of them reside in halls of residence on the campus. The Otago Business School had 15.93% of total students enrolled in the year 2016\(^3\). Many of the almost 3000 students who take business studies fail the compulsory first-year accounting course. In the 2016 academic year, in semester one, the pass rate was 74.60%, and in semester two the pass rate was 68.64%, meaning the rest of the cohort were unsuccessful in their attempt to pass. In semester one, there were 588 students enrolled, and in semester two, there were 424 students enrolled. In 2016, almost 300 students failed to learn accounting to an acceptable level. When a course is compulsory, and students have no choice but to re-enroll if they fail, how does this affect the belief in their ability to pass the course? It should be noted at this stage, that this research is focused on one set of students, at one institution. Although data were been gathered across two semesters, there may be an institutional effect which potentially restricts the applicability of the findings to other universities. The findings of the research presented in this thesis are indicative of the students at this university studying accounting, in 2016. More research should be done to see if the same results presented within this thesis hold in other settings.

1.6 Motivation

The motivation for this research is to better understand how self-efficacy can influence learning accounting. Bandura (1997) stated that self-efficacy can better indicate performance than actual ability. The research undertaken for this thesis was initially

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\(^2\) At the time of the study, 16,854/18,287 (over 92%) were domestic students.

\(^3\) The year of data collection for this thesis.
motivated by this claim. Does self-efficacy help to explain performance in a mandatory accounting course? And, if so, to what extent? Chapters four, five, and six of this thesis explore the role of self-efficacy in accounting education in three separate studies, described below firstly by way of analogy, and then explicitly.

Everything has a process. Fundamentally, you can break almost any phenomenon down into inputs, process, and outputs. From a management accounting perspective, this could be done in product costing, where we attribute the cost of a product by recording cost through both direct and indirect measures. We would take the raw materials, add in the direct labour, and then assign a ‘fair share’ of the overheads to that product. This would allow us to determine what the product cost. However, it is not that simple, as the process can affect the output. To further explain, imagine a factory which makes coffee. The green beans are ordered in, the labour is traced to the product, and then the overheads are charged. The cost of the coffee produced could be affected by processes both inside the factory and external to the factory. Maybe the green beans were stored in a damp warehouse, and the quality has been compromised, meaning that additional work would have to be done which would add cost. Maybe a worker is going through personal difficulties and unable to concentrate on his or her work, thereby taking longer and costing more money. There could be many factors within the process that can affect the final product cost. To translate this example into the current study, imagine the product cost represents learning accounting. The product cost is an output; so is success in learning accounting. If success in learning accounting is the output, then the inputs and the process could be as follows. Raw materials represent the student. The student will come into the process of learning accounting with a set of experiences which is unique to him or her. Some of these past experiences may impact upon the process to learn accounting, and others will not. The direct labour in learning accounting is the university and educators. This is the environment in which the student is able to learn. This, too, could have
variations in experiences which might impact upon a student’s experience in learning accounting. The overhead represents all the hard-to-measure items that will affect the process, such as well-being, teacher quality, social activities, sporting, or work commitments, etc. If learning accounting is about inputs, process, and outputs, then it is important to examine each item within the sequence. This thesis explores the three phases: inputs, process, and outputs in chapters four, five, and six. As shown in Table 1, each of chapters four, five, and six, are at varying stages of publication.

Chapter four explores self-efficacy and performance, and shows the impact that self-efficacy can have upon an individual’s chance of academic success. This is, in essence, the raw materials phase of learning accounting. As previously stated, the student will come to university with a set of experiences, sometimes having already been exposed to the discipline in earlier education. Chapter four is based on Bandura’s (1997) claim that self-efficacy is the strongest predictor of success (over and above actual ability). Many educators would assume that if a student already has been exposed to the discipline previously, surely this would be the best indicator of academic success. Chapter four empirically examines Bandura’s (1997) argument.

In chapter five, the process of learning accounting is examined. During the course of study, self-efficacy can change (Bandura 1995). One mechanism for affecting change in self-efficacy for students is by providing feedback (Einig, 2013; Juwah, Macfarlane-Dick, Matthew, Nicol, Ross, & Smith, 2004; Nicol, 2010). Chapter five investigates whether the self-efficacy of a student learning accounting can be influenced by feedback. If the influence of self-efficacy on achievement can be established (Galyon, Blondin, Yaw, Nalls, & Williams, 2012), the next logical step would be to ask: what then can impact self-efficacy? If self-efficacy can be improved within a course setting, then achievement may increase as well. This chapter contributes much to the literature in the field, as almost all studies in this area
use self-efficacy as the independent variable and use performance as the dependent variable.

This chapter explores the reverse of this relationship, and shows that self-efficacy can be changed over the thirteen-week course. By measuring the self-efficacy at both the beginning and end of the course, and investigating if feedback on enactive mastery through students’ midterm results affected the self-efficacy, this chapter contributes a unique perspective, process, and context.

Table 1: Thesis chapters and publication status

<table>
<thead>
<tr>
<th>Ch.</th>
<th>Title</th>
<th>Authors</th>
<th>Contribution of candidate</th>
<th>Journal</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>The influence of self-efficacy beliefs and prior learning on performance</td>
<td>NB, DB &amp; JS. 5</td>
<td>The candidate reviewed the literature, identified the relevant theory, performed all data collection and analysis, and wrote the manuscript. Co-authors provided direction through all stages of the process and advised on editorial changes as the paper progressed through the review process.</td>
<td>Accounting and Finance</td>
<td>Published 2019.</td>
</tr>
<tr>
<td>5</td>
<td>The impact of mastery feedback on undergraduate students’ self-efficacy beliefs</td>
<td>NB, DB &amp; JS</td>
<td>The candidate developed the matrix, collected the data, reviewed the literature, performed the data analysis, and wrote the manuscript. Co-authors were involved in supervising this process and had editorial input throughout the development of the paper.</td>
<td>Studies in Educational Evaluation</td>
<td>Published 2018.</td>
</tr>
<tr>
<td>6</td>
<td>The source of self-efficacy beliefs</td>
<td>NB, DB &amp; JS</td>
<td>The candidate undertook data collection, reviewed the literature, wrote the working paper, did analysis and managed the process. Co-authors provided direction, guidance and editorial input.</td>
<td>Heliyon</td>
<td>Under second round review, submitted on 6 March 2019.</td>
</tr>
</tbody>
</table>

4 All editors have contacted and asked permission via email for each respective manuscript to be included in this thesis, approval has been granted for all chapters. See appendix seven.

5 Nicola Beatson, Dr David Berg and Professor Jeffery Smith (NB, DB & JS) are the authors of all four manuscripts.
Chapter six continues to examine the influence upon self-efficacy beliefs of accounting students. In chapter six, evidence is provided to show that there are differences in the source of self-efficacy beliefs between male and female students. Bandura (1997) presents four sources of self-efficacy beliefs; enactive mastery experience, verbal persuasion, vicarious experience and, physiological and affective states. In chapter six, results show that although both genders are influenced by past experience, females are more influenced by verbal persuasion and males more by the physiological and affective state.

1.7 Conclusions

This thesis is structured as follows. In chapter two, I provide a summary of relevant literature. I provide a broad overview first of accounting education, then self-efficacy beliefs and how these two phenomena relate and interact. The literature chapter also provides a diagrammatic representation of the variables, and then the hypotheses and research questions are stated. The full method of the project is described in chapter three. It should be noted that each of chapters four, five, and six have both literature summaries and method sections relevant to that chapter, so some repetition may occur. Following the presentation of the method are the three studies in chapters four, five, and six. Chapter seven, conclusions, discusses the implications of chapters four, five, and six by drawing together the arguments and stating the overall findings for the thesis. Finally, the references and appendices are provided.

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6 As per Table 1, each chapter is either a working paper, or published.
CHAPTER TWO: LITERATURE REVIEW

The literature review is structured as follows. First, the field of accounting education is described to provide an overall context for the study. Second, social cognitive theory, and in particular, self-efficacy beliefs are explored, as they provide the theoretical underpinning of the research. The third section brings accounting education and self-efficacy theory together to examine the potential that self-efficacy holds for understanding academic achievement in accounting. The final section of this chapter provides the hypotheses for the study and the rationale supporting those hypotheses. As mentioned in the introduction, this chapter offers a broad overview of the relevant literature.

2.1 Accounting Education

As accounting is an applied field (Fogarty, 2014), accounting research relies heavily on theories developed from psychology, sociology, higher education, and most prevalent, economics. Given the close relationship with economics as a discipline, it is understandable that much of the mainstream research in accounting has been drawn from economic theory. Accounting education is a subset of the wider accounting research, and relies less on economic theory, and more on theory from other disciplines, such as education, sociology, and psychology. This thesis is concerned with non-cognitive variables within accounting education, and therefore is aligned mostly with educational psychology.

Accounting is a widely studied discipline; many universities use the introductory accounting course as a required subject for other disciplines in the business school. This is due to accounting being a fundamental part of almost any job within business. This requirement results in a diverse group of students enrolled in accounting courses, some who have chosen accounting as their primary discipline of study, and others who have not. Studies have found that students who are enrolled in degrees that are not accounting usually perform
less well than those who are in a specific accounting program (Guney, 2009; Wooten, 1998). The non-accounting student who is required to take an accounting course typically has less chance of academic success (Lane & Porch, 2002). This study examines student success in learning accounting; as such, the following section explores the context of accounting education and some of the relevant changes in the field.

2.2 Accounting Education: Development of the Field

Accounting education research has seen significant growth as a field over the last thirty years. During that time, there have been several reviews of the accounting education research, including Paisey and Paisey (2004), Marriott, Stoner, Fogarty, and Sangster (2014), and Rebel and Tiller (1986). The *Journal of Accounting Education* began a series of reviews of the accounting education literature in 1998 with an article by Rebele, Apostolou, Buckless, Hassell, Paquette, and Stout; that series continues today. The most recent of these, published in 2017, gives an overview of the important recent publications within the field (Apostolou et al., 2017). The reviews cover the six main accounting education journals\(^7\) and organise the research into five categories: curriculum and instruction, instruction by content area, educational technology, students, and faculty. In 2016\(^8\), the student category was used most often, with 33\% of the articles, followed by curriculum and instruction with 26\%. Most studies published were of an empirical nature, and Apostolou et al. (2017) stated that changes included an increase of student-focused research, and a decline in content-based research, while technological use in the classroom appeared stable. Apostolou et al. (2017, p 20) noted the change in analytical approach in the field. They argued that “the proportion of inquiry should show an overall migration towards greater rigor as accounting education research


8 The 2017 review covered articles published in 2016.
matures and inquiry becomes more explanatory”. In another review of the field, Marriott, et al. (2014) stated that accounting education research currently has a geographical bias in that five out of the top six journals in the field are based in North America. This North American dominance is also reflected in the make-up of the editorial boards and by the authorship in the journals. Since 2014, there have been more international academics invited to participate as editorial board members, which reflects both the global nature of the accounting education community, and the international growth over the past few years in the field. To fully explore what is influencing accounting students, we first need to examine what is influencing them when they arrive at university, and as accounting is offered as a subject to study in high school in New Zealand, many students start their first year at university with some prior knowledge of the discipline.

### 2.2.1 The influence of prior learning in accounting.

Prior learning is often identified as the single most influential factor in the ability to learn (Byrne & Willis, 2014). Dochy, De Rijdt, & Dyck, (2002) stated that prior learning accounts for much of the variability in learning outcomes. Prior learning of accounting students has been well-studied (Duff, 2004; Gracia & Jenkins, 2003; Rankin, Silvester, Valley, & Wyatt, 2003), and often focuses on the impact of variables such as gender, age, and aptitude upon prior learning (Duff, 2004; Hall, Ramsay, & Raven, 2004; Hoskins, Newstead, & Dennis, 1997). Some studies support the argument that prior learning is the greatest predictor of tertiary accounting performance, while others do not. Within the context of tertiary-level accounting education in New Zealand, prior learning often occurs in the high school system. Accounting is offered in the highest three levels of the National Certificate of Educational Achievement (NCEA) in many schools at years eleven, twelve, and thirteen.

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9 Usually dependent on whether there are staff available to teach the subject.
The number of students choosing to take accounting at high school in New Zealand is increasing (Agnew, 2010). This increase in student numbers does not necessarily translate to an increase in accounting knowledge. There is great variability in how accounting is taught in high school, and due to the national system predominately used in high schools (NCEA), not all students need to submit assessment in all courses of study. For accounting, although the number of students is increasing, the number of standards that are entered and passed has been decreasing over time (Agnew, 2010). Given the structure of NCEA\textsuperscript{10}, a strategic student may have the necessary requirements to get into university, but the level of prior knowledge in specific disciplines is marginal. Indeed, Agnew (2010, p. 100) stated, “students who have studied accounting at high school now have a weaker grasp of content than when NCEA was fully introduced in 2004. In New Zealand, 54\% of tertiary accounting students have studied accounting at high school (Tan & Laswad, 2008). Furthermore, with the rise in popularity of unit standards in New Zealand education, it is also more likely that accounting students’ experience of assessment is that of non-invigilated internal assessment”. If the assessment is not invigilated (externally monitored), then it is possible, or even probable, that the assessment has had input from other people, such as parents, other students, and teachers. Anecdotal evidence from teachers, parents, and students would support this claim. While the process of non-invigilated assessment can help to facilitate learning, it does not necessarily mean the student has content knowledge as a result of the process. Internal assessment, while valuable, may not rigorously assess whether the individual understands, as the assessment may have been undertaken with significant support. 

The inconsistency in the literature with regard to prior learning in secondary school accounting courses and performance in the accounting course at tertiary level was described by Koh and Koh (1999, p. 15) as, “not as clear-cut as one would have expected.” Although

\textsuperscript{10} See: https://www.nzqa.govt.nz/ncea/ for more details about NCEA
the preponderance of the literature supports the idea that prior exposure to accounting
increases the chance of success at tertiary level (Eskew & Faley, 1988; Friedlob & Cosenza,
1981; Gul & Cheong Fong, 1993; Seow, Pan, & Tay, 2014), not all studies have found this to
hold true. For example, Keef (1998) found no significant relationship. A few years later, Keef
and Hooper (1991) challenged their own finding, and reported a link between prior
knowledge and performance. Time has been identified as important in the relationship
between prior learning of accounting and tertiary studies. Different results can occur if
performance is measured in the student’s first year of tertiary study, as opposed to later in the
degree. The relationship between prior learning and performance is strongest in the first year
of study, and as time progresses, that relationship weakens (Baldwin & Howe, 1982; Bergin,

2.2.2 Accounting education

Accounting has been part of society for centuries (Lee, Bishop, & Parker, 2014), and
the system of accounting has changed little over time. We still account for transactions the
same way as first identified by Pacioli11, an Italian mathematician who lived from 1447–1517
(see Lee et al., 2014). Training is required for users to understand and properly operate and
interpret accounting systems. Therefore, both informal and formal accounting education have
occurred simultaneously throughout this same time period. While the system of accounting
has remained somewhat static, the role of the accountant has been altered significantly by the
advancement of technology and the global nature of business. The traditional role of an
accountant was to record the transactions that occurred in business. This was done manually
through a process of recording the transactions in journals, and is commonly termed
‘bookkeeping’. Technology has taken over the ‘bookkeeper’ role12, leaving the accountant

11 Known as the ‘Father of Accounting’
12 For an example of a cloud-based accounting system, please see https://www.xero.com/nz/
more as a decision maker, not a record keeper. There have been several calls for change within accounting education to reflect this change (Evans et al., 2010; Hancock et al., 2010).

Accounting is a practical discipline. Therefore, as educators, we provide a ‘training ground’ for our students. A unique set of stakeholders of accounting students’ education are the professional bodies, such as Chartered Accountants, Australia and New Zealand (CA ANZ), and Certified Public Accountants (CPA) Australia. In a New Zealand context, when students leave the university environment, they normally join one of these two professional bodies as a member. Once in a professional program, students undergo additional training towards becoming a qualified accountant, such as a CA (Chartered Accountant) or CPA.

The experience that a student has in an introductory accounting course can impact whether the student decides to become an accountant (Geiger & Ogilby, 2000). A misconception of many is that because accounting is a practical discipline, the research associated with accounting education should also be purely practical, and less focused on theory (Marriott et al., 2014). However, this lack of theoretical foundation is now changing (Fogarty, 2014). Accounting education is an interdisciplinary domain where two fields, accounting and education, are merged. Interdisciplinary research projects are described as two areas combining to explain phenomena (Carnegie, 2014).

### 2.2.3 Accounting achievement at tertiary level

Student performance is a common focus in accounting education research (Booth, Luckett, & Mladenovic, 1999; Bui & Porter, 2010; Farley & Ramsay, 1988), and there are many factors that can influence a student’s academic performance at university. Providing students with strong fundamental principles of knowledge is paramount in education (Bloom,

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13 Students normally undergo a three- or four-year undergraduate degree, and then a further three or four years while working, resulting in a seven-year educational process. During the time they are working, they sit a number of ‘professional’ examinations before being accredited with a CA or CPA.
1956). This holds true in accounting. Academic success is often measured by the use of course grades (Bui & Porter, 2010). When compared with arts or science students, accounting students are found to exhibit more surface-level learning styles (Booth et al., 1999; Wynn-Williams, Beatson, & Anderson, 2016), and their performance can be affected by prior exposure to the discipline at high school level (Farley & Ramsay, 1988). Furthermore, effort and motivation are also strongly associated with examination performance in introductory accounting courses (Eskew & Faley, 1988).

In 2010, Agnew investigated if the new (at that point in time), standards-based school assessment system in New Zealand, NCEA, was being effective. The investigation focused on the accounting programmes in both universities and high schools around the country and examined the preparedness of accounting students transitioning from high school to university. When comparing pre and post NCEA, Agnew (2010) found for minority groups, such as Māori or Pacifica students, that from 2004 to 2008 there were no improvements in academic performance in accounting at tertiary level. In order to gain entrance into university in New Zealand, one needs to demonstrate a certain level of academic performance (Shulruf, Hattie, & Tumen, 2008). For students who are arriving at university straight from year thirteen (the final year in high school education in New Zealand), it can often be difficult for them to manage new systems and processes. For some students, even if they have exceptional grades on entering, performance levels can drop in their first year of tertiary education due to distractions. Further complicating the ability to cope with new systems is being away from home life for the first time. Often students face ‘information overload’ at the start of a new academic year as they are given instructions on administration matters, enrolment, fees, expectations, new systems, and course assessment (often for multiple courses, all with different details). It is not surprising that some are not able to consciously register and recall
all the information being provided to them. Anecdotal evidence from educators includes reporting that there is a constant need to repeat crucial information about assessment.

Assessment is important, especially within large university courses, as it is one opportunity to give feedback to students. Feedback has an effect upon students’ ability to perform academically (Harks, Rakoczy, Hattie, Besser, & Klieme, 2014; Lipnevich & Smith, 2009a; Lipnevich & Smith, 2009b) and in the more specialised field of accounting education, feedback and feedforward have also been reported to have an impact upon students’ learning (Bryant, Murthy, & Wheeler, 2009; Stuart 2004). Adler and Milne (1997) demonstrated that feedback given between student presentations had a positive influence on students’ engagement. Other studies have shown that the type of feedback given to accounting students has an impact upon their performance, with feedback being identified as a positive influence on success (Bryant et al., 2009). Often feedback is given to students on their achievement at certain points during their educational journey. Feedback given on effort has influenced both achievement outcomes and self-efficacy beliefs (Schunk, 1981; 1983; Schunk & Hanson, 1985). In the next section of this chapter, the concept of self-efficacy beliefs is summarized with particular reference to social cognitive theory, as well as the sources of self-efficacy.

2.3 Social Cognitive Theory and Self-Efficacy Beliefs

Self-efficacy beliefs and the impact that “self-referent thought in psychosocial functioning” (Bandura, 1986, p. 390) has upon daily activities matters to student learning. In the following section, a brief overview of social cognitive theory is provided, followed by discussion on self-efficacy beliefs. The sources of self-efficacy beliefs are also explored, as we need to know where students’ self-efficacy comes from to fully understand how it influences them. In this section, I draw heavily on Albert Bandura’s seminal work. This is
because Bandura (1977; 1980; 1981; 1984; 2001) developed the concept of self-efficacy beliefs in educational research, and therefore, it is appropriate to use his work as a foundation. The following section also discusses key works from both the accounting education literature and the more general education literature that developed from Bandura’s (1977; 1980; 1981; 1984; 2001) work, and these are woven into the argument throughout.

To succeed in education, students need a variety of skills above and beyond being intelligent (Lipnevich et al., 2013). Although intelligence is an important aspect of learning, other factors, or variables, also influence achievement. For example, students who have ability, but lack effort, may or may not succeed in a course of study. These variables could exist outside the classroom, such as the admission process to university or family commitments (Ransdell, 2001); demographic information, such as age, race, or gender (Fike & Fike, 2008; Hamilton, 2010); or internal aspects of the individual, such as emotional intelligence, or self-efficacy (Bandura, 1986; Parker et al., 2004).

Educational psychologists have been examining the concepts of motivation and achievement of students for several decades, often through examining the self (Pajares & Schunk, 2002). Bandura (1986) showed that individuals have a self-system in which they can begin to combine both the cognitive and affective parts of themselves. The self-system allows one to reflect on past behaviour, and think of alternative options for future actions (Pajares, 1996). Social Cognitive Theory (SCT) “examines the transformation mechanism in terms of conception-matching processes whereby symbolic representations are translated into appropriate courses of action” (Bandura, 1986, p. 390).

To be able to understand students at an individual level can often give great insight, as the details of the individual students are often more telling than the collective. Self-reflection is vital for the student to be able to identify past mistakes and then change behaviour. When
faced with learning new material, the ability to reflect on past decisions and determine if different actions are needed in the future is critical to the process of acquiring knowledge. In addition, SCT can help to understand students’ attitudes to stressful situations as “social cognitive theory views stress reactions in terms of perceived inefficacy to exercise control over aversive threats and taxing environmental demands” (Bandura, 1995, p. 26). The belief system that a student holds when faced with stressful challenges depends on many facets which together make up that individual’s efficacious beliefs.

2.3.1 Self-efficacy beliefs

Bandura (1984, p. 232) described self-efficacy beliefs as being “concerned with people’s judgements of the capabilities to execute given levels of performance”. People who are highly efficacious think, feel, and behave differently to those who are not (Bandura 1984). To understand self-efficacy beliefs, we must understand human functioning. At its core, human functioning requires an individual to have two important aspects: skills and self-efficacy beliefs to be able to function effectively (Bandura, 1986). It is not enough to have only one of these, as then the performance outcome may be influenced. In educational settings, the performance outcome is often the successful undertaking of an assignment, piece of assessment, examination, or overall course grade. Thus, a student may feel high or low levels of self-efficacy at the beginning or at the end of a course of study. If a student has high levels of ability, but low levels of self-efficacy, he or she often will have less chance to succeed academically (Bandura, 1997; Bandura & Jourden, 1991; Wood & Bandura, 1989).

2.3.1.1 Self-efficacy beliefs and other related terms.

Self-efficacy is often misinterpreted for other related, but not identical, ideas. For example, self-efficacy is sometimes used interchangeably with the term ‘self-esteem’ or ‘self-
concept’. However, these are quite different. Self-concept is a term used when investigating an individual’s holistic self, “…self-concept does not just reflect on-going behavior but instead mediates and regulates this behavior. In this sense the self-concept has been viewed as dynamic-as active, forceful, and capable of change” (Markus & Wurf, 1987, p. 299). The self-concept is related to, but not the same as self-efficacy beliefs. The self-concept is a broader, global view of an individual’s sense of self, as opposed to the task-specific nature of self-efficacy. Self-esteem is another familiar term, which again, differs from self-efficacy and should not be used interchangeably. Self-esteem is related to self-efficacy, and is another form of “self-referent thought” (Bandura, 1986, p. 410); however, it differs, as self-esteem is more closely aligned with a sense of worthiness. The community in which a person lives might or might not value the individual’s set of capabilities, and this would shape the individual’s sense of self-worth. Self-efficacy is not about the worthiness of someone’s abilities, it is more about the person’s judgement in his or her ability to undertake actions (Bandura, 1986).

Even if an individual has a strong sense of self-efficacy associated with a task, and his or her skill set is also of a level that would indicate that performing the task would be achievable, the individual still may choose not to undertake the task. This decision to avoid an action could be due to a lack of incentive, that is, that the outcome holds no value for the individual (Bandura, 1986). Disincentives are powerful. Further complicating this matter is that social pressures could be put upon an individual which may influence the person negatively when choosing a particular course of action (Bandura, 1986). This is especially true in tertiary education, as social norms can often dictate student behaviour (Tinto, 2006).

Effort, motivation, and determination are also closely related to self-efficacy (Bandura, 1986; 1993; Bandura & Locke, 2003; Pajares, 1996). When assessing a task, how efficacious a person feels towards that task will influence the level of effort. If individuals
have high levels of self-efficacy beliefs, they are more likely to be determined to persist and challenge themselves while facing the stated task. “The stronger their perceived self-efficacy, the more vigorous and persistent they are with their efforts” (Bandura, 1986, p. 394). This, of course, has an opposite effect for those with low self-efficacy, as these people will have self-doubt in their ability before they even begin the task. Then, when faced with a challenge, the effort required is not there, and it becomes self-fulfilling in terms of their belief they could not succeed. Biggs (1989, p. 17) stated “the climate of learning establishes the motivational context; positive feelings are necessary if not sufficient conditions for deep learning, whereas stress and cynicism usually lead to surface learning”. Effort, motivation, and performance have been widely examined (see Cerasoli, Nicklin, & Ford, 2014 for a 40-year meta-analysis on motivation and performance). Specifically within accounting, there is a significant body of work on this area, mostly focused in the workplace (Brownell & McInnes, 1986; Ferris, 1977; Libby & Luft, 1993). In a study of business students, Prat-Sala and Redford (2010) showed that students with high levels of self-efficacy were also those who exhibited deeper approaches to learning, and were more motivated with regards to their strategies to studying.

Resilience or grit (Duckworth & Gross, 2014; Forbes, & Fikretoglu, 2018), hope (Feldman, & Kubota, 2015), mindset (Dweck, 2000; Komarraju, & Nadler, 2013), and mindfulness (Soysa, & Wilcomb, 2015), are all non-cognitive aspects that can influence learning. Cognitive processing is but one part of how an individual learns, the self-system (Bandura, 1997) is complex and belief about a future action or goal can be influenced by multiple parts of an individual’s self-system. For example, an individual’s mindset is more holistic, a view on intelligence, as either fixed or growth, or somewhere in between (Dweck 2000). Mindset is different to self-efficacy, as mindset is a belief about intelligence and the ability to learn all things, whereas self-efficacy is task specific. Therefore, self-efficacy is measured at a more micro level, whereas mindset is broad in nature. These two terms are
related, but again, not the same. Recent studies have investigated the importance of mindfulness in learning environments, finding that there was a relationship between self-efficacy and wellbeing (Soysa, & Wilcomb, 2015). Interestingly, both gender and self-efficacy were found to be predictors of wellbeing in students, and showed that anxiety, stress and the management of those feelings can impact upon students. As educators, it is easy to forget that student may be facing great stress especially close to examinations. We need to be mindful ourselves that students can be negatively affected by stress, and attempt to help put support in place when this happens. Duckworth and Gross (2014), show that self-control and grit are independent constructs of the self. In their 2014 study they show that self-control is the likelihood of succumbing to temptation, and grit is about determination to succeed. These are highly related, and yet separate as just because two individuals have the same level of grit, and potential success, they may respond differently to temptations. The same can be said about hope (Feldman, & Kubota, 2015). Hope and self-efficacy are related, but not the same. Snyder (1995) describes hope being more associate with the attainment of goals, and self-efficacy is more associated with the performance and behaviour of undertaking a task. Furthermore, self-efficacy uses more judgment in assessing the likelihood of success in a future action.

2.3.1.2 Self-efficacy beliefs and judgement.

Perceived self-efficacy is individuals' judgement about their ability not in general, but within certain contexts (Stone et al., 1996). Individuals will judge specific tasks with a view as to whether they are able to organize their efforts on the task, and if they have the ability to be able to execute the action required to perform that task. It is very important to understand that perceived self-efficacy is not about the perception or judgement of the individuals’
ability, but more with their judgement of what they can do with the skill set they believe they have (Bandura, 1980: 1986; Gist & Mitchell, 1992).

2.3.1.3 Self-efficacy beliefs and performance.

In many different situations, there is variability in terms of performance. The relationship between self-efficacy and performance has received substantial attention in the education literature (Barling & Beattie, 1983; Gunderson, Ramirez, Levine, & Beilock, 2012; Zimmerman, Bandura, & Martinez-Pons, 1992). Two people with very similar skill sets, undertaking the same task, can realise different levels of performance. This is due to the difference between having skills and judging your own ability to be able to use those skills to perform. This variation can also occur at the individual level, when the same person, undertaking the same task can perform at a different level on various occasions (Bandura, 1986), as cognitive ability and self-efficacy beliefs are two independent variables (Bouffard-Bouchard, Parent, & Larivee, 1991). An individual’s skill set may not have changed, but the level of self-efficacy beliefs may have, thereby affecting performance. Each task can also be different, as someone’s self-efficacy levels to throw a hammer most likely will be different to the level of efficacy for learning accounting. It is important to note that one’s judgement of personal efficacy is different to whether one believes that he or she will achieve an outcome. Imagine for a moment that a student is required to enroll in a course of study which is not his or her chosen discipline. This student came to university to study Management, or Information Science, or Marketing as a subject major. With many universities, a requirement for a business undergraduate degree is to pass a set of compulsory courses in addition to the specialised field. Normally, this would include a mandatory ‘Introduction to Accounting’ course as part of the degree structure. How efficacious a student is with regards to a course which is potentially outside of his or her area of interest will be influenced by many factors.
For example, a student may have previously been told that they are ‘not good at math’ and so enter the accounting course with a low level of self-efficacy. Bandura (1997) warns that self-efficacy beliefs once firmly established are harder to change, however low levels of self-efficacy are easier to alter than high levels. As previously alluded to, some of the variability in learning outcomes can be influenced by prior learning (Duff, 2004; Dochy, et al., 2002; Gracia & Jenkins, 2003). The combination of whether a student has had previous exposure to accounting content at high school, and how he or she perceives accounting as a discipline will affect the level of self-efficacy in terms of expected performance in an accounting first-year mandatory course.

### 2.1.3.4 Expected outcomes

Student performance may vary due to the student’s expected outcome. An important part of self-efficacy and how the self-system evaluates what has happened, and what therefore may be done differently next time, are ‘expected outcomes’ (Bandura, 2001). Expected outcomes are explained best by investigating the consequences of an action. For example, imagine someone about to ride a bike. That person may have high or low self-efficacy beliefs about his or her ability to get to the end of the road without falling off the bike. One of the expected outcomes is self-satisfaction at the accomplishment, not the judgement about that person’s belief in his or her ability to undertake the task. Self-efficacy beliefs are different from expected outcomes. This distinction can often be misinterpreted and it is important to identify correctly if one is investigating the self-efficacy beliefs of individuals (Bandura, 1986). As Bandura (1986, p 392) succinctly stated, “means are not results”, indicating that the individual’s efficacy may in fact be a mean to an end, but it is not

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14 Over ten years teaching accounting, I have heard this from students multiple times. They have previously been told that they cannot learn math (or ‘can’t do numbers’), and so have a level of belief about their ability to learn accounting that has solely been formed on this past instruction.
the outcome. Wynn-Williams et al. (2016) investigated accounting students and their approach to learning, finding that whether a student is a surface, strategic, or deep learner can be more predictive than prior learning with regards to the student’s final grade outcome. This shows that a different expected outcome may influence the approach to learning (Biggs 1989), and that self-efficacy beliefs affect the individual’s expected outcome with regards to academic success and performance in the course.

Most expected outcomes occur as a result of actions by the individual (Bandura, 1986; Schunk 1991). These expected outcomes then become self-fulfilling as a set of experiences starts to inform the internal efficacy beliefs. This can be seen in many facets of an individual’s environment. “In social, intellectual, and physical pursuits, those that judge themselves highly efficacious will expect favourable outcomes, self-doubters will expect mediocre performances of themselves and thus negative outcomes” (Bandura, 1986, p 392).

Indeed, Pajares and Johnson (1994) measured the perceived self-efficacy of students learning a new skill, and found that their level of self-efficacy was a significant predictor of the outcome. Self-efficacy beliefs are clearly a powerful predictor of whether a student will succeed academically. The question remains whether the students themselves realise this, or whether it is up to educators to make them aware. If students know that their level of self-efficacy beliefs will predict their academic performance, they may be more open to positive changes to their beliefs.

2.1.3.5 Self-efficacy beliefs and failure at university.

The opposite of success is failure. Multiple studies have investigated failure in educational settings (Bennedsen & Caspersen, 2007; Gale & Parker, 2014; Holden, 2016; McPhail, 2015). Educators care about their students as individuals and the impact that failure has on them, so it is unsurprising that there exists a research literature in this area. Tinto
(1975) examined the process of leaving a course of study, and developed a model which showed the interaction between the institution and the individual. The persistence required to stay a course of study when failure occurs must come from the individual. When failure occurs, if the person is highly efficacious, he or she will attribute the failure to a lack of effort to the task. However, for those that are low in self-efficacy beliefs (even if they have the same or similar skill set), they often attribute the lack of performance to a lack of ability (Bandura, 1986; 1993; Bandura & Locke, 2003; Dweck, 1975). Studies have shown if individuals attribute their lack of success to the amount of effort that they put in to the stated task, then that they will increase their persistence (Dweck, 1975). Conversely, students who have low levels of self-efficacy beliefs and low levels of effort are often found to procrastinate, further exacerbating the situation, and thereby reducing even further the chance of academic success for themselves (Klassen, Krawchuk, & Rajani, 2008). Students often find reasons why they have not been able to achieve success; anecdotally, most educators would be able to tell you that their students had referred to an external reason for failure. For example the cliché, ‘the dog ate my homework’. If students are able to take ownership of their failure, and realise it was because of their own behaviour and attitude to learning, they will then have a better chance of success the next time (Bandura, 1986).

Human beings make choices every day that can effect change upon their own environment. There is a cycle in which the perception of achievement of performance goals can influence self-belief, and then this will influence the next performance (Pajares, 1996). Bandura (1986) referred to this concept as reciprocal determinism, alluding to how interactions occur in a simultaneous, reciprocal manner among cognition, behaviour, and the environment. Humans can exercise their right to effect change upon their own environment through three aspects of individual agency: collectively, directly, or through others (Bandura, 2001; Martin, 2004). Humans often rely on their internal mechanisms, such as self-efficacy
beliefs, when making choices (Bandura, 1986). When deciding whether to take on a particular task, individuals assess whether they can perform that task to a desired level of achievement. If there is realisation from the individual that he or she may not achieve the desired outcome, then that person may avoid (if able) undertaking the activity. People are far more comfortable doing things that they believe they will be able to achieve (Bandura, 1986).

Studies within educational settings have shown that the choices people make are influenced by their self-efficacy beliefs (Bandura & Locke, 2003; Betz & Hackett, 1986; Gist, 1987). In the classroom, studies have shown that self-efficacy and choice behaviour are correlated (Lent, Brown, & Larkin, 1987), and that students can make good choices about their self-directed learning (Martin, 2004). Most universities have a point in time where students cannot withdraw from the course. If students want to withdraw after this point in time, they are not able to do so. Once this happens, they cannot avoid the outcome, a grade. The students who wanted to avoid the outcome and yet were unable to leave the course of study, will often end up with a failing grade.

As previously described, self-efficacy is an act of self-assessment. Inaccurate assessments of self-efficacy can lead an individual to make poor choices. Individuals may over- or under-estimate their own efficacy, thereby affecting their ability to undergo successful functioning (Bandura, 1986). If students underestimate their self-efficacy beliefs, then they may avoid experiences where they could have potentially succeeded. The avoidance may result in a lost opportunity for those individuals. With overestimation of ability, one may end up involved with a task where he or she is unable to perform. In this situation, students may fail at a task that they had believed they would succeed in. This can have a significant ongoing impact on an individual, as he or she is negatively affected as a result of poor performance.
Self-efficacy beliefs are not necessarily stable over time. As individuals make more choices, and have new experiences, self-efficacy beliefs can change (Bandura, 1986; 1995). Success in the presence of low self-efficacy can positively impact that self-efficacy. The amount of time between assessing the level of self-efficacy an individual has with a task, and the point in time that that individual actually undertakes the action, can also influence the level and accuracy of the self-assessment of efficacy. Strong self-efficacy beliefs are robust; however, weaker self-efficacy levels are more susceptible to change, in both directions (Sublett & Plasman, 2018). If an individual has a strong sense of efficacy, but does not undertake the task for a significant amount of time, chances are he or she will still maintain a strong efficacious belief. However, if someone has lower levels of self-efficacy beliefs, then he or she is more likely, over time, to change, most likely in a negative direction (Bandura, 1986).

### 2.3.2 Sources of self-efficacy beliefs

Self-efficacy is malleable (Gist & Mitchell, 1992; Phillips & Gully, 1997; Sublett & Plasman, 2018), and therefore can be altered given the right circumstances. The next section of this chapter explores where self-efficacy beliefs come from. The self-assessment of one’s efficacy levels could either be accurate or faulty, and can be influenced in varying degrees by the four sources outlined below. To be able to change perceptions of self-efficacy beliefs, the source of the beliefs must be understood. Bandura (1977, 1986, 2001) identified four sources of self-efficacy: enactive attainment, verbal persuasion, vicarious experience, and the physiological state.
2.3.2.1 Enactive attainment/enactive mastery

Enactive attainment (or enactive mastery) is the most powerful of the four sources of self-efficacy beliefs (Bandura, 1986; Bandura, Adams, & Beyer, 1977; Feltz, Landers, & Raeder, 1979; Heuvel, Demerouti, & Peeters, 2015). Successful past attempts at a task increase the level of self-efficacy beliefs for undertaking future attempts at the same type of activity. It should also be noted that increasing efficacy through enactive attainment can become more generalised, and start to build an individual’s efficacy towards tasks which are similar, but not necessarily exactly the same as where the individual has had the past success (Bandura, 1986). The more success that is experienced, the more efficacious an individual becomes until he or she reaches a saturation point, where continued success will not increase the level of efficacy. At this saturation point, the individual can actually sustain a certain amount of failure without affecting efficacy levels, as the power of the past successes overrides small failures. In accounting education, Dull, Schleifer, and McMillan (2015) showed that enactive mastery of accounting knowledge motivated students. Students who receive positive feedback on their ability to perform academically were more likely to have increased levels of mastery efficacy beliefs.

2.3.2.2 Verbal persuasion

Verbal persuasion is a common tool used to increase efficacy levels. A student’s level of self-efficacy can be altered with persuasive language (Ahn, Bong, & Kim, 2016). Occasionally, an individual will see someone with low levels of efficacy, and try to convince that person otherwise. Bandura (1986) cautions the persuader to carefully consider if what is being said is realistic for the individual with low efficacy levels. If it does not seem attainable for the individual to achieve at the level that the persuader is stating, then the persuader will actually lose credibility with the less efficacious person. In the classroom, educators need to
be aware and cautious of this; if all students are told that they can achieve a high level of academic success, when this in fact is quite likely not to be true, this will then leave the students feeling more negative, and potentially even less efficacious towards the task. It is far easier to reduce efficacy levels with verbal persuasion than to increase them (Bandura, 1986).

2.3.2.3 Vicarious experience

Vicarious experiences can influence self-efficacy beliefs; however, they hold less power than some of the other sources, and are unlikely to affect efficacy levels in isolation (Bandura, 1986). If people are uncertain about whether or not they can achieve the task ahead of them, they are more susceptible to vicarious experiences. This is due to a reliance on modelling, when they have no knowledge in a direct way, of their ability to succeed (Bandura, 1981; 1986; Byrne et al., 2014; Chawla & Cushing, 2007). For someone who is low in efficacy beliefs, to see someone else achieve success can influence his or her level of self-doubt. However, an individual with high levels of efficacy can also engage in modelling behaviour to reinforce, or further increase his or her levels. The amount of influence that vicarious experience can have upon an individual’s level of self-efficacy beliefs is often dependent on the way in which the success of the task is assessed. As long as there are clear expectations on what success means, they will help give vicarious experience more power as a source of efficacy. For example, in a learning environment, a student who has a clear idea of what grade he or she needs, and how to best achieve it, may be influenced more by seeing other students succeed, than others who are less clear about the expectations and measurement of their academic ability.

2.3.2.4 Physiological state

The physiological state as a source of self-efficacy is less studied than verbal persuasion, vicarious experience, or enactive attainment. It signifies the reliance on
individuals ‘listening to their body’, and reacting in stressful situations, with a heightened physical reaction of “somatic arousal” (Bandura, 1986, p. 401). This physical reaction then can be interpreted by individuals as being more susceptible to failure with the task they are attempting. This can, in turn, have a reaction of fear, and more self-doubt occurs (Denton, Rostosky, & Danner, 2014). A student taking an examination would be seen as a stressful situation. Many students will have a physical reaction, and anticipate this prior to the examination, especially if the examination is worth a significant amount. This stress and physical reaction could be influential on his or her level of self-efficacy when determining the belief that a pass is achievable. Some students would be more or less affected by examination stress than others, depending on prior experiences. Bandura (1986, p. 401) also stated that “Physiological indicants of efficacy are not limited to autonomic arousal. In activities involving strength and stamina, people read their fatigue, windedness, aches and pains as indicants of physical inefficacy”. Under examination conditions, students may experience fatigue, especially in exams which are held for several hours. Further complicating the situation, paper-based exams could cause added stress for students who are accustomed to writing on a computer being required to use pen and paper. This could lead to cramping in the fingers and hands, causing distress. This becomes particularly interesting considering the increasing popularity of sitting exams while online (electronic exams, or e-exams). In a study set in an Australian university, Wibowo, Grandhi, Chugh, and Sawir (2016, p 19) state that “the majority of students (19) stated that the e-exam was more stressful than past paper-based exam”. If e-exams become the norm, we must consider the physiological impact upon the students and search for mechanisms that can help to relieve some of the stress.
2.4 Self-Efficacy Beliefs in Accounting Education

Self-efficacy beliefs have been studied in a wide range of disciplines from outside of accounting education, from health (O'Leary, 1985), to athletic performance (Moritz, Feltz, Fahrbach, & Mack, 2000), and in educational psychology a focus on academic motivation and performance (Pajares, 1996; Schunk, Meece, & Pintrich, 2012; Zimmerman, Boekarts, Pintrich, & Zeidner, 2000). Within accounting education, there has been an increase in studies focused on non-cognitive variables (Christensen et al., 2002; Keef & Roush, 1997; Stone et al., 1996). Many factors can influence a student’s ability to learn (Carneiro, Crawford, & Goodman, 2007; Duff, 2004), and many of these factors are non-cognitive variables. The growth in research in the area demonstrates the recognition of non-cognitive variables as an important part of learning accounting.

2.4.1 Academic self-efficacy

The term academic self-efficacy is used to describe self-efficacy beliefs in learning (Byrne et al., 2014; Schunk, 1991). Individuals who show high levels of efficacious judgement towards the ability to succeed in a course of study will demonstrate greater levels of effort (Chemers, Hu, & Garcia, 2001) and apply themselves more within the academic environment (Phan, 2011; 2012). Students with high efficacious beliefs are therefore more likely to have success within the educational environment.

There have been multiple studies examining the determinants of academic success in tertiary level accounting courses (Guney, 2009; Yu, 2011). Wooten (1998) stretched the previously constrained literature on accounting students’ performance, and started to investigate non-cognitive aspects of the learning environment, such as family and job commitments and the type of environment that was found in the class room. Included in the factors found to influence performance was effort of the student, which has been
subsequently supported in research produced since (De Zoysa & Rudkin, 2007; Sargent, Borthick, & Lederberg, 2011; Yu, 2011). It is unsurprising that students with lower academic success outcomes may have been less motivated and exerted less effort within an introductory accounting course, as “introductory accounting requires a significant amount of practice and problem solving skills” (Wooten, 1998, p. 368).

As already mentioned, the relationship between academic self-efficacy and performance has been well studied, and well supported. Bong (2001a) found the linkage between academic self-efficacy and performance was most strongly correlated at the end of the semester. Zajacova, Lynch, and Espenshade (2005) also reported strong linkages. “The results suggest that academic self-efficacy is a more robust and consistent predictor than stress of academic success” (Zajacova et al., 2005, p. 677). This positive association between the variables has been shown to hold across many contexts, including community colleges (Majer, 2009), high school (Bong, 2001b), and also for educators (Caprara, Barbaranelli, Steca, & Malone, 2006). There is little debate within the wider literature on self-efficacy beliefs and academic achievement that these two variables have strong linkages.

One area that is contested is that of the impact of gender. Many studies have found significant relationships with regards to gender and self-efficacy; for example, Pajares and Miller (1994) showed that men exhibited higher levels of self-efficacy, as did Hackett (1985). Huang (2013), in a meta-analysis, showed content domain to be an important factor. The concept that domain matters is aligned with Busch (1995), who found that there were some gender differences in certain disciplines; however, this effect was not apparent in accounting students. There has been a significant focus in the literature since the late 1980s on success and its association with gender and race (Hamilton, 2010; Lichtman, Bass, & Ager, 1989;

15 Bong (2001a) measured self-efficacy both at the beginning and end of a semester term.
Trippi & Baker, 1989), age (Fike & Fike, 2008; Mills, Heyworth, Rosenwax, Carr, & Rosenberg, 2009), and self-efficacy (Chemers et al., 2001; McKenzie & Schweitzer, 2001; Zajacova et al., 2005). In a study which measured the academic self-efficacy of undergraduate students, Sachitra, and Bandara (2017) found that female students had higher levels of self-efficacy than male students and there were significant differences in academic self-efficacy across the different years of the undergraduate degree. Gender and self-efficacy were not found to be related by Busch (1995) when 147 university students were investigated with regard to their level of self-efficacy within the context of computer confidence. Wilson, Kickul, and Marlino (2007) found there was a gender effect on MBA students’ entrepreneurial self-efficacy, in that women were found to have lower levels of self-efficacy beliefs in their ability to be entrepreneurial. Byrne et al. (2014) studied gender differences, self-efficacy beliefs, and academic performance. Their study consisted of surveying 183 accounting students in a first-year course. They were interested in exploring the impact of gender; they found no significant difference with regards to gender. What they found was that students were either unsure or not confident with certain aspects of the course, such as asking for help from their lecturers, and responding to questions in tutorials. Their findings showed that students were reluctant to engage with faculty teaching the course. Another area in which students were lacking confidence was that of organisational skills, such as writing up notes or study plans. Despite almost 50% of the class not being confident with regard to revision, 77% of them indicated that they were confident in ‘studying effectively on their own’ (Byrne et al., 2014).

The determination of how much self-efficacy one has towards a given task relies on judgement. In making a self-efficacy judgement, an individual will use information acquired, and then weigh the importance of that information before making a judgement assessment (Bandura, 1986). In enactive efficacy, “the extent that to which people will alter their
perceived efficacy through performance experiences will depend upon, among other factors, the difficulty of the task, the amount of effort they expend, the amount of external aid they receive, the circumstances under which they perform, and the temporal pattern of their successes and failures” (Bandura, 1986, p. 401). Students will think about their experiences, assess what happened, which may or may not alter the level of efficacy they have towards that particular task. There is an inverse relationship seen between effort and ability (Fisher & Ford, 1998; Holloway, 1988; Rudolph & McAuley 1996), as the greater the ability, the less effort is required to succeed in the task at hand. This relationship may influence the judgement of self-efficacy, as effort is an influencing factor when thinking about performance (Vroom, 1964).

Mathematics self-efficacy has been studied extensively (Lipnevich, Preckel, & Krumm, 2016). It is important to note that most accounting courses at the introductory level are not mathematically difficult. First-year accounting courses focus primarily on basic addition and subtraction; however, accounting is often perceived as a challenging mathematical subject by students (Joyce, Hassall, Luis Arquero Montaño, & Donoso Anes, 2006). The mathematical self-efficacy beliefs of students in an introductory accounting course are influenced by two key perceptions. First by the students’ judgement of their mathematical ability, and second, by the students’ perception of accounting as a mathematical course of study. In a study conducted with two groups of students, Lipnevich, et al. (2016) found that it was students’ attitude towards mathematics that explained their academic performance, over and above their cognitive ability in the subject.

### 2.4.2 Self-efficacy beliefs: Accounting students

Within accounting education, studies on self-efficacy are less common than studies focused on other variables, yet some do exist (Byrne et al., 2014; Christensen et al., 2002;
Stone et al., 1996). Lai (2008) used the context of e-learning and technology to see if accounting students have ‘internet self-efficacy’, and found that in the technological learning environment which was the setting of the study, accounting students were neither high nor low when it came to internet self-efficacy. Stone et al. (1996) also conducted research that was set within a technological setting, and found that training could have an impact upon accounting students’ information technology self-efficacy. Burnett, Xu, and Kennedy (2010) recognised self-efficacy as a potential tool to enact change in accounting education. The greatest focus of work in accounting education concerns the relationship between academic success (usually measured by a final grade on the course) and academic self-efficacy (Byrne et al., 2014). It is here that Christensen et al. (2002) showed a strong relationship between the accounting students’ self-efficacy level and their grade. Lai Mooi (2006) supported this finding by measuring this relationship in a second-year intermediate management accounting course.

Students are not always the best predictors of their ability (Ravenscroft, Waymire, & West, 2012). High prediction of success is not always the best indicator of whether students will achieve success. Ravenscroft et al. (2012) showed that students who ended up achieving the higher grades often underestimated their performance, while the opposite was true of the students who received the lower grades; they had predicted a much greater level than their actual academic performance. A better measure of success is self-efficacy beliefs, as this has been shown to hold a stronger relationship with academic outcomes for accounting students (Burnett et al., 2010).

Feedback is an important part of learning accounting (Bryant, et al., 2009; Stuart 2004), and the feedback that a student receives can impact his or her level of self-efficacy (Beatson, Berg & Smith, 2018). Bandura (1995) stated that how efficacy experiences are understood by the individual is influenced by many different factors. These factors are
context driven, and could be personal, or social. When a student receives feedback, he or she is often measured against the rest of the class. This measurement results in discussion amongst students, and an individual may choose to self-assess if he or she is ‘better’ or ‘worse’ than peers. This self-assessment can cause a change in efficacy beliefs. Bandura (1995) argued that “the extent to which performance attainments alter perceived efficacy will depend on people’s preconceptions of their capabilities, the perceived difficulty of the task, the amount of effort they expended, their physical and emotional state at the time, the amount of external aid they received, and the situational circumstances under which they performed” (p. 5).

2.4.3 First-year students and academic success.

Academic success of first-year students has a sizeable literature associated with it, as educational institutions are focused on helping students succeed. Early studies focused more on the cognitive variables, and were unable to explain much of the variance in academic performance (Berger & Milem, 1999; Tinto, 1987). Given the lack of understanding, research moved towards investigating the non-cognitive elements of first-year student performance. First-year students often face a multitude of experiences, many of them new and stressful (Parker et al., 2004). The transition to higher education is often a complex time for students (Tinto, 1987: 2006). Therefore, it is no surprise that the academic success of first-year students was found to be fraught with obstacles (Pascarella, Terenzini, & Wolfle, 1986). Many educators are concerned about their students and their chance of success. We know students are going to face obstacles while learning, some more than others. When they are faced with an obstacle, how do they react? Maybe we should consider how we, as educators, can influence our students’ self-efficacy (Byrne, 2017). Dweck (2000, p. ix) eloquently captures how many educators feel: “I have always been deeply moved by outstanding
achievement, especially in the face of adversity, and saddened by wasted potential”. To explore student success in learning accounting is essential, as once the determinants of success are better understood, then processes can be undertaken to help students to achieve.

The next section of this chapter provides a conceptual framework for this thesis, naming the key variables to be explored, and indicating relationships to be examined. The chapter concludes by stating the hypotheses to be explored in the thesis.

2.5 Conceptual Framework

The model presented in Figure 1 shows the variables which this study focuses on. Interest represents the level of interest that the student has in learning accounting. Gender is whether the student is male or female\(^{16}\). Prior learning represents if a student has been exposed to the discipline of accounting at high school or not. The self-efficacy beliefs were measured at both the beginning and end of the course. The midterm examination was held in the middle of the course, and academic performance at the end of the course is the final grade the student received. The bold lines represent relationships which will be examined in chapters four, five, and six. In the section following the model, the relationships to be explored are further explained and conceptualised within the relevant literature.

\(^{16}\) See chapter three for more information about gender-diverse options offered in the survey.
Figure 1: Conceptual Framework

- Interest
- Gender
- Prior learning
- Midterm exam
- Self-efficacy beliefs at beginning of course
- Self-efficacy beliefs at end of course
- Academic performance at end of course
2.6 The Present Studies

The research presented here investigates the self-efficacy beliefs of undergraduate accounting students enrolled at a large university. As previously stated, there are strong linkages between self-efficacy and performance, both in a general education context (Bong, 2001a; Majer, 2009; Zajacova et al, 2005) and within accounting education (Byrne et al., 2014). Chapters four, five, and six of this thesis are adapted from research manuscripts that are in various stages of publication. The rationale for the hypotheses for each chapter are explained separately below.

There are three sets of hypotheses and research questions to be presented here. For sake of clarity, the hypotheses and questions are denoted with numbers in order of presentation. Thus, for the first study presented, the hypotheses are H1 and H2. These first two hypotheses examine the relationships among prior learning, self-efficacy, and performance in learning accounting in the first year of university. The second set of hypotheses, H3, H4, and H5, are presented in chapter five and examine the relationship between self-efficacy beliefs and feedback on enactive mastery. The third set of hypotheses H6, H7, and H8 examining the source of self-efficacy beliefs are in chapter six.

Hypothesis 1 (H1) posits the causal linkage of self-efficacy to performance, as this must be established before more sophisticated theorising is undertaken. Specifically, chapter four examines whether accounting students’ academic performance in their first-year introductory course in accounting is influenced by their level of efficacy belief. Based on the prior literature, it is expected that this relationship will hold; therefore, the hypothesis is stated in the alternative:

17 As described in Table 1.
H1: Self-efficacy beliefs are positively related to achievement in accounting.

The next hypothesis in chapter four is associated with prior learning and the impact it may or may not have upon accounting students’ academic performance. As seen in the prior learning literature that was outlined in this chapter, there is debate regarding the impact of prior learning in accounting (Eskew & Faley, 1988; Friedlob & Cosenza, 1981; Gul & Cheong Fong, 1993; Seow et al., 2014). Given the differing findings in prior studies, this relationship may or may not hold. Hence hypothesis 2:

H2: Prior learning of accounting at high school is positively related to achievement in accounting.

Chapter five investigates feedback and achievement with regard to enactive mastery. This chapter examines the relationships between self-efficacy beliefs, feedback, and performance. Most university courses include assessment, which can be used to give formative feedback to students (Falchikov, 2013; Wiggins, 1998). The self-efficacy beliefs of a student can change over time (Christensen, et al., 2002; Sullivan, & Guerra, 2007; Zimmerman, 1995), and Bandura (1995) stated that events can impact upon the level of efficacious belief of an individual. Therefore, in a mastery learning environment, it would be expected that feedback given on the level of mastery would have an impact on students’ level of academic self-efficacy, hence hypotheses 3–5:

H3: Enactive mastery feedback in the form of midterm examination results is positively related to student self-efficacy beliefs concerning academic success.

H4: Enactive mastery feedback in the form of midterm examination results is positively related to student self-efficacy beliefs concerning academic help-seeking behaviour.
H5: Enactive mastery feedback in the form of midterm examination results is positively related to student self-efficacy beliefs concerning academic organisation skills.

In chapter six, the relationship between the sources of self-efficacy, academic performance, and gender are explored. First I establish the link between self-efficacy and academic performance by testing the following hypothesis:

H6: there will be a positive relationship between self-efficacy and academic performance.

To see if there are any gender differences between male and female students, as previously found in some literature (Pajares, 2002; Junge, & Dretzke, 1995; Wigfield, et al., 1996), I hypothesise:

H7: there will be gender differences in self-efficacy beliefs for students learning accounting.

Finally, using Bandura’s (1986) work and that of many others (Bandura, et al., 1977; Feltz et al., 1979; Heuvel et al., 2015), I believe that enactive mastery will influence both genders self-efficacy beliefs in learning accounting. Hence:

H8: mastery experience will be the most influential of the four sources of self-efficacy beliefs.

In the next chapter, the method is described for the project as a whole. All three chapters four, five, and six, have some description of method relative to the research study within the chapter. However, in chapter three, a holistic view of the research and its method is described. This description includes research design, data collection, choice and justification of the survey instrument, and how the stated hypotheses and research questions will be examined.
CHAPTER THREE: METHOD

This chapter explains the research method undertaken in this thesis. The description of the overall research method is important to understand the studies undertaken in chapters four, five, and six. Each of these following three chapters is a project in its own right and, as such, has a method section within it. Thus, there may be some necessary duplication.

Research method is integral to any research project, and this chapter provides an overview of the research design and process. The context of the study is described, as this context is important for the three subsequent chapters. The process of collecting data is explained, including how the data were collected and who the participants were. The data collected are used in chapters four, five, and six, but in differing ways. This chapter explains how different aspects of the thesis draw on different parts of the data to explain the relevant hypotheses. In the final section of this chapter, the instrument used to test the hypotheses is justified based on prior work in the field, and through using Bandura’s (2006) best practice in self-efficacy scales.

3.1 Ethics

Ethical approval was granted prior to the collection of any data in accordance with all university policies. The application for ethics was submitted early in 2016, and underwent Māori consultation before being put in front of the committee. The application was granted permission shortly thereafter.

3.2 Research Method

The thesis used a mixed method approach as both quantitative and qualitative data were gathered to test the hypotheses and explore answers to the stated research questions. Mixed method allows researchers to gather information in a broader way than the somewhat
restricted manner of only collecting quantitative or qualitative data (Morgan, 2007). By restricting the data collection to one form, potential explanations of the findings might be in error. By enabling deduction and induction to occur simultaneously, contextual circumstances can be properly considered (Berg, 2011; Johnson, & Onwuegbuzie, 2004).

3.3 Context

The setting for this study is a mandatory accounting course, required for all business students who undertake a Bachelor of Commerce (BCom) degree. The University of Otago is located in Dunedin, New Zealand, and at the time of the data collection it had 18,547 equivalent full-time (EFT) students enrolled. Commerce students, the focus of the present study, numbered 2,954. Most students enrolled in the University in 2016 were domestic (16,854), with a smaller number of international students (1,433). The University of Otago had more female students (12,147) than male students (8,665); the ethnicity of all EFTs is as follows: European 73.1%; Maori 8.9%; Asian 19.2%; Pacific islanders 4.2%; and other 3.7% (Otago quick stats, nd). In the Otago Business School (OBS), there are six departments and three additional teaching programs. The six departments are Accountancy and Finance, Economics, Information Science, Management, Marketing, and Tourism. The three additional programs are Entrepreneurship, International Business, and Executive Education (OBS, nd). To complete an undergraduate degree in any of the programs, students must complete a suite of ‘core’ courses. The core is mandatory for all business students, regardless of their chosen discipline to specialise in.
3.4 Data Collection

Data for this study were gathered over two teaching semesters in 2016 from ACCT101, which is an introductory accounting course. The next section of this chapter describes the course itself, justifies why it was chosen as the setting for this study, and describes the process for gathering student information.

3.4.1 The course: a description

ACCT101 is a first-year accounting course which is compulsory for all business students. Regardless of whether a student is enrolled in a BCom majoring in accounting, tourism, marketing, international business, economics, information science, or finance, he or she must enrol and pass the introductory accounting course. The course is offered in two semesters a year and has enrolments of approximately 500–600 in semester one and 300–400 in semester two.

ACCT101 covers two major contents areas: introductory financial accounting and introductory management accounting. These two topics are evenly spread over the thirteen-week semester, with the first six weeks being financial accounting, followed by six weeks of management accounting, with a week at the end for revision purposes. The course is mainly taught from a ‘user’ perspective given that not all students are going to continue on studying accounting. There is always a mix in the course of students who have studied accounting previously (often at high school), and those who have not. The midterm exam for ACCT101 is held halfway through the semester and examines financial accounting content. The midterm exam is worth 40% of the final grade with the final exam being the only other form of assessment. The final examination covers the management accounting section of the

18 The course code has been changed for the purposes of reporting this research.
course and is worth 60% of a student’s final result for the course. Both the midterm examination and the final examination are a combination of numerical questions where the students are required to calculate and/or interpret numerical information, and short-answer written questions based on theoretical concepts.

3.4.2 The course: justification

Firstly, as previously stated, ACCT101 is a mandatory course for all business majors. Secondly, as described, ACCT101 has very large numbers\(^\text{19}\), so the potential ability of being able to gather a large data set was attractive. Also, ACCT101 has a relatively high failure rate compared with other first-year compulsory courses. This, combined with the access to lectures, and the diverse population of students, meant ACCT101 was a good choice for data collection. If another accounting course had been selected, then the diversity would be reduced, and the number of students would also be smaller.

3.4.3 Data collection process

Early in the research project, discussions were held regarding the best way to administer the survey to students. The ease of online surveys was attractive; however, this may have resulted in a low response rate. Therefore, the decision was made in January 2016 to distribute hard copies of the survey to students in lecture time. The data set in each of chapters four, five, and six includes all students present on data collection day who enrolled in either semester of 2016.

Students were asked to participate in the research project in the following manner. At two points in time within the semester, surveys were given to students. The first survey was

\(^{19}\) Compared with other undergraduate courses within the university in which access would have been achievable.
distributed in week three. This time was chosen as there are many movements in and out of the course during the first two weeks, so by week three things are relatively stable with regards to enrolments. The second survey was distributed in the final week of the thirteen-week semester. The first time a survey was distributed, students were invited to participate, and reassured that participating would not influence their grades, and that if they had completed a previous survey, to still complete this survey. The students were also told explicitly, both in written and verbal form, that the results of the survey they were about to fill out would not be looked at by members of the teaching team until after the final results for the course were published.

In the lectures, once students had been informed of the project, they were given two documents: a survey to complete in class and an information sheet to take home. They were asked to spend ten minutes of the lecture time to complete the questions. Once the surveys were collected, the lecture commenced as per normal. The survey was handed out to students as they arrived for the lecture, and there were several faculty members on hand to answer questions and help to collect up the surveys once completed. For all four times in which data were collected, it was done with as little disruption as possible to the lecture.

### 3.5 Development of the Project

The survey was improved in semester two based on semesters one’s process. There were two changes that affected the analysis of the data. The first was a change in the survey regarding gender identification. In semester one, participants were asked to select their gender from stated options: ‘male’, ‘female’, ‘trans’, and ‘I prefer not to answer’. There was significant consultation with gender experts regarding the correct way to be inclusive on this

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20 Please see Appendix 1 for the Information Sheet.
21 Both iterations of the survey are shown in the appendices in Appendix 2 and 3.
matter, and this was the preferred option for semester one. However, following further consultation, the decision was made to remove the stated options, and ‘gender’, with an open-ended space for students to self-identify was provided. This was preferred, as it removed the categorisation, and allowed students to indicate their gender without needing to conform to a pre-stated option. The other change made between semesters was a change in the Likert scale for two of the variables collected. The participants were asked ‘how interested are you in this course’ and ‘how eager are you to do well in this course’. A six-point Likert scale was used in semester one and a seven-point scale was used in semester two. This is a limitation; however, the items can still be used carefully in the analysis. Thus, these variables were viewed and analysed with caution. This will be further addressed in the following chapters where relevant.

An ethics amendment was sought and granted to enable data to be collected on the students who had failed the course previously. There were hundreds of students who were failing the course every semester, and it was of great interest to not only gather information from these students in a quantitative manner through the surveys, but to also ask them to reflect on their past behaviours. Through reflection, data were gathered about why the student failed, and what had changed from past attempts in the course. Via the student management system, students were asked to volunteer anonymously if they wished, to participate and write a reflection titled ‘why I failed’.
3.6 Data Collection Timeline

Data were collected according to the schedule shown in Table 2.

Table 2: Timeline of Key Research Process Events and response rates

<table>
<thead>
<tr>
<th>MONTH</th>
<th>RESEARCH EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2016</td>
<td>Development of the Survey</td>
</tr>
<tr>
<td>February 2016</td>
<td>Ethics Approval Granted</td>
</tr>
<tr>
<td>March 2016</td>
<td>Survey 1 (version 1) administered n = 386 / 578 (67%)</td>
</tr>
<tr>
<td>June 2016</td>
<td>Survey 2 (version 1) administered n = 309 / 578 (33%)</td>
</tr>
<tr>
<td>July 2016</td>
<td>Survey 3 (version 1a) administered n = 196 / 420 (74%)</td>
</tr>
<tr>
<td>October 2016</td>
<td>Survey 4 (version 1a) administered n = 182 / 420 (44%)</td>
</tr>
<tr>
<td>October 2016</td>
<td>Invitation sent asking for ‘why I failed’ reflections.</td>
</tr>
</tbody>
</table>

3.7 Participants

All students enrolled in ACCT101 in the calendar year 2016 were invited to participate in the survey. The students who completed each survey are a mixture of accounting and non-accounting majors. In ACCT101, students may have been enrolled for the first time that semester, may have taken the course previously (and not done well), or may have had previous exposure to learning at university level. The university does not restrict entry into this course, as ACCT101 is the first in a sequence of courses needed to gain the degree. If, for example, a student was not an accounting major, he/she may still be enrolled in this accounting course to satisfy their degree requirements. However, that student may be taking the course in the final year of his/her undergraduate program. As previously stated, this creates a unique set of students for data-gathering purposes. A summary of some of the student groups found in the course is shown in Table 3. It should be noted that students can often move among these groups or fit into several categories, as events affect them.

Furthermore, the university allows significant flexibility in degree structure and allows multiple changes to permit students to change courses and major subject, as often as they choose. More detailed information of the demographics of the participants is provided in the results chapter of this thesis, which supports the description of this diverse group of students.
As previously stated, accounting courses at introductory level are not challenging mathematically; however, they can be perceived to be so by students (Joyce, et al., 2006). ACCT101 is no different. The level of mathematical ability required is fundamental, basic addition and subtraction, the use of fractions, converting a decimal to a percentage, and a small amount of algebra. Anecdotal evidence from students prior to enrolling in ACCT101 indicates that they believe that accounting is perceived to be mathematically hard. Therefore, the level of mathematical self-efficacy that a student holds, measured by both the judgment in their own ability and the belief in the difficulty of the course, will influence their overall efficacious beliefs.

Table 3: Groups of students found in ACCT101

<table>
<thead>
<tr>
<th>Group</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT101 first time enrolled + first-year student + accounting major.</td>
<td>Never taken ACCT101 before and may or may not have taken accounting at high school.</td>
</tr>
<tr>
<td>ACCT101 first time enrolled + first-year student (not accounting major).</td>
<td>Never taken ACCT101 before and may or may not have taken accounting at high school.</td>
</tr>
<tr>
<td>Repeaters</td>
<td>Taken ACCT101 before, may or may not have taken accounting at high school. Records show students who have taken ACCT101 up to six semesters.</td>
</tr>
<tr>
<td>C+ group</td>
<td>Have taken ACCT101 before and passed the course. However due to university regulations, they need a higher grade to progress to intermediate level courses, so repeat ACCT101. 22</td>
</tr>
<tr>
<td>ACCT101 first time enrolled (not a first-year student + not accounting major).</td>
<td>Have put off taking ACCT101 until later in their degree, do not have accounting as a major, may or may not have taken accounting at high school.</td>
</tr>
<tr>
<td>ACCT101 first time enrolled, Non business</td>
<td>Students who take ACCT101 for interest or other motivation, even though it is not part of the requirements, could be science, humanities, or health science students, may or may not have taken accounting at high school.</td>
</tr>
</tbody>
</table>

22 Since 2012, the Department of Accountancy and Finance requires a C+ or greater from students to progress to intermediate-level accounting and finance courses. The C+ is 60% on their final grade, where a normal ‘pass” is 50%. 

50
3.8 Instrument

Following is a description of the survey instrument used in this project. The source of the survey is explained, along with the justification of how the survey measures the self-efficacy beliefs of accounting students. Table 4 presents the self-efficacy items that were included in the survey instrument.

3.8.1 Description of the survey

The surveys used are shown in full in Appendix 2 and Appendix 3. The relevant sections of the survey used in this study are the demographic questions and the twenty questions on self-efficacy beliefs in learning accounting. The instrument asked students “how confident are you in your ability to:” and then listed twenty questions relating to his or her learning experience. As shown in table 4, the items asked the student to identify if he or she was not confident at all through to completely confident on a seven-point Likert scale. The full survey as displayed in the appendix, includes sections that are not used within the analysis in this thesis. For example, I collected data on mindset and a self-analysis on learning that are not included or reported on within this project. This data will be used for future research.

3.8.2 Source of the survey

The survey instrument was developed and adapted with permission from Byrne et al. (2014)\textsuperscript{23}. Minor changes were made, as there were items included in the Byrne et al. (2014) instrument, which asked specific course-related questions. For example, anything that related to a ‘module’ was changed to ‘paper’. At the University of Otago, ‘paper’ is the common

\textsuperscript{23} Email correspondence was had between the author and Marran Byrne in early 2016. Marran was more than happy for the survey to be used, with minor changes to fit the context of the New Zealand course.
term used in the context for a course of study, unit, or module. More discussion of the survey instrument is found within each of the following three chapters.
Table 4: Self-efficacy questions in the survey

<table>
<thead>
<tr>
<th></th>
<th>1 not confident at all</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask for help from my lecturers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Ask for help from my tutor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Draw up a study plan</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Find and write up additional notes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Plan my time to review effectively for exams</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Understand the expectations to get good marks in my exams</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Pass this course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Respond to questions asked in tutorials</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Ask questions in tutorials</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Apply my knowledge to solve previously unseen questions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Produce my best work in exams</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Make sense of theoretical aspects of the course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Get the grade/mark that I want in this course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Answer a word problem that describes an accounting situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Answer a calculation/numeric style question</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Study effectively on my own</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Follow and make sense of material covered in lectures</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Make sense of material I read in textbooks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Ask for help from my classmates</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Answer a question that involves discussing my response</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
3.8.3 Justification of the survey

In this research project, Bandura’s (2006) *Guide for Constructing Self-efficacy Scales* was used as a reference on how to ensure validity and rigor within the instrument. Self-efficacy beliefs cannot be measured in a ‘one size fits all’ approach as “one cannot be all things” (Bandura 2006, p. 307). To examine self-efficacy beliefs, one must ask several questions, and investigate the individual tasks within the phenomenon one is interested in. As Bandura (2006, p. 308) states, “efficacy items should accurately reflect the construct”. By ensuring that all items in the instrument were investigating the different aspects of ACCT101, the research captured vital information about the student self-efficacy beliefs with regards to the individual tasks within learning accounting. “Measures of self-percepts must be tailored to the domain of psychological functioning being explored. This methodology permits micro-analysis of the degree of congruence between self-percepts of efficacy and action at the level of individual tasks” (Bandura, 1986, p. 396). Furthermore, Bandura (1986) argues that it is important to both have a measurable outcome, which in this study is the grade received for the course, and the strength of individual self-efficacy associated with particular tasks. In this research, the Likert scale measures the strength of the individual aspects of learning accounting within the context of the ACCT101 course.

3.9 Summary

This chapter has described the process that this research took. Key information about how the data were gathered has been described. The people involved with this study have been identified and the survey instrument used has been named and justified in its use. In the following chapters of this thesis, the results from testing the hypotheses are reported and then subsequently discussed.
CHAPTER FOUR: SELF-EFFICACY BELIEFS AND PRIOR LEARNING

“Confidence is key. If you don’t believe in yourself, then nobody will.” – Unknown

This chapter is adapted from a published manuscript in *Accounting and Finance* titled ‘the influence of self-efficacy beliefs and prior learning on performance’. This chapter examines self-efficacy beliefs and prior learning of accounting students to determine how useful these variables are for predicting academic success in accounting courses. Self-efficacy beliefs are the confidence one has in the ability to perform certain tasks or skills (Bandura, 1997). Results show that confidence in one’s ability to succeed is the most powerful predictor of academic success. The findings are relevant and important for all stakeholders, including students, educators, and professional bodies. Bandura’s (1997) claim that self-efficacy beliefs are a better predictor of achievement than actual ability is supported by this research.

4.1 Self-Efficacy Beliefs

Bandura’s (1997) bold claim that self-efficacy beliefs are a better indicator of success than actual ability has stimulated research in many academic disciplines. The present study shown in this chapter provides evidence to support this claim within an accounting education context. Although studies investigating the self-efficacy of students have found conflicting results on gender differences (Byrne et al., 2014; Huang, 2013) and prior learning at high school (Duff, 2004; Koy & Koy 1999; Rohde & Kavanagh, 1996; Wooten 1998), the relationship of self-efficacy to academic performance is generally supported (Multon, Brown & Lent, 1991). This chapter focuses on both self-efficacy beliefs and prior learning, thereby providing a unique insight within an accounting education context.
There have been calls for reform within accounting education for decades (Albrecht & Sack, 2000; Byrne & Flood, 2005; Kimmel, 1995; O'Connell et al., 2015; Stone et al., 1996), and the impact of understanding what influences achievement in accounting has much value for educators, professional bodies, and future employers today. The impact that we, as educators, have upon our students is not to be ignored, and the teaching approaches used can have significant effects upon our students’ perceptions of both accounting as a discipline, and the job itself, once they are working as practitioners (Friedlan, 1995). Recently, there has been a greater focus on higher education in accounting, and what factors can impact upon student academic success (Cheng & Liao, 2016; Dull et al., 2015; Sithole, 2017).

In this research, I examine the relative influence of self-efficacy beliefs and prior learning on achievement in an introductory accounting course. Zimmerman et al. (1992) identified the importance of self-efficacy beliefs and their relationship with academic attainment. Self-efficacy beliefs can be described as the confidence that individuals have in their own ability to perform (Bandura, 1997). Some students are self-regulated learners, who are able to be proactive and to self-motivate (Zimmerman et al., 1992); however, others are not. Anecdotal evidence from the setting of this research suggests that some students rely on their prior exposure to learning accounting at high school, believing that they do not need to engage with their first-year accounting course as a result, as they already know the material. In this chapter, I use the opportunity to learn (Carroll, 1963) as a measure of prior learning.

The key practical contribution from this chapter for educators is the finding that self-efficacy beliefs for students, regarding their own confidence to succeed academically, are a powerful predictor of their success in the course. Self-efficacy beliefs, or confidence in one’s abilities, are a malleable variable; there are steps that educators can take to enhance self-efficacy. Thus, this study provides a platform for educators to stage interventions on self-efficacy beliefs, and ultimately course achievement. From a theoretical perspective, this
chapter contributes to building the field of knowledge on accounting students’ non-cognitive factors and their relationship with academic performance.

The chapter proceeds as follows. Section 4.2 provides a frame for the study by summarising the prior literature which is relevant to this chapter, and section 4.3 describes the method. Then the findings are presented and discussed in section 4.4, and the chapter concludes by stating the contribution from this work, offering some suggestions for further research, and identifying the limitations of the study.

4.2 Literature Review

This section of the chapter reports on the relevant literature, first by describing the concept of self-efficacy beliefs, followed by addressing the self-efficacy beliefs for accounting students. Then I summarise the concept of prior learning using Carrol (1963) and Bloom (1968) as a theoretical base to formulate three hypotheses.

4.2.1 Self-efficacy

Self-efficacy beliefs can be described as the confidence one has in the ability to perform certain tasks and/or skills (Bandura, 1997). These beliefs may or may not reflect accurately a person’s ability. Within an educational setting, I evaluate achievement in terms of academic success, for example, when students are able to pass a course. Potentially, even a very talented student with the ability to achieve at a high level may have low self-efficacy beliefs, thereby reducing the chance of academic success (Bandura, 1997; Bandura & Jourden, 1991; Wood & Bandura, 1989). Bandura (1989, p. 729), stated that “Self-beliefs of efficacy can enhance or impair performance through their effects on cognitive, affective, or motivational intervening processes”. The impact that self-efficacy beliefs, therefore, can have upon learning should not be underestimated.
Self-efficacy beliefs and performance have been examined in a variety of contexts (Barling & Beattie, 1983; Gunderson et al., 2012; Zimmerman, et al., 1992). Bouffard-Bouchard et al. (1991) demonstrated that self-efficacy beliefs and cognitive ability are independent variables of each other. Furthermore, they found that self-efficacy beliefs impacted upon the learning environment for school-age children, and students who were more self-efficacious were able to perform at higher levels than those with lower levels of self-efficacy beliefs, regardless of cognitive ability (Bouffard-Bouchard et al., 1991).

Self-efficacy beliefs are well-studied in the psychological and educational literature, but less so within an accounting context (Burnett et al., 2010; Byrne, et al., 2014). Results from studies examining numerical- and mathematics-based content have shown a positive association between self-efficacy beliefs and student achievement (Gunderson et al., 2012; Pajares & Miller, 1994; Sax et al., 2015).

**4.2.1.1 Self-efficacy of accounting students**

Bandura (1997) stated that an individual’s perception of one’s own ability is a better predictor of success than any other measure. Interest in self-efficacy beliefs is increasing among accounting educational researchers (Byrne et al., 2014). Studies include investigations of the impact of technology (Havelka, 2003; Lai, 2008), the emotional impact of change in comparison with other disciplines (Ghaderi & Salehi, 2011), and an examination of accounting students and their chances of academic success by using self-efficacy as a predictor (Christensen et al., 2002; Mooi, 2012).

Some of the research in this area is fairly narrowly focused. For example, Lai (2008) investigated the ‘internet self-efficacy’ of accounting students and found that accounting
students were technologically confident and that their self-efficacy within this space mattered to their educational journey. Another example is when Ghaderi and Salehi (2011) found that accounting students had higher levels of self-efficacy beliefs than their management student counterparts. In 2002, Christensen et al. found that accounting students’ performance was impacted by their self-efficacy beliefs by investigating if the student was optimistic or pessimistic about his or her chance of success. This chapter focuses on first-year accounting students and the influence of both self-efficacy beliefs and prior learning of accounting at high school, thereby exploring whether the self-efficacious belief (“I believe I can learn accounting”) is more or less influential than that of prior learning.

4.2.1.2 Self-efficacy of accounting students: Gender

Byrne et al. (2014) focused on academic self-efficacy and gender differences of accounting students in Ireland, finding that accounting students were reluctant to ask for help and unable to determine what was needed in terms of independent study to be able to pass the course. Students who were more confident in their abilities had a greater chance of academic success. Interestingly, they found no differences in terms of gender. In a study of self-efficacy beliefs of business students, Havelka (2003) stated that the gender differences in self-efficacy beliefs were no longer present. Similarly, Busch (1995) did not find gender differences with regards to self-efficacy; however, Huang (2013), in a meta-analysis examining over 200 independent studies, reported that in mathematics-based subjects, men exhibited higher self-efficacy. This male gender effect was also shown by Subramaniam and Freudenberg (2007) when they investigated accounting students and their level of self-efficacy beliefs.
4.2.2 Prior learning as a predictor of performance

The exploration of the factors that lead to academic success for students has been a focus of research for many years. Carroll (1963) stated that the time spent in learning and the time needed to learn are the two factors that need to be known to be able to determine if a student will succeed. Carrol’s Model of School Learning expanded the two factors of time spent and time needed into a more complex model (Carroll, 1963). \textit{Aptitude} is the amount of time needed by an individual to learn; the \textit{opportunity to learn} is dependent on the amount of time that a student has that he or she allocates to learning, and \textit{perseverance} is how much time a student is willing to spend on learning (also linked to the student’s level of motivation or eagerness). Carroll (1963) describes the two remaining variables as \textit{quality of instruction} and \textit{ability to understand instruction}. Carroll’s model has been widely used in educational research (Carroll, 1989). The model was the basis of Bloom’s (1968) concept of mastery learning. Bloom (1968) developed the ideas of mastery learning upon the idea that educators and/or students could affect the learning outcome by either increasing the numerator (time spent) or reducing the denominator (time needed) or cause impact to both parts of the fraction, thereby reducing the overall amount of time required for learning.

4.2.2.1 Prior learning as a predictor of performance: Transition to tertiary education

Prior learning is often used to predict the chance of success (Byrne & Flood, 2005; Farley & Ramsay, 1988; Keef & Hooper, 1991). In accounting education, prior learning can be used as a predictor for academic success, as studies have shown that students who have previously studied accounting at high school do better than those that have no prior knowledge (Alcock, Cockcroft, & Finn, 2008; Duff, 2004; Rohde & Kavanagh, 1996). In addition to prior learning, accounting education literature also shows that age and gender can have an influence on academic performance (Duff, 2004). However, there are some
inconsistencies in the literature regarding the influence of prior learning in accounting. Koy and Koy (1999) stated that students with prior knowledge of accounting from high school studies did not outperform those without prior learning; however, their study was conducted across a three-year degree, investigating more than the first-year experience. Bartlett, Peel, and Pendlebury (1993) showed that the best predictor in performance at third-year examinations was a student’s first-year examination results, not whether the student had prior high school background knowledge in accounting. The present study takes both the measure of prior learning and that of self-efficacy, and looks at the influence of both variables upon academic performance. By doing so, prior learning and self-efficacy are examined in the same framework to determine the impact upon course grades.

4.2.2.2 Prior learning as a predictor of performance: The influence of age of student

Wooten (1998) compared traditional and non-traditional accounting students and investigated the factors that influenced performance. Findings showed that for traditional students, who were classified as 25 years old or younger, a strong relationship between prior knowledge, aptitude, grade point average, and their outcome measure of performance was evident. However, for students who were over the age of 25 there was no relationship between their prior learning and academic performance.

4.2.2.3 Prior learning as a predictor of performance: Approaches to learning

How students approach their learning in a course often influences the outcome; many educators have advocated a deep approach to acquiring knowledge (Hall et al., 2004; Wynn-Williams et al., 2016). Self-regulator learners have often been found to be more motivated and proactive regarding their learning journey (Zimmerman, et al., 1992). Regardless of students’ background in learning accounting, it is sometimes more telling to consider the
approach to learning, as this can be more predictive than whether or not they have previously been exposed to the discipline (Wynn-Williams, et al., 2016).

4.2.2.4 Prior learning as a predictor of performance: Failure in accounting courses

When investigating achievement, it is important to consider the flip side of success/failure. There is growing interest in accounting students who are failing to succeed at university level. (Ward, Ward, Wilson & Deck, 1993; Müller, Prinsloo, & Du Plessis, 2007; Rankin et al., 2003). The consequences of failure are severe, much more so than simply not doing as well in a course as one might have hoped (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Turner, Husman, & Schallert, 2002). There is a need to investigate what might predict success or failure, so that educators can identify at-risk students. The reduction of failure, particularly in an introductory course that is part of a professional sequence, facilitates growth in the students who are at risk, and allows for better allocation of instructional resources.

4.3 The Present Study

Bandura (1997) claimed that self-efficacy beliefs better predict success than actual ability. This is a bold claim and one that is worthy of empirical investigation. To that end, the present study examines predictors of academic success for first-year accounting students. In particular, I contrast the relative contributions to the prediction of success in an introductory accounting course of a measure of self-efficacy given early in the course and whether the student has taken an accounting course in high school. I expect students who have studied accounting at high school to perform at a higher academic level than those with no prior learning. This is due to being exposed to the opportunity to learn (Carrol, 1963). Therefore, I hypothesise the following:
H1: Self-efficacy beliefs are positively related to achievement in accounting.

H2: Prior learning of accounting at high school is positively related to achievement in accounting.

Furthermore, I want to compare the relative strengths of these two variables—prior learning and self-efficacy beliefs—in predicting academic success. I acknowledge that having taken a high school course in accounting is a less-than-perfect measure of prior achievement in accounting, but at the same time, it should be somewhat predictive of success. And the comparison of the two indices, one of prior learning and one of self-efficacy, should be of interest to researchers working in this area. Hence, I hypothesise:

H3: Self-efficacy beliefs in learning accounting are more predictive of achievement in accounting than prior achievement as measured by having taken a high school accounting course.

4.4 Method

This research was conducted in a large introductory accounting course at a major university in New Zealand with full ethics approval. The study was undertaken across two semesters with students enrolled in the same course which is replicated as close as possible in both content and delivery each semester. Furthermore, both the teaching team and the schedule of assessments were stable in this time period.
4.4.1 Instrument

The survey was administered to students in lecture time in week three of a thirteen-week semester. In the first two weeks of the semester, there is a significant amount of timetabling change and disruption to the enrolments; therefore, the first lecture of week three was chosen to allow students to settle into their regular course. The survey asked a series of demographic questions and then more specific questions on self-efficacy beliefs. There were two sections to the survey that are not included in this study, specifically, data collection on mindset and data collection on learning outcomes.\(^\text{24}\)

The self-efficacy section of the survey was adapted from a measure developed by Byrne et al. (2014). Modifications were made to make the measure appropriate for this context. Also, some course-specific questions were added, such as “indicate how confident in your ability you are to answer a word problem that describes an accounting situation”, as the examination for this course includes several of these types of questions. The survey was pilot-tested by academic staff, general staff, and students. All involved with the pilot test indicated that the survey was clear, easy to follow, and took under ten minutes to complete.

4.4.2 Participants

As stated, the survey was administered in lecture time. The enrolment numbers for the course were 578 and 420 students for semesters one and two, respectively. Participation in the survey, and thus response rates in semester one were 386/578 or 66% and in semester two, 181/420 or 43% of the class.\(^\text{25}\) The response rate in semester two is much lower due to the nature of the cohort. As shown in Table 5, the demographic information begins to explain the differences in groups of students. Semester one has students who are accounting majors,

\(^{24}\) The full survey is shown in Appendix 2 and 3
\(^{25}\) Any students who were repeating the course in semester two that we already collected data from in semester one were excluded from the analysis.
have a background in accounting, and are younger, as the majority are first-year students. As shown, over half the students who participated were either 17 or 18 years old in semester one. The cohort is older in semester two, as semester two students are less likely to be accounting majors. This course is required for all business majors, meaning that all students enrolled in a Bachelor of Commerce must enrol in this course. This could be students who have chosen a degree in accounting, management, international business, tourism, information science, finance, economics, or marketing. All students must pass this course to graduate.

In semester one, 386 students participated in the survey in class. Of the 386 respondents, 177 were male and 209 were female. Only 49 students were 21 years of age or older; the other 337 students were all 17, 18, 19, or 20 years old, with the largest group, 47.2%, being 18 years old. The students were asked what ethnicity they identified with and were asked to give multiple responses if appropriate. A total of 303 students identified as being New Zealand European (78.5%); 32 students indicated that they were Māori (8.3%); 26 students as being Chinese (6.7%); and 15 identified as being Indian (3.8%). Students were asked if the course was part of their degree requirements and what their subject major was. Thirty-nine percent of the students who filled in the survey were accounting majors, and the rest were a combination of other majors within business and other degrees outside the business school. There were 367 students who reported taking the course due to it being part of their degree requirements, and only 19 students were taking it for other reasons. Thus, over 95% of students were enrolled in the class because they had to be due to degree requirements.

In semester two, 181 students participated in the survey in class. These students were a much more even gender breakdown, approximately half of each male and half female participants. This group was older, with no students younger than 18 years old and higher percentages of all categories of students who were 19 years old and over. Again, a high
percentage of the class identified as New Zealand European. In semester two, accounting majors were only 14% of the total as compared with almost 40% in semester one. Again, students were asked to state why they had chosen the course, and in semester two 165 of the 181 students indicated it was because the course was part of their degree requirements.

Often in semester two, it is the reluctant students who enrol in this chapter, knowing they need to satisfy their degree requirements. This claim is supported by the information shown in Table 5. Students were asked “how interested are you in the content in this course” and “how eager are you to do well in this course”. The differences in means for the cohorts in the two semesters are statistically significant at $p < .001$. When I consider that the students who self-selected to participate in the survey are by default the more engaged students, this difference becomes even more telling. Table 5 shows that students in semester two are less interested and less eager to do well than semester one students. The percentage of students repeating the chapter from all enrolments in semester one was 22% and in semester two was 27%.

---

26 Semester one: 78.5% (303/386) and Semester two: 74% (134/181).
Table 5: Demographic Information

<table>
<thead>
<tr>
<th>Variable</th>
<th>Semester One Students</th>
<th>Semester Two Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (n=386)</td>
<td>Percent (%)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>177</td>
<td>45.9</td>
</tr>
<tr>
<td>Female</td>
<td>209</td>
<td>54.1</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ European(^{27})</td>
<td>303</td>
<td>78.5</td>
</tr>
<tr>
<td>Other</td>
<td>82</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>29</td>
<td>7.5</td>
</tr>
<tr>
<td>18</td>
<td>182</td>
<td>47.2</td>
</tr>
<tr>
<td>19</td>
<td>78</td>
<td>20.2</td>
</tr>
<tr>
<td>20</td>
<td>17</td>
<td>12.4</td>
</tr>
<tr>
<td>21</td>
<td>31</td>
<td>8.0</td>
</tr>
<tr>
<td>22</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>23+</td>
<td>13</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Background</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taken the paper(^{28})</td>
<td>40</td>
<td>10.4</td>
</tr>
<tr>
<td>Worked in the field before</td>
<td>9</td>
<td>2.3</td>
</tr>
<tr>
<td>Studied the subject at high school</td>
<td>142</td>
<td>36.8</td>
</tr>
<tr>
<td>Studied the subject at another tertiary institution</td>
<td>15</td>
<td>3.9</td>
</tr>
<tr>
<td>None</td>
<td>178</td>
<td>46.1</td>
</tr>
<tr>
<td><strong>Degree major</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>150</td>
<td>38.9</td>
</tr>
<tr>
<td>Other</td>
<td>235</td>
<td>60.9</td>
</tr>
<tr>
<td><strong>Interested(^*)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly-somewhat agree</td>
<td>346</td>
<td>89.9</td>
</tr>
<tr>
<td>Neutral</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Strongly-somewhat disagree</td>
<td>39</td>
<td>10.1</td>
</tr>
<tr>
<td><strong>Eagerness(^*)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly-somewhat agree</td>
<td>376</td>
<td>97.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Strongly-somewhat disagree</td>
<td>9</td>
<td>2.6</td>
</tr>
</tbody>
</table>

\(^*\)In the semester one survey, this section was a six-point Likert scale, hence no neutral category. In semester two, the Likert scale was changed to seven points.

\(^{27}\) NZ European is a person who is New Zealand born and from European descent.

\(^{28}\) Courses are known as 'papers' at this university; therefore, the local terminology was used in the survey.
4.4.3 Performance

Performance is measured by the numerical grade the student receives on the course. Each of the hypotheses investigated in this study use performance as the dependent variable. As shown in Table 6, the grading system at the university that is the context for this study assigns a letter grade for each of the numerical bands. The raw numerical score is used in the analysis of the data. The final grade on the course is made up of two different exams; the midterm exam is worth 40% of the final grade and the final examination is worth 60%. It should be noted at this point, that for all of the analysis where the final grade was used as the dependent variable, it was the final grade on the course that was used. To establish if there were any differences between the midterm exam and the final exam, t-tests were used and in all cases no significant differences were found in either semester between the midterm exam and the final exam scores. Therefore I used the final grades as a measure of performance with confidence for all analysis. Both examinations ask a series of short-answer questions, some numerical, some theoretical. The midterm examination covers financial accounting topics and the final examination covers management accounting content. To look at a potential additional variable as a check on robustness, I included the final letter grade obtained in the course by all students. The transformation from numerical to letter grades followed the system presented in Table 6, assigning a value of 10 for an A+, a 9 for an A, etc.
Table 6: Grading system at the university

<table>
<thead>
<tr>
<th>Numerical Grade Achieved</th>
<th>Represented by</th>
<th>Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A+</td>
<td>Pass</td>
</tr>
<tr>
<td>85-89</td>
<td>A</td>
<td>Pass</td>
</tr>
<tr>
<td>80-84</td>
<td>A-</td>
<td>Pass</td>
</tr>
<tr>
<td>75-79</td>
<td>B+</td>
<td>Pass</td>
</tr>
<tr>
<td>70-74</td>
<td>B</td>
<td>Pass</td>
</tr>
<tr>
<td>65-69</td>
<td>B-</td>
<td>Pass</td>
</tr>
<tr>
<td>60-64</td>
<td>C+</td>
<td>Pass</td>
</tr>
<tr>
<td>55-59</td>
<td>C</td>
<td>Pass</td>
</tr>
<tr>
<td>50-54</td>
<td>C-</td>
<td>Pass</td>
</tr>
<tr>
<td>40-49</td>
<td>D</td>
<td>Fail</td>
</tr>
<tr>
<td>&lt;40</td>
<td>E</td>
<td>Fail</td>
</tr>
</tbody>
</table>

4.4.4 Survey: Self-efficacy beliefs

Twenty questions were asked on self-efficacy beliefs as part of the survey presented in lecture time. Students answered on a seven-point Likert scale, between 1: “not very confident at all” through to 7: “completely confident” for all 20 items. Using a factor analysis of the survey, Beatson et al. (2016) showed that three factors were present within these twenty questions on self-efficacy; namely “academic success”, “academic help-seeking” and “academic organisation”.

The first factor in the analysis focused on how confident the student is of being successful in the course, including items such as “Get the grade/mark that I want in this course.” There were ten items that loaded on this component, and when added together they form a scale with a Cronbach’s alpha reliability coefficient of .90. The second factor consisted of the confidence a student had in seeking help in the course, including items such as, “Ask for help from my classmates.” There were five items that loaded on this component, and when added together they form a scale with a Cronbach’s alpha reliability coefficient of .82. The third component focused on items that had to do with getting organised to do well in the course, including items such as, “Draw up a study plan.” Again, there were five items
that loaded on this component, and when added together they form a scale with a Cronbach’s alpha reliability coefficient of .81. All three reliability coefficients are sufficiently strong for research purposes.

The three factors found in the survey instrument represent quite different aspects of the learning environment for accounting students. Academic success (AS) indicates the level of confidence that individuals have regarding their ability to successfully complete the learning objectives and ultimately pass the assessment. Academic help-seeking (AHS) is confidence in the ability to ask for help within the learning environment. The help-seeking behaviour can be with peers, tutors, or with lecturers involved with the course. Finally, academic organisation (AO) demonstrates the confidence that students have in organising the course materials, being prepared for the assessments, and managing their time to learn. All three of these factors can influence the overall level of self-efficacy beliefs that a student has when learning accounting.

4.4.5 Background in accounting

Next, the “what background do you have in this subject” survey questions were transformed into three new variables. The question “what background do you have in this subject” allowed me to gather data on prior learning through asking about the previous exposure they had to the discipline. The answer options were (a) I have taken this paper before, (b) I have worked in the field before, (c) I have studied this subject at high school, (d) I have studied this subject at another tertiary institution, (e) none, and (f) other. There were not enough data points for meaningful analysis on “worked in the field”, “studied at another tertiary institution”, or “other”, so I made three new variables based on “taken this paper before” which I named the repeater variable, “took this subject at high school”, and “none”. Whether the student had selected accounting as a major was not used in the regression, as
there was almost no variation in this for semester one. Another variable that I excluded from the model was ethnicity. Over three-quarters of the sample was New Zealand European. The remainder of the participants were scattered over different ethnicities, making the generation of a single, meaningful variable for ethnicity not possible. Thus, to test the hypotheses I ran a regression using the following model:

\[
GRADE = a + \beta_1AGE + \beta_2GENDER + \beta_3HIGHSCHOOL + \beta_4REPEATER + \beta_5SE\_AS + \\
\beta_6SE\_AHS + \beta_7SE\_AO + e
\]

Grade is the final result the students earned on the course; high school indicates whether the student has previously studied accounting at high school or not, and repeater shows if the student has previously taken the course before. The three factors of self-efficacy (SE) were entered into the regression model as three separate variables: academic success (AS), academic help-seeking (AHS), and academic organisation (AO).

4.5 Results

The following section reports the results of the analysis undertaken to test the formerly stated hypotheses. Table 7 reports on the means, standard deviations, and correlations of all variables entered into the model.

The means, standard deviations, and correlation matrix, as reported in Table 7, again demonstrate the differences between semesters. The mean of the final grade is significantly lower in semester two than in semester one. The same academic staff member wrote both exams, the same assessment structure was in place, the same markers were used, and yet the difference is 7.8 marks. As mentioned, I used the letter grade obtained by each student in all equations as a check on the robustness of the numerical grade. The correlation between the numerical grade and the letter grade was .985 in sample 1 and .967 in sample 2. None of the
correlations of numerical grade versus letter grade were statistically significantly different. Nor did the letter grades yield significantly different results in the regressions; therefore, those analyses are not included here. The three factors in self-efficacy show different levels of confidence for students. In semester one Table 7 shows that on a 7 point Likert scale, the mean for academic success (SE_AS) is 4.99. Compared with semester two, we see a similar result 4.88. This shows that both cohorts felt more confident than not about their ability to pass the course. With regards to the level of confidence in asking for help (SE_AHS) we see the semester two cohort far more confident than semester one (5.07 and 3.99 respectively). Again, there were no changes to staff or other support structures in the two semesters, so this is surprising. For confidence in organisational skills the semester one cohort self-reported a high level of self-efficacy than the semester two groupings (5.09, 4.85). Interestingly, the semester one students felt more organised, but less likely to ask for help. Perhaps this is due to the semester one cohort being in their first semester of university. They feel highly efficacious about their own ability to organise their study, then after having experienced a semester of university, in semester two they have some realisation that the organizational skills that they had in high school may not be enough, and they need more advanced skills for tertiary study. The help seeking variable changing over the two semesters could also be explained by timing, as in semester one when the majority of students begin university it can be frightening to ask for help being one of hundreds in a course, however once they become familiar with the systems and the university structure, they build confidence and are then able to ask for help when needed.
Table 7: Descriptive statistics and correlations

<table>
<thead>
<tr>
<th></th>
<th>Panel A</th>
<th>Panel B (correlation Matrix)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>St.Dev</td>
</tr>
<tr>
<td><strong>Semester One</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Grade</td>
<td>74.74</td>
<td>15.67</td>
</tr>
<tr>
<td>2. Age</td>
<td>18.92</td>
<td>1.7956</td>
</tr>
<tr>
<td>3. Gender</td>
<td>.459</td>
<td>.4989</td>
</tr>
<tr>
<td>4. High School</td>
<td>.3679</td>
<td>.48285</td>
</tr>
<tr>
<td>5. Repeater</td>
<td>.1034</td>
<td>.30517</td>
</tr>
<tr>
<td>6. SE_AS</td>
<td>4.99</td>
<td>.95297</td>
</tr>
<tr>
<td>7. SE_AHS</td>
<td>3.99</td>
<td>.9382</td>
</tr>
<tr>
<td>8. SE_AO</td>
<td>5.09</td>
<td>1.0693</td>
</tr>
</tbody>
</table>

|                      | Mean    | St.Dev | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **Semester Two**     |         |        |   |   |   |   |   |   |   |   |
| 1. Grade             | 66.94   | 18.37  | 1 |   |   |   |   |   |   |   |
| 2. Age               | 19.63   | 2.6065 | -.098 | 1 |   |   |   |   |   |   |
| 3. Gender            | .511    | .5013  | -.021 | .028 | 1 |   |   |   |   |   |
| 4. High School       | .2486   | .43341 | .176* | -.164* | .051 | 1 |   |   |   |   |
| 5. Repeater          | .1050   | .30737 | -.204* | .014 | .083 | - | 1 |   |   |   |
| 6. SE_AS             | 4.88    | 1.01057 | .173* | .083 | .248** | .073 | -.064 | 1 |   |   |
| 7. SE_AHS            | 5.07    | 1.0306 | .057 | -.003 | -.146* | .071 | - | .624** | 1 |   |
| 8. SE_AO             | 4.85    | .9847  | .092 | .202** | .013 | .005 | -.061 | .695** | .660** | 1 |

* = correlation is significant at the 0.05 level  
** = correlation is significant at the 0.01 level

As shown in Table 8, the regression for the semester one cohort shows that the only significant variables for predicting academic performance are prior learning of accounting at high school, repeating the course, and the most significant is confidence in academic success (SE_AS). The model explains 15% of the variability in final grades. While this explanatory power is low, it is consistent with other studies in the area; for example, Byrne et al. (2014) reported adjusted $R^2$ of 0.201, 0.197, and 0.228 for their three regression models on a similar instrument.
Table 8: Regression analysis semester one

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.082</td>
<td>.008</td>
<td>.135</td>
</tr>
<tr>
<td>Gender</td>
<td>-2.985</td>
<td>-.095</td>
<td>-1.677</td>
</tr>
<tr>
<td>High School</td>
<td>4.221</td>
<td>.131</td>
<td>2.177</td>
</tr>
<tr>
<td>Repeater</td>
<td>-6.021</td>
<td>-.121</td>
<td>-2.166</td>
</tr>
<tr>
<td>SE_AS</td>
<td>4.058</td>
<td>.223</td>
<td>2.757</td>
</tr>
<tr>
<td>SE_AHS</td>
<td>1.791</td>
<td>.103</td>
<td>1.484</td>
</tr>
<tr>
<td>SE_AO</td>
<td>.171</td>
<td>.011</td>
<td>.149</td>
</tr>
</tbody>
</table>

$R^2 = .170$; Adj $R^2 = .151$; $F$-value = 8.901 ($p$-value $<$ .001)

Table 9 shows that the semester two cohort has a somewhat similar result. Here, however, the model has less explanatory power, as the $R$ squared is only 8%, compared with 15% in semester one. In semester two, the only significant variables in the model are repeating the course, and two of the self-efficacy belief variables: academic success (SE_AS) and academic help-seeking (SE_AHS). In semester two, the having taken accounting in high school variable is not significant. It should be noted that the coefficient for academic help-seeking and final grade is negative. Combined with the fact that academic help-seeking has a near zero simple correlation with final grade, academic help-seeking is acting as a “suppressor variable” in the regression. That is, for students with equal levels of academic success self-efficacy, the ones with lower levels of academic help-seeking self-efficacy will typically have higher levels of achievement. If there are two students who both feel confident about their ability to pass the course, however one is more able than the other, then the more able student is less likely to ask for help, as they do not need it. Suppressor variables are sometimes found in regression analysis where there is a relationship present between the two independent variables (Field, 2013).

The regressions were tested for issues for potential problems with multicollinearity in two fashions. First, regressions coefficients were compared from one analysis to another. Multicollinearity often is seen in widely disparate coefficients in different samples, but that was not seen here. Next, the variance inflation factor (VIF) test (Allison, 1999) was
employed for all regressions. A VIF of 2.5 is generally considered by Allison to be an indicator of potential problems (Allison, 1999), but none of the VIF indicators in the final analyses were above 2.5.

Table 9: Regression analysis semester two

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.917</td>
<td>-.135</td>
<td>.116</td>
</tr>
<tr>
<td>Gender</td>
<td>-4.576</td>
<td>-.124</td>
<td>.177</td>
</tr>
<tr>
<td>High School</td>
<td>4.690</td>
<td>.113</td>
<td>.181</td>
</tr>
<tr>
<td>Repeater</td>
<td>-12.374</td>
<td>-.204</td>
<td>.019</td>
</tr>
<tr>
<td>SE_AS</td>
<td>5.618</td>
<td>.313</td>
<td>.016</td>
</tr>
<tr>
<td>SE_AHS</td>
<td>-4.630</td>
<td>-.260</td>
<td>.042</td>
</tr>
<tr>
<td>SE_AO</td>
<td>1.411</td>
<td>.075</td>
<td>.564</td>
</tr>
</tbody>
</table>

R² = .125; Adj R² = .080; F-value = 2.806 (p-value .009)

Across both semesters, Table 8 and Table 9 support the claim that self-efficacy beliefs in academic success predict academic performance above and beyond a student’s prior learning at high school in accounting.

Next, I re-ran all analyses with subgroups based on gender and age. Age was coded into two groups: 17 and 18 year olds as one group, and 19 years old and above as a second group. In sample 1, this resulted in a 51% to 49% breakdown. Only 15% of the sample was above the age of 20, so these individuals were simply included in that group. In sample 2, the breakdown was 59% (17 and 18) to 41%, with 10% being over the age of 20. For gender, there was a 54% to 46% breakdown (female to male) and in semester 2, 49% to 51% (female to male). For each semester, I compared the correlation matrices separately for the separate ages and genders, and then ran the regressions separately for each subgroup. There were no significant differences in any of the correlations nor the regressions for the subgroups compared with one another. Finally, I ran the samples combined into a single sample. Again, results were very similar to the semester-based analyses.
4.6 Discussion

This section of the chapter explores the implications of the results reported and provides comments and insights into the analysis undertaken.

4.6.1 Summary of findings

The purpose of this study was to investigate the relative influence of self-efficacy beliefs and prior learning (or the opportunity to learn) on achievement in an introductory accounting course at university level. The findings indicated that prior learning, in terms of whether accounting had been taken at the high school level, had a modest influence on final grades. Also, students who were repeating the course at the university did significantly less well than those taking it for the first time. This is consistent with prior literature, and through the analysis I show that prior exposure to the discipline at high school can explain some of the performance at tertiary level (Alcock et al., 2008; Duff, 2004; Rohde & Kavanagh, 1996).

Self-efficacy, particularly students’ belief in their ability to do well in the course, showed a relatively strong relationship to final grade, stronger than either high school experience or whether the student was repeating the course. The results for the first semester, which primarily consisted of first-year students who wanted to be accounting majors, were stronger in terms of predicting final grade than the results for the second semester. Interestingly, self-efficacy on both help-seeking and organisation were not significant variables for the semester one cohort. The results from the model showed that if students believed in their ability to pass the course, then they were more likely to actually achieve this goal. This finding is consistent with Bandura’s (1997) claim that self-efficacy beliefs are more powerful than actual ability.
The results for second semester students were not as strong as semester one, but showed similar tendencies—and this might be due to the cohort, as they tended to be older and far less likely to be accounting majors. Also, in the second semester, I saw the self-efficacy variable of academic help-seeking functioning as a suppressor variable in the regression equation. The semester two data showed a very different make-up of students. The higher proportion of repeating students and the anecdotal evidence from the teaching staff on the course regarding the lack of engagement from semester two students, helps to explain some of the results. This is also supported by Table 5, where it can be seen by the “interested” and “eager” variables, that the cohort as a whole are less engaged with the content. Age and gender were not significantly related to final grade for either sample.

The impact of non-cognitive variables on student performance is important to explore. As shown by the results of this study, it has a powerful effect upon the ability to succeed academically. This is illustrated by the following email from one of the students in the course at the time this study was being undertaken. The exchange was between the primary lecturer and the student, regarding why the student had previously failed the course. The lecturer was trying to diagnose the issue, to help the student succeed. The student emailed:

“During multiple semesters. I have repeated this cycle. Deep down I don’t actually believe that I can do it either. I have been told by others that I have low self-esteem and that it impacts their ability to be around me. I did not attend enough tutorials, as I was struggling to get out of bed. I have always found math to be difficult, but very rewarding and interesting. It is not something I would say that I struggle with in particular. I do not have the excuse of saying that it’s just too hard for me. It isn’t. It is entirely my fault that I failed this paper”.

As shown in this email exchange, the student did not think that he/she could succeed. Further discussion of this student and others, is provided in chapter six. Given the results of

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Further evidence of this can be seen in the course evaluations that are formally administered by the university that this study is set in. The evaluation question regarding interest in the content of the course was the lowest score on the survey.
this research, this student could be encouraged and provided a platform for future success in the course.

4.7 Conclusion

In this section of the chapter, both theoretical and practical implications are reported. Limitations of the present study are identified alongside ideas for future research in this area.

4.7.1 Contributions to theory and practice

The primary theoretical contribution of this chapter is that it lends support to Bandura’s (1997) argument that self-efficacy beliefs are an important factor in understanding educational achievement. I see here that self-efficacy is predictive of achievement in accounting above and beyond the influence of high school experience with accounting or the fact that the student had unsuccessfully taken the course previously. This work extends that understanding to the tertiary level and to the field of accounting.

From a practical perspective, there is much to be gained here. The importance of self-efficacy in instructional practice is that it is a malleable variable. That is, there are a variety of ways that one might influence students’ self-efficacy, and thereby enhance their achievement. Bandura (1997), Burnett et al. (2010), and Bloom (1968) all discussed the importance of self-efficacy and related variables, and how instructors can enhance self-efficacy. Bandura described four broad categories of sources of self-efficacy, and Bloom described how realising success early in a course can have positive effects on performance later in the course by increasing the student’s motivation in the subject. It is particularly encouraging to see the influence of self-efficacy on achievement in a domain that requires strong quantitative and rigorous logical ability to succeed.
The impact that this study can have upon students should also be highlighted. Once aware of the powerful nature of the non-cognitive variables, such as self-efficacy beliefs, and the impact that they can have towards success in the classroom, educators can change their own behaviour to better support their students. If educators can improve their students’ self-efficacy beliefs, then those students have a better chance of success in the course. This in turn will lead to a student having more comprehensive foundational knowledge. The follow-on effect from student performance being lifted is that educators are able to provide better-prepared students to the profession, thereby increasing the quality of our future accountants.

4.7.2 Limitations

There are several limitations to this study that should be addressed. First, and probably foremost, my measure of prior learning was limited to knowing whether students had taken accounting at high school level. Further research should include a more extensive look at prior learning. Second, although my participation rate was adequate, it would be better to have even stronger participation. Students who did not attend the lecture when the survey was administered did not participate in the study, and this might have introduced a bias in the sample. Another potential limitation is missing background information on students that was not included in the analysis. For example if the student came from an urban or rural upbringing. Growing up in a rural environment could potentially impact upon the type of schooling that a student has had access to in the past, and this may influence the results.

4.7.3 Future research

The findings here indicate that self-efficacy holds potential as an explanatory variable to improve the academic performance of students in accounting education. Bandura (1997)
argued that there are four broad categories that are the sources of self-efficacy: sense of mastery of the material, personal influence, physiological reactions to learning the material, and vicarious sources. Of these, I am inclined to believe that sense of mastery might be the most important (Beatson, Berg, & Smith, 2016). If we, as educators, can get early successes for our students, then these might build the confidence and motivation necessary to persevere through the more difficult material later in the course. An opportunity for future work is to reverse the relationship shown in this chapter between academic performance and self-efficacy, and to have self-efficacy as the outcome variable. By measuring pre and post some kind of intervention, we can see how self-efficacy is affected during a course of study learning accounting. The next chapter of this thesis explores that possibility and examines feedback on enactive mastery, and whether giving students positive or negative messages regarding their progress academically impacts upon their level of self-efficacy beliefs.
CHAPTER FIVE: MASTERY FEEDBACK AND SELF-EFFICACY BELIEFS

This chapter is adapted from a published manuscript in Studies in Educational Evaluation. This chapter examines the relationship between summative feedback about enactive mastery (course midterm performance) and the self-efficacy beliefs of accountancy students. Students enrolled in a mandatory introductory accounting course were surveyed regarding their self-efficacy beliefs before and after receiving their midterm exam results in a thirteen-week semester. The analysis showed that there was a positive correlation of students’ self-efficacy beliefs with the feedback. Importantly, beliefs about academic success, help-seeking behaviour, and organisational skills were all related to summative feedback on enactive mastery. In this chapter, self-efficacy beliefs are the dependent variable and enactive mastery the independent variable, in contrast to other studies that seek to consider how self-efficacy may influence enactive mastery. Evidence is provided showing that feedback on enactive mastery is associated with changes in self-efficacy beliefs for student learning, in particular, help-seeking behaviour and organisational confidence.

5.1 Self-Efficacy Beliefs and Achievement

In this chapter, I explore the relationship between feedback on achievement and self-efficacy beliefs in an undergraduate accounting course. Research on the relationship between non-cognitive variables (such as self-efficacy beliefs) and cognitive variables (such as academic ability) typically posits that the non-cognitive variables influence the cognitive ones (Bandura, 1995; Ransdell, 2001; Stajkovic, & Luthans, 1979). Here I present a study where the traditional relationship between non-cognitive and cognitive variables is reversed in order to see how feedback on achievement influences self-efficacy. I wanted to consider Bandura’s (1997) claims that self-efficacy is malleable and that enactive mastery experience
is an influential source of information that is used in the formation of self-efficacy beliefs. More precisely, I wanted to see if the receipt of summative enactive mastery information in the form of a midterm grade was related to a student’s sense of self-efficacy.

Educational researchers are increasingly recognising the importance of non-cognitive factors in tertiary students’ learning (Byrne et al., 2014; Dull et al., 2015; Ravenscroft et al., 2012). However, for more than three decades, social cognitive theory (SCT) has been used to explore the intertwined nature of cognitive, environmental, and behavioural aspects of life (Bandura 1986; 2011). Self-efficacy is a main construct within SCT, and is an example of a non-cognitive variable that is related to achievement (Kayes, 2002; Paunesku et al., 2015).

Extensive research has shown a relationship between self-efficacy and the academic achievement of university students (Galyon et al., 2012). As a result, questions have been asked about the antecedents and malleability of such beliefs. Bandura (1994) argued that self-efficacy beliefs are malleable, though they become less so once firmly established. He further contended that there are four main sources of self-efficacy: enactive mastery, verbal persuasion, vicarious learning, and physiological and affective states. This chapter investigates one of these sources: enactive mastery information, and its relationship to the self-efficacy beliefs of accountancy students. “Enactive mastery” (Bandura, 1986) refers to the actual demonstration of skills and abilities, such as performance on a test.

In the next section of the chapter, section 5.2, I offer a review of literature related to sources of self-efficacy beliefs and describe the development of a matrix of self-efficacy beliefs for tertiary students. Then, I identify the research question for this chapter, describe the method, and present and discuss the results. I conclude in section 5.6 with a summary of the key findings from this chapter of the thesis.
5.2 Literature Review

There has been substantial work undertaken by researchers in the education and psychology fields to investigate non-cognitive factors of academic success (Heckman, & Rubinstein, 2001; Kayes, 2002; Lipnevich, Preckel, & Roberts, 2016; Richardson, Abraham, & Bond, 2012). Paunescu et al. (2015) provided a valuable summary of this literature and findings; they suggest that non-cognitive factors can be described as ‘non-intellectual’ factors that influence students’ learning behaviours. For over three decades, SCT has been used to examine non-cognitive variables. It is predicated on the idea that there is triadic reciprocity through different aspects of one’s life: we shape and are shaped by our personal factors (cognitive, affective, and biological), our environment, and by our behaviours (Bandura 1986; 2011).

Self-efficacy is an important construct within SCT (Stajkovic, & Luthans, 1979). Self-efficacy beliefs are a person’s beliefs and confidence in his/her ability to complete a task (Schwarzer, 2014). As such, they are at the core of many aspects of human behaviour, including motivation and emotional well-being (Bandura, 1994). Furthermore, interventions in self-efficacy have been shown to influence and reduce burnout in students and help their engagement, leading to higher academic success (Bresó, Schaufeli, & Salanova, 2011).

Bandura (1977, 1989, 1994, 1997), stated that influences on self-efficacy beliefs can be divided into four broad categories. These are enactive mastery, vicarious learning, verbal persuasion, and physiological and affective states. A student may have different levels of self-efficacy beliefs for different tasks, and these may be influenced by any of these four sources. For example, a tertiary student may get feedback on academic success from an assignment or test, and this will inform the student’s self-efficacy beliefs with regards to level
of his or her enactive mastery. This source of information will affect the student’s overall self-efficacy beliefs (Dull et al., 2015).

Enactive mastery experiences are often the most powerful source of self-efficacy beliefs, as they provide the individual first-hand evidence of capability (Bandura, 1997). For example, Bloom’s mastery learning theory (Bloom, 1971) is in part predicated on the notion that success in a course will lead to more confidence and more engagement on the part of students. With regard to the subject area focus of the current research, Dull et al. (2015) showed that accounting students are motivated by enactive mastery of the subject matter. The more that students receive confirmation of their enactive mastery of material, the more their self-efficacy beliefs are likely to grow. A second source of self-efficacy belief is verbal persuasion, whereby an individual’s self-efficacy beliefs can be altered through the use of persuasive language (Ahn et al., 2016). Vicarious learning, a third source, acknowledges the power of seeing another person succeeding with whom the individual identifies (Byrne et al., 2014). It is exemplified by, “If they can do it, I can do it.” Bandura’s (1997) final source of self-efficacy beliefs is physiological and affective states. This relates to the influence on self-efficacy beliefs of a physical or affective change in state (Denton et al., 2014). Within a higher education setting, this could be students who suffer an increased heart rate and a dry mouth when faced with examination pressure. This physical reaction may be interpreted as evidence of low ability and failure.

Self-efficacy has attracted recent attention in the accounting education literature (Beatson et al., 2016; Burnett et al., 2010; Byrne et al., 2014; Christensen et al., 2002). Studies in accounting education have investigated self-efficacy beliefs focused on gender differences (Byrne et al., 2014; Fallan, & Opstad, 2014), the professional environment (Subramaniam, & Freudenberg, 2007), the use of technology (Lai, 2008; Stone et al., 1996),
as well as self-efficacy in the prediction and explanation of performance (Christensen et al., 2002; Mooi, 2006; Ravenscroft et al., 2012). Beatson et al. (2016) examined self-efficacy beliefs in accounting students through a questionnaire, and found three distinct factors: self-efficacy in ability to do well in the course (academic success), self-efficacy in the ability to participate in the course and seek the needed help to do well (academic help-seeking), and self-efficacy in the ability to structure the learning environment in order to achieve (academic organisation). Students could have differing levels of self-efficacy across these factors. Any of these three factors could be influenced by any of Bandura’s (1997) four sources of self-efficacy beliefs. For example, a student may see a student with whom they identify excelling in study skills and habits; this may then have a positive influence on the first student with regard to organisational self-efficacy. The driver in this situation is the vicarious learning, and the factor influenced is academic organisation. Another example is a student who is eagerly waiting on a piece of internal assessment to be returned with a grade. If the student made some changes to the way he/she studied for this piece of assessment, then the information provided in the form of a grade will tell the student if the new study habit ‘worked’. The grade represents enactive mastery and whether positive or negative, it may impact upon the student’s self-efficacy beliefs and, in turn, future study habits. The combination of Bandura’s (1997) four sources and Beatson et al.’s (2016) three factors can be brought together as a matrix. The matrix in Table 10 comprises twelve questions regarding the relationships that exist among the four sources of self-efficacy beliefs and the three self-efficacy factors as previously identified in the literature.
<table>
<thead>
<tr>
<th>Sources of Self-Efficacy Beliefs</th>
<th>Enactive mastery</th>
<th>Vicarious Learning</th>
<th>Verbal Persuasion</th>
<th>Physiological and Affective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Success (AS)</strong></td>
<td>Does an increase in enactive mastery of the subject matter increase students’ belief in their own ability to succeed academically?</td>
<td>Does seeing other students achieve academically increase students’ belief in their own ability to achieve academically?</td>
<td>Does hearing someone tell students that they can achieve increase students’ belief in their own ability to achieve academically?</td>
<td>Does a change to student’s physiological and affective state affect their belief in their own ability to succeed academically?</td>
</tr>
<tr>
<td><strong>Academic Help-Seeking (AHS)</strong></td>
<td>Does an increase in enactive mastery of the subject matter increase students’ belief in their own ability to seek help?</td>
<td>Does seeing other students achieve academically increase students’ belief in their own ability to seek help?</td>
<td>Does hearing someone tell students that they can achieve increase students’ belief in their ability to seek help?</td>
<td>Does a change to student’s physiological and affective state affect their belief in their own ability to seek help?</td>
</tr>
<tr>
<td><strong>Academic Organisation (AO)</strong></td>
<td>Does an increase in enactive mastery of the subject matter increase students’ belief in their own ability to be organised?</td>
<td>Does seeing other students achieve academically increase students’ belief in their own ability to be organised?</td>
<td>Does hearing someone tell students that they can achieve increase students’ belief in their own ability to be organised?</td>
<td>Does a change to student’s physiological and affective state affect their belief in their own ability to be organised?</td>
</tr>
</tbody>
</table>
This chapter of my thesis offers an alternative to studies of self-efficacy in higher education that consider the impact that self-efficacy beliefs have on academic success. In contrast, here I explore the impact of performance feedback on students’ self-efficacy beliefs as they progress through a course of study. As self-efficacy beliefs are predictive of performance in academic settings (Bandura, 1997), educators would be wise to consider factors that may shape such beliefs. In their review of accounting education literature, Apostolou et al. (2016) argued that one key area of accounting education research concerns the perspectives about and approaches to student learning, while another concerns student skills and characteristics. The current study develops these areas of research by investigating student self-efficacy beliefs, pre and post summative feedback on their academic success in the course. Feedback has been shown to help keep students engaged and increase their learning of the course content (Einig, 2013; Juwah et al., 2004; Nicol, 2010). The feedback in this study is summative in nature, in particular, in the form of a grade from the midterm examination. This grade indicates how the student is doing academically and is a measure of enactive mastery of accounting knowledge.

Receiving grades is an expected part of the academic semester; indeed, it is very rare to see a course run at tertiary level with no internal assessment and feedback delivered (Falchikov, 2013; Wiggins, 1998). Assessment feedback in the form of a grade is a tool that educators can use to communicate with students. Anecdotal and theoretical evidence is plentiful regarding the importance of assessment from a student perspective (Apostolou et al., 2017; Wiggins, 1998; Wynn Williams et al., 2016).

5.3 The Present Chapter

The research presented in this chapter investigates the first column of the self-efficacy/sources matrix presented in Table 10: Is enactive mastery feedback positively related
to students’ self-efficacy beliefs in the factors of academic success, academic help-seeking, and academic organisation? This is important, as several studies (Beatson, et al., 2016; Bong, & Clark, 1999; Burnett, et al., 2010; Byrne et al., 2014; Christensen, et al., 2002; Sullivan, & Guerra, 2007; Zimmerman, 1995) have shown that students who have high self-efficacy beliefs in the above factors tend to do better academically than those with lower self-efficacy beliefs. Thus, the hypotheses for this study are as follows:

H3: Results from a midterm examination are positively related to student self-efficacy beliefs concerning academic success.

H4: Results from a midterm examination are positively related to student self-efficacy beliefs concerning academic help-seeking behaviour.

H5: Results from a midterm examination are positively related to student self-efficacy beliefs concerning academic organisation skills.

5.4 Method

This research was conducted at a large New Zealand university. A survey was administered to students enrolled in a mandatory introductory accounting course. All business majors are required to take this course, and thus it has a mix of accounting and non-accounting students enrolled. The course content covers both financial accounting and management accounting techniques. The university runs a thirteen-week semester, with the midterm break usually half way through the course. The midterm exam for this course was held in week six of the semester and examined the students on a mixture of theoretical and practical techniques based on the material taught in weeks one to five inclusive. The midterm exam assessed financial accounting content; the second half of the course was management accounting content which was examined in the final exam. There were no other assessments
for the course and no terms requirements\(^{30}\) regarding the assessment. Students are told early in the semester that they will have to do numerical calculations in the exam, and also be able to interpret numerical information and write about accounting concepts.

Surveys were given to students at two different points during the teaching period. The first survey was given in week three of the semester to allow for late enrolments and other administrative changes to be resolved, and then the second survey was given out to students in the final week of semester, just prior to the final examination. The surveys given to students at each point in time were identical. The students were asked to fill in the survey in lecture time and were given an information sheet to take home. Ethics approval was obtained from the university for this project. Students were told that their responses would be confidential and would have no impact upon their grade in this course. Students enrolled in the course were asked to participate and told that not filling in the survey held no penalty for them. In the lectures, students were handed a physical copy of the survey and asked to complete it. Surveys were then collected and the lecture commenced. A majority of students filled in only one of the surveys, either in week three or in week thirteen. This was apparently due to confusion over whether one was supposed to fill out surveys on both occasions or not. However, 88 of the students (15\% of the total class) completed both surveys, and the analysis proceeded with that sample.

\subsection{5.4.1 Participants}

A mix of accounting majors and students from related disciplines (business, marketing, etc.) formed the subject pool for the study. Most students were first-year students; however, there were also second- and third-year students enrolled at the time of the data

\footnote{30\textsuperscript{Meaning a benchmark that students had to reach in order to continue in the course and be allowed to sit the final exam.}}
collection. Further information on the age, gender, and ethnicity of the participants is presented in the results section.

Out of the 88 students who participated in this research, the lowest midterm score was 27% and ten students did not pass the midterm examination (i.e. they earned less than 50%). Nine of the ten students who failed the midterm examination also failed the course; however, one student was able to pass the course overall after having been unsuccessful on the midterm examination. One other student who had passed the midterm examination did not pass the course. The students were able to collect their midterm examinations to review how they performed; however, many chose not to. Due to the large numbers of examinations papers that were being graded, there were no comments made on the examination apart from a tick for correct and a dot for incorrect. Therefore, the feedback given was in the form of a grade.

5.4.2 Instrument

The survey instrument was sourced from prior research on self-efficacy beliefs within an accounting education setting (Beatson et al., 2016; Byrne et al., 2014). The survey had previously been pilot-tested and the amount of time taken to complete the survey was reported as less than ten minutes. This kept student engagement high and did not take up too much lecture time. The survey instrument included demographic questions and twenty self-efficacy belief statements. The self-efficacy statements were responded to on a Likert scale from 1 to 7, where 1 was ‘no confidence’ and 7 was ‘complete confidence’. These statements are presented as part of Table 12 in the factor analysis results.

---

31 See Appendix 2 and 3
5.5 Results

This section of the paper reports the results from a factor analysis and linear regressions used to test the hypothesis. The demographic information on the 88 students who completed both surveys is shown in Table 11.

Table 11: Demographic Information

<table>
<thead>
<tr>
<th>Variable</th>
<th>Students who took both surveys</th>
<th>Students present only at first survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (n=88)</td>
<td>Percent (%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>45</td>
<td>51.13</td>
</tr>
<tr>
<td>Female</td>
<td>43</td>
<td>49.87</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ European(^{32})</td>
<td>76</td>
<td>86.36</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>13.64</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>7</td>
<td>7.95</td>
</tr>
<tr>
<td>18</td>
<td>47</td>
<td>53.41</td>
</tr>
<tr>
<td>19</td>
<td>17</td>
<td>19.32</td>
</tr>
<tr>
<td>≥ 20</td>
<td>17</td>
<td>19.32</td>
</tr>
<tr>
<td>Background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taken the paper before</td>
<td>9</td>
<td>10.23</td>
</tr>
<tr>
<td>Worked in the field before</td>
<td>1</td>
<td>1.13</td>
</tr>
<tr>
<td>Studied the subject at high school</td>
<td>33</td>
<td>37.50</td>
</tr>
<tr>
<td>Studied the subject at another tertiary institution</td>
<td>3</td>
<td>3.41</td>
</tr>
<tr>
<td>None</td>
<td>42</td>
<td>47.73</td>
</tr>
<tr>
<td>Degree major</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>41</td>
<td>46.60</td>
</tr>
<tr>
<td>Other</td>
<td>47</td>
<td>53.50</td>
</tr>
</tbody>
</table>

None of the differences are significant at alpha=.05.

The gender split was relatively equal, as was the number of students who were accounting and non-accounting majors. There were slightly more students who had taken accounting before at high school than those that had no prior experience; nine students were repeating the paper. The median age of students’ who took both surveys was 18, with the

\(^{32}\) NZ European is a person who is New Zealand born and from European descent.
youngest being 17, and the oldest 24. As shown in Table 11, the 88 students who filled in both surveys are representative on all demographic information of the larger population that filled in only one survey. This was checked by comparing the means (via t-tests with alpha = .05) across the samples.

5.5.1 Factor analysis of self-efficacy questionnaire

As shown in Table 12, the self-efficacy statements from the initial administration of the questionnaire were factor-analysed in an effort to determine scales that could be formed from the individual statements. Exploratory factor analysis, with a varimax orthogonal rotation, was performed. An examination of a screen plot and using an eigenvalue greater than one criterion both indicated a three-factor solution. The rotated factor loadings for these three factors are presented in Table 12. The first factor, academic success, has items such as ‘pass this course’, ‘make sense of theoretical aspects of the course’, and ‘answer a calculation/numerical style question’. The second factor, academic help-seeking, was represented by items such as ‘ask for help from my tutor’ and ‘ask for help from my lecturer’. Items such as ‘draw up a study plan’ and ‘plan my time to review effectively for exams’, were found in the third factor: academic organisation. As seen in Table 12, all twenty self-efficacy questions loaded on a factor cleanly. Ten of the twenty items loaded on academic success, and five each on help-seeking and academic organisation, respectively. Cronbach alpha reliability estimates were derived for the factors from the week three data. Results from the reliability testing can also be seen in Table 12. The Cronbach alphas on each factor gave confidence to progress with further analysis. Factor analysis of the second administration of the questionnaire provided very similar results.
Table 12: Factor analysis of the self-efficacy items

<table>
<thead>
<tr>
<th>Factor</th>
<th>Items</th>
<th>Factor loadings</th>
<th>Cronbach Alphas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Success</td>
<td>1. Pass this course</td>
<td>.793</td>
<td>.907</td>
</tr>
<tr>
<td></td>
<td>2. Get the grade/mark that I want in this course</td>
<td>.747</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Apply my knowledge to solve previously unseen questions</td>
<td>.719</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Make sense of theoretical aspects of the course</td>
<td>.702</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Answer a calculation/numeric style question</td>
<td>.687</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Produce my best work in exams</td>
<td>.630</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Follow and make sense of material covered in lectures</td>
<td>.613</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Answer a question that involves discussing my response</td>
<td>.585</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Answer a word problem that describes an accounting situation</td>
<td>.579</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Make sense of material I read in textbooks</td>
<td>.510</td>
<td></td>
</tr>
<tr>
<td>Academic Help-Seeking</td>
<td>1. Ask for help from my tutor</td>
<td>.846</td>
<td>.811</td>
</tr>
<tr>
<td></td>
<td>2. Ask questions in tutorials</td>
<td>.708</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Ask for help from my lecturers</td>
<td>.692</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Respond to questions asked in tutorials</td>
<td>.618</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Ask for help from my classmates</td>
<td>.505</td>
<td></td>
</tr>
<tr>
<td>Academic Organisation</td>
<td>1. Find and write up additional notes</td>
<td>.784</td>
<td>.805</td>
</tr>
<tr>
<td></td>
<td>2. Plan my time to review effectively for exams</td>
<td>.743</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Draw up a study plan</td>
<td>.695</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Study effectively on my own</td>
<td>.647</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Understand the expectations to get good marks in my exams</td>
<td>.515</td>
<td></td>
</tr>
</tbody>
</table>

5.5.2 Additional variables used in the analysis

The basic analysis testing the hypotheses for the study was a multiple regression involving self-efficacy at week three in the course and the midterm examination results as the independent variables, and self-efficacy at week thirteen as the dependent variable. This was run for each of the three self-efficacy measures. In addition, several control variables were entered into the regression model to determine how they might influence the relationships observed. Age, gender, and ethnicity (New Zealand European versus other) were all included.
I additionally looked at major field of study (accounting or other), and two variables assessing interest and motivation. For these latter two measures, students were asked if they were interested in the course and eager to do well. Each was measured in a Likert fashion using a 1–7 scale. The midterm grade is based on a 100-point scale and represents the feedback given on the level of enactive mastery. Table 13 shows the variables used in my empirical analysis, the key descriptive statistics (in Panel A) and the correlation matrix (in Panel B)\textsuperscript{33}.

\textsuperscript{33} BCKG = Background, SE = Self-Efficacy, AS = Academic Success, AHS = Academic Help-Seeking, AO = Academic Organisation, and W = week.
### Table 13: Descriptive statistics and correlations

<table>
<thead>
<tr>
<th>Panel A</th>
<th>Panel B (correlation Matrix)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>1. Midterm</td>
<td>73.87</td>
</tr>
<tr>
<td>2. Age</td>
<td>18.670</td>
</tr>
<tr>
<td>3. Gender</td>
<td>0.511</td>
</tr>
<tr>
<td>4. Ethnicity</td>
<td>1.795</td>
</tr>
<tr>
<td>5. Major</td>
<td>0.466</td>
</tr>
<tr>
<td>6. BCKG</td>
<td>3.773</td>
</tr>
<tr>
<td>7. Interested</td>
<td>4.727</td>
</tr>
<tr>
<td>8. Eager</td>
<td>5.239</td>
</tr>
<tr>
<td>9. SE-AS-W3</td>
<td>4.9801</td>
</tr>
<tr>
<td>10. SE-AHS-W3</td>
<td>4.045</td>
</tr>
<tr>
<td>11. SE-AO-W3</td>
<td>5.099</td>
</tr>
<tr>
<td>12. SE-AS-W13</td>
<td>5.0170</td>
</tr>
<tr>
<td>13. SE-AHS-W13</td>
<td>4.917</td>
</tr>
<tr>
<td>14. SE-AO-W13</td>
<td>5.260</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Eager</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. SE-AS-W3</td>
<td>.217*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. SE-AHS-W3</td>
<td>.410**</td>
<td>.485**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. SE-AO-W3</td>
<td>.274**</td>
<td>.574**</td>
<td>.386**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. SE-AS-W13</td>
<td>.207</td>
<td>.601**</td>
<td>.345**</td>
<td>.328**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. SE-AHS-W13</td>
<td>.273**</td>
<td>.263*</td>
<td>.530**</td>
<td>.127</td>
<td>.546**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>14. SE-AO-W13</td>
<td>.254*</td>
<td>.430**</td>
<td>.261*</td>
<td>.544**</td>
<td>.731**</td>
<td>.487**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* = correlation is significant at the 0.05 level  
** = correlation is significant at the 0.01 level

Table 13 indicates there are low levels of intercorrelations among the independent variables, but none strong enough to indicate a serious problem with multicollinearity.
Therefore, all variables were entered into the regression model to determine what was correlated with students’ self-efficacy beliefs in week thirteen.

The model used for the regression analysis is

\[
SE-W13^{34} = \alpha + \beta_1 \text{AGE} + \beta_2 \text{GENDER} + \beta_3 \text{ETHNICITY} + \beta_4 \text{MAJOR} + \beta_5 \text{BACKGROUND} + \beta_6 \text{INTERESTED} + \beta_7 \text{EAGER} + \beta_8 \text{MIDTERM} + \beta_9 \text{SE-W3} + e.
\]

To test the three hypotheses, linear regression was used applying the model above. Self-efficacy in week thirteen for each factor was the dependent variable. The first regression considered the academic success self-efficacy beliefs of students. As Table 14 shows, the two variables that show statistical significance with the academic success self-efficacy beliefs in week 13 of academic success are the academic success self-efficacy beliefs in week three and the midterm grade. None of the other variables entered into the regression hold any explanatory power.

Table 14: Regression analysis 1, academic success

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>.018</td>
<td>.388</td>
<td>4.590</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Age</td>
<td>-.038</td>
<td>.053</td>
<td>-.717</td>
<td>.475</td>
</tr>
<tr>
<td>Gender</td>
<td>.170</td>
<td>.107</td>
<td>1.306</td>
<td>.195</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.043</td>
<td>-.120</td>
<td>-1.371</td>
<td>.174</td>
</tr>
<tr>
<td>Major</td>
<td>-.145</td>
<td>-.091</td>
<td>-.954</td>
<td>.343</td>
</tr>
<tr>
<td>Background</td>
<td>-.077</td>
<td>-.129</td>
<td>-1.572</td>
<td>.120</td>
</tr>
<tr>
<td>Interested</td>
<td>.140</td>
<td>.144</td>
<td>1.541</td>
<td>.127</td>
</tr>
<tr>
<td>Eager</td>
<td>.008</td>
<td>.008</td>
<td>.096</td>
<td>.924</td>
</tr>
<tr>
<td>SE-AS-W3</td>
<td>.498</td>
<td>.485</td>
<td>5.636</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

R²=.546; Adj R²=.494; F-value = 10.426 (p-value<.001)

Given that self-efficacy at week three and the midterm grade are the only two variables that are significantly related to self-efficacy for achievement at week thirteen, I decided to re-run the regression, only testing those variables. Thus, I ran a reduced model of

\[^{34}SE= \text{Self-Efficacy and W= week.}\]
the regression with only week three self-efficacy and midterm grade as independent variables; the results are reported in Table 15. The results of this regression show that both variables are strongly related to self-efficacy at week thirteen, with self-efficacy at week three having a slightly stronger beta (.495 to .362).

Table 15: Reduced regression analysis 1, academic success

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>.017</td>
<td>.362</td>
<td>4.424</td>
</tr>
<tr>
<td>SE-AS-W3</td>
<td>.508</td>
<td>.495</td>
<td>6.048</td>
</tr>
</tbody>
</table>

$R^2 = .481; \text{Adj } R^2 = .468; F-value = 39.313 \ (p < .001)$

The second hypothesis focused on the help-seeking self-efficacy beliefs of students. The help-seeking self-efficacy beliefs in week thirteen were used as the dependent variable. As shown in Table 16, the two variables with explanatory power were the midterm exam results and the self-efficacy beliefs in week three of the help-seeking behaviour variable.

Table 16: Regression analysis 2, help-seeking

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>.021</td>
<td>.320</td>
<td>3.457</td>
</tr>
<tr>
<td>Age</td>
<td>-.016</td>
<td>-.018</td>
<td>-.192</td>
</tr>
<tr>
<td>Gender</td>
<td>.233</td>
<td>.104</td>
<td>1.121</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.091</td>
<td>-.182</td>
<td>-1.908</td>
</tr>
<tr>
<td>Major</td>
<td>-.390</td>
<td>-.173</td>
<td>-1.620</td>
</tr>
<tr>
<td>Background</td>
<td>-.151</td>
<td>-.179</td>
<td>-1.956</td>
</tr>
<tr>
<td>Interested</td>
<td>.109</td>
<td>.080</td>
<td>.767</td>
</tr>
<tr>
<td>Eager</td>
<td>.046</td>
<td>.032</td>
<td>.315</td>
</tr>
<tr>
<td>SE-AHS-W3</td>
<td>.631</td>
<td>.443</td>
<td>4.454</td>
</tr>
</tbody>
</table>

$R^2 = .435; \text{Adj } R^2 = .370; F-value = 6.667 \ (p-value<.001)$

Given the results of the full model, the regression was re-run using only the two statistically significant variables as inputs with the results reported in Table 17. As can be seen in Table 17, both self-efficacy with help-seeking behaviour at week three and the
midterm are related to self-efficacy in help-seeking behaviour at week thirteen, with the self-efficacy measure having a larger beta.

Table 17: Reduced regression analysis 2, help-seeking

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>.016</td>
<td>.252</td>
<td>2.794</td>
<td>.006</td>
</tr>
<tr>
<td>SE-AHS-W3</td>
<td>.677</td>
<td>.476</td>
<td>5.276</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

$R^2= .341; \text{ Adj } R^2 = .326; \text{ F-value } = 22.007 \ (p-value < .001)$

The third hypothesis focused on the academic organisation self-efficacy beliefs of students. The same process was undertaken as before, and is presented in Table 18. Again, the explanatory power for self-efficacy beliefs of organisational skills in week thirteen comes from two variables: the self-efficacy beliefs of the students of organisational skills in week three and the midterm results.

Table 18: Regression analysis 3, organisation

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>.012</td>
<td>.231</td>
<td>2.384</td>
<td>.020</td>
</tr>
<tr>
<td>Age</td>
<td>-.004</td>
<td>-.006</td>
<td>-.056</td>
<td>.955</td>
</tr>
<tr>
<td>Gender</td>
<td>-.125</td>
<td>-.071</td>
<td>-.770</td>
<td>.443</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.032</td>
<td>-.081</td>
<td>-.820</td>
<td>.415</td>
</tr>
<tr>
<td>Major</td>
<td>-.078</td>
<td>-.044</td>
<td>-.398</td>
<td>.692</td>
</tr>
<tr>
<td>Background</td>
<td>-.087</td>
<td>-.131</td>
<td>-1.390</td>
<td>.169</td>
</tr>
<tr>
<td>Interested</td>
<td>.096</td>
<td>.089</td>
<td>.828</td>
<td>.410</td>
</tr>
<tr>
<td>Eager</td>
<td>.051</td>
<td>.054</td>
<td>.459</td>
<td>.648</td>
</tr>
<tr>
<td>SE-AO-W3</td>
<td>.433</td>
<td>.490</td>
<td>5.139</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

$R \text{ squared } = .395; \text{ Adj } R \text{ squared } = .325; \text{ F-value } = 5.651 \ (p-value < .001)$

The results presented in Table 18 show that only two of the variables entered into the regression model, self-efficacy beliefs of organisational skills in week three and the midterm had a significant relationship with the dependent variable, self-efficacy beliefs of organisational skills in week thirteen. The same process was undertaken, reducing the
regression to only include those variables that were related to self-efficacy in week thirteen. Table 19 shows the results of the reduced regression model.

### Table 19: Reduced regression analysis 3, organisation

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Beta</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>.012</td>
<td>.228</td>
<td>2.542</td>
<td>.013</td>
</tr>
<tr>
<td>SE-AO-W3</td>
<td>.438</td>
<td>.497</td>
<td>5.537</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

R²=.345; Adj R²=.330; F-value = 22.412 (p-value<.001)

In the reduced regression analysis shown in Table 19, both self-efficacy with organisation at week three and the midterm are related to self-efficacy in organisation of students at week thirteen, with self-efficacy showing the stronger relationship.

#### 5.6 Discussion and Implications

This chapter investigated the relationship between enactive mastery feedback and self-efficacy in an accounting course. The hypothesis stated that enactive mastery feedback received by students in the form of results from the midterm examination would relate positively with three different aspects of self-efficacy beliefs: academic success, help-seeking, and academic organisation. In each case, the midterm results made a significant contribution to the explanation of self-efficacy in week thirteen above and beyond the influence of self-efficacy at week three and a variety of control variables. The strongest effect found regarded self-efficacy for academic success, followed by help-seeking, and then organisation. What was also clear from the results was that those students who had high or low self-efficacy in week three also typically had that self-efficacy in week thirteen.

Reversing the expected relationships seen in self-efficacy research by investigating the relationship of performance outcomes with students’ self-efficacy beliefs as they progress through a course of study has provided a perspective that is useful from both theoretical and
practical perspectives. Although the non-experimental nature of the study does not allow for causal interpretations of the results, using self-efficacy at week three as an independent variable addresses a number of possible alternative hypotheses with regards to the findings. Additionally, these results are consistent with Bandura’s theory about the sources of self-efficacy. The clear implication here is that midterm results are likely to affect students’ belief in their ability to achieve academically in the course. Students’ confidence in their ability to pass the course and learn the content is likely to be affected by their performance on the midterm examination (their enactive mastery). University students can become stressed and even overwhelmed as they progress through their courses (Byrne, Chughtai, Flood, Murphy, & Willis, 2013); this important source of information is likely to either reinforce or alleviate these feelings. It could lead to more confidence in the ability to succeed, to effectively seek help and participate in the course, and to engage in organizational strategies that facilitate success.

The purpose of this chapter was to consider Bandura’s (1997) claims that self-efficacy is malleable and that enactive mastery experience is an influential source of information that is used in the formation of these beliefs. I examined these in situ in a higher education context, in a non-experimental fashion, and found that accountancy students’ self-efficacy beliefs did change and that evidence of enactive mastery, in the form of a midterm grade, was related to this.

One implication of this is that university-based educators and programme designers should be mindful of the influence of mid-course tests. This should lead to greater focus on careful test design that ensures high standards of validity and match between task difficulty and student skill/understanding. Poorly constructed evaluations may lead to the development of poor self-efficacy beliefs. Similarly, inadequate preparation for assessments may also influence students’ self-efficacy beliefs negatively. This research presents evidence that
having internal assessment of some kind (such as a midterm exam), that can allow students to build self-efficacy through a course of study is important. I argue that having a ‘small win’ early, such as an easy assignment in the first few weeks of a course, will help build up mastery self-efficacy and therefore better prepare the students for academic success.

5.6.1 Limitations

The research presented here is non-experimental in nature. Thus, there is always the possibility that there are alternative explanations for the findings. It may be that course experiences other than the midterm grade were related to self-efficacy beliefs in week thirteen. However, seeing that the midterm grade shows a moderate to strong relationship with self-efficacy in week thirteen, especially after having controlled for self-efficacy levels in week three, suggests that it was indeed the midterm that was the important factor. Another limitation has to do with sample selection, from several perspectives. First, there may be a self-selection bias, as students who were not in class, or chose not to be involved with the project, may have had differing results. As previously stated, the research team compared the means of all students who completed the survey with the 88 that were in the sample for this study and found no significant differences. Second, these are accounting students at the undergraduate level. I cannot argue that these results would extend to other subject areas, much less students of other ages. Third, these results are specific to a particular instantiation of introductory accounting at one university. Again, as in chapter four, I must note that the where the student comes from, in terms of a rural or urban background could influence these results. Future work should be done including where the student comes from to see if this influences results. I believe this approach is an exciting new avenue for self-efficacy research, but the range of its applicability awaits future studies.
In the next chapter, I explore where self-efficacy beliefs come from. Bandura’s (1997) four sources of self-efficacy are examined, and I present findings about gender differences in accounting students.
CHAPTER SIX: SOURCES OF SELF-EFFICACY BELIEFS

This chapter is adapted from a manuscript that is (at the time of thesis submission) under consideration at Helyion. In this chapter I examine self-efficacy beliefs of first-year accounting students. As self-efficacy beliefs are able to be influenced and change over time, it is important to investigate where students’ self-efficacy beliefs come from to allow a better chance of academic success. I examine 181 accounting students responses from the survey and use the reported responses on the four sources of self-efficacy beliefs; enactive mastery experience, verbal persuasion, vicarious experience and, physiological and affective states. I find that males are mostly influenced by prior experience and the physiological and affective state, whereas females are most influenced by prior experience and verbal persuasion. This chapter contributes to the development of theory within this understudied area, and also provides evidence for educators to support student success in learning accounting.

6.1 Introduction

For decades, educational research has investigated the impact of non-cognitive factors upon student success (Bandura & Jourden, 1991; Pajares & Schunk, 2002; Wood & Bandura, 1989). Furthermore, the relationship between academic performance and self-efficacy beliefs is both well establish and widely accepted (Bandura, 1986). Those students who are highly efficacious behave differently to those that have low levels of self-efficacy, and to succeed one needs both ability and self-efficacy (Bandura, 1986). If a student has very low levels of self-efficacy, then they are less likely to achieve academic success (Bandura, 1997; Bandura & Jourden, 1991; Wood & Bandura, 1989). We also know that self-efficacy is malleable and is influenced from four sources; enactive mastery; verbal persuasion; vicarious experience; and the physiological and affective state (Bandura, 1986; Beatson, Berg, & Smith, 2018; 2019). Thus, to understand student success we need to investigate where the self-efficacy
comes from, and examine how a student’s level of self-efficacy beliefs towards learning is shaped.

Student success at university will be influenced by many factors that occur outside of the classroom, such as family and work commitments, administration processes within the university, social relationships and many more (Fike & Fike, 2008; Hamilton, 2010; Lipnevich, MacCann & Roberts, 2013; Ransdell, 2001). An important influence outside of cognitive learning is that of self-efficacy beliefs, where one’s self-system processes information that influences the learning process (Bandura, 1986; Parker, Summerfeldt, Hogan, & Majeski, 2004). Academic success does not solely rely on basic intelligence, as the non-cognitive aspects of learning are as important (Lipnevich, et al., 2013). Within accounting education, there has been a recent focus on the non-cognitive aspects of learning, with many studies showing that a greater level of self-efficacy leads to a greater level of academic performance in accounting courses (Beatson, et al., 2018; 2019).

The remainder of this chapter is structured as follows. First a review of the relevant literature on self-efficacy beliefs in higher education is provided, along with a discussion of gender in relation to self-efficacy beliefs. This discussion is provided within both a wider general education setting as well as within accounting education. This summary of the relevant literature leads to the research questions and hypotheses that are formally tested within this research project. The results are then reported and discussed, limitations of the study are stated, and finally future research opportunities in this important area of research are identified.

6.2 Literature Review

When learning, students hold a set of beliefs about whether or not success is achievable (Bandura, 1977; Pajares, 2002). Key within this belief system is self-efficacy
beliefs, or how much confidence that the student has to succeed in the task at hand. Bandura (1977) developed social cognitive theory (SCT), drawing on the assumption that all human beings are self-regulating, proactive and organise themselves, as opposed to being reactive to the situation in which they find themselves. The control in which someone has when faced with a new or difficult situation can support them in pursuit of a goal (Bandura, 1977; Pajares 2002). A great deal of educational research findings since the inception of SCT, support that self-efficacy beliefs influence a student’s academic achievement and furthermore, self-efficacy beliefs mediate the effect of skills upon success (see for example: Bandura, & Wessels, 1997; Beatson, et al., 2018; Pajares, 1997, 2002).

### 6.2.1 Sources of self-efficacy beliefs

Bandura (1997) identified four sources of information from which self-efficacy beliefs are derived. These are enactive mastery experience, verbal persuasion, vicarious experience and, physiological and affective states. Self-efficacy beliefs are formed as a result of an individual attending to information from one, or more often, combinations of these, retaining it, and cognitively processing it into a self-schemata.

The most powerful of the sources, is most often considered to be enactive mastery (Feltz, Landers, & Raeder, 1979; Heuvel, Demerouti, & Peeters, 2015). Being successful at previous attempts of the same task, empower a greater sense of self-efficacy the next time, whereas repeated failure results in self-doubt (Bandura, Adams, & Beyer, 1977; Feltz et al., 1979; Heuvel et al., 2015). Indeed, the authentic nature of this source of evidence is likely to trump other sources (Bandura, 1997): it is hard to imagine how an individual experiencing persistent failure might disregard this source of evidence in favour of another less immediate source. However, it is important to note that this is not always this case, for example, vicarious experience can provide instructional insight in how a task can be completed by
reducing it to a series of small steps and therefore challenge the efficacy beliefs built upon previous failure. Verbal persuasion can also influence the level of self-efficacy one feels, as can the physiological and affective state (Bandura, 1997).

It is somewhat difficult to determine an order of importance following enactive mastery for the remaining three sources. Verbal persuasion (and other social influences) can be used to try and alter someone’s level of self-efficacy. For example, in a lecture, a lecturer could encourage students by communicating positive messages, such as “you can all pass this course”. However, it is essential that such messages are realistic, as building unfounded beliefs that are then discredited by mastery information can ultimately cause a decline in self-efficacy (Bandura, 1986; 1997). It is also important to note the role that verbal persuaders can have in directing learners’ attention by framing information. Bandura (1997) noted the efficacy-enhancing impact of feedback that focusses on mastery gains, rather than mastery deficits on both performance and self-efficacy beliefs. Such verbal persuasion can offer an attentional scaffold that allows the learner to attend to efficacy-enhancing information and disregard efficacy-reducing information.

Bandura (1986) argued that vicarious learning holds less power than direct learning. However, when combined with other sources of self-efficacy as well, it contributes to a cumulative effect (Bandura, 1986). Information from others acting as vicarious models offers two main bodies of information: comparative and instructional (Bandura, 1997). The former allows a learner to evaluate their own performances and the likelihood of their own success in relation to others, whereas the latter provides instructional information for skill acquisition. When an individual sees others succeed, or when one is aware that their own skill levels surpass others, self-efficacy beliefs are likely to be raised. The latter recognises the instructional power of models who convey coping strategies and competence. As models
provide easier ways to do things, or provide insight into how a skill or strategy can be deconstructed into a series of more achievable subskills and strategies, such information can be used by individuals to raise their own levels of self-efficacy. This applies to those who feel highly efficacious as well as those who do not.

The review of the literature suggests that physiological and affective states, as a source of self-efficacy are understudied, perhaps because of their complexity. Bandura (1993) argues that somatic information is an important source of self-efficacy beliefs. This information can suggest either strength and capability or susceptibility to failure and dysfunction. As with the other sources, it is mediated through attention and cognitive processing. Indeed, Bandura notes that challenging circumstances, people may interpret the same physiological arousal differently, some may see it as evidence of weakness or shortcomings and others as facilitatory. For example, two students may both experience a raised heart rate entering an examination, one may see this as evidence of inadequacy, while the other may merely register a sense of excitement and motivation to excel. The latter is likely to spend little time dwelling on this, whereas the former may well become absorbed. This is problematic, not least because of the limited capacity of attention (Bandura, 1993; Kahneman, 1973, 2011). Focus on somatic information reduces focus on the problem at hand and consequently increase the likelihood of failure. Further, as well as informing self-efficacy beliefs, it will be understood through them as somatic information will be interpreted in the light of pre-existing knowledge structures that are likely to result in a confirming bias (Bandura, 1993).
6.2.2 Self-efficacy beliefs and gender

Gender differences are often found in research on self-efficacy beliefs (Pajares, 2002). These differences become more apparent over time. For example, in early childhood, there are often no differences between boys and girls in mathematical self-efficacy, however in later education often males have higher level of mathematical self-efficacy than females (Pajares, 2002; Junge, & Dretzke, 1995; Wigfield, Eccles, & Pintrich, 1996). Interestingly, there are fewer gender differences that are seen in self-efficacy beliefs for non-mathematical subjects such as arts and languages, even though girls often are more able in these subjects (Pajares, 2003). Female students have been shown to have greater levels of self-efficacy beliefs in organisational strategies with learning (Pokay & Blumenfeld, 1990, Pajares & Valiante, 2001). Pajares (2002) says there are three possible reasons for explaining some of the gender differences that have been found in prior research. Firstly, if previous experience is considered, often the gender differences are less significant. Secondly, females are often more modest (Noddings, 1996; Wigfield et al., 1996) and thirdly the underlying assumptions that society holds about gender may influence the self-reported level of self-efficacy beliefs.

As mentioned, there are certain subjects in which gender differences are more often found, such as mathematics, science, technology and other quantitative subjects (Eisenberg, Martin, & Fabes, 1996; Pajares, 2002). The masculine dominance of these subjects is slowly changing, but underlying stereotypes may still remain which influence the efficacious levels of students studying these types of courses. In a study which investigated the perceptions of undergraduate students in male dominated academic disciplines, Steele, James, and Barnett, (2002) found that women were more likely to change majors from a male dominated academic subject such as math or engineering, to a more traditionally female dominated subject such as the arts, humanities, or education. Accounting has traditionally been seen as a
male dominated career path (Haynes, 2017), and is often perceived as mathematically challenging.

6.2.3 Hypotheses development

Based on the literature on self-efficacy beliefs and academic success at university (Beatson et al., 2018; Pajares, 1996; Zimmerman, Boekarts, Pintrich, & Zeidner, 2000), we expect to see a positive relationship with the level of overall self-efficacy beliefs and academic performance in learning accounting. Hence I hypothesise:

H6: there will be a positive relationship between self-efficacy and academic performance

I also expect to see gender differences with the level of self-efficacy, as the course in which this study is set is accounting, perceived as both a traditionally male dominated career, and as mathematical. Given the gender differences found in prior work for self-efficacy in other similar contexts (Junge, & Dretzke, 1995; Pajares, 2002; Wigfield, et al., 1996), I hypothesise:

H7: there will be gender differences in self-efficacy beliefs for students learning accounting.

The understudied area of where self-efficacy beliefs come from, and the positive or negative influence of that source is the focus of the next hypothesis. Based on Bandura’s (1986) work and that of many others (Bandura, et al., 1977; Feltz et al., 1979; Heuvel et al., 2015), I expect that enactive mastery will influence both genders self-efficacy beliefs in learning accounting. Hence I hypothesise:

H8: mastery experience will be the most influential of the four sources of self-efficacy beliefs.
The next section of this chapter outlines the research design and process undertaken for this project. The context is described, alongside other process related information such as who the participants were, and how we collected the data.

6.3 Research Method

This research is set at the University of Otago, located in New Zealand. The university has an excellent reputation for both teaching and research activities. The data for the present study were collected in a large mandatory core business course ‘introduction to accounting’ (ACCT101). Full ethical approval was granted for the project, including the appropriate Māori consultation and ethical approval process.

6.3.1 Research process

The data were gathered in lecture time in semester two, 2016. The decision was made to collect the data in the final week of semester, just prior to the final examination period. Taking the survey at this point in time allowed us to investigate self-efficacy beliefs at a critical point, as the teaching had almost finished, and the responsibility for learning was all on the student. We used paper-based surveys in the lecture to have the best possible response rate. Out of the 405 students enrolled in the course at the time, 181 were present in class on the day to fill in the survey, thereby giving a 44% response rate. The paper ACCT101 is required for all business majors, has a reputation for being challenging, and in semester two, the majority of the class (almost sixty five percent) are not accounting majors. By using ACCT101 to gather the data, it allowed a very diverse group of students to be part of the sample, who had not chosen to be there because of the subject matter, but instead because of the program requirements. When asked why the students were taking the course as part of the survey over ninety five percent stated because they had to. In addition, ACCT101 has a
relatively high failure rate when compared to other core business courses, especially in semester two. In semester one the pass rate is higher than in semester two, as shown in table 20.

Table 20 Pass rates by semester.

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester one pass rate</th>
<th>Semester two pass rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>79% (n= 625)</td>
<td>70% (n= 374)</td>
</tr>
<tr>
<td>2015</td>
<td>80% (n= 639)</td>
<td>72% (n= 391)</td>
</tr>
<tr>
<td>2016</td>
<td>75% (n= 578)</td>
<td>69% (n= 405)</td>
</tr>
</tbody>
</table>

6.3.2 Instrument

As previously stated, students enrolled in ACCT101 were asked to fill in a paper-based survey which included the following sections: section one asked a series of demographic questions, section two asked about mindset (Dweck, 2008), section three asked about self-efficacy beliefs (Bandura, 1977) and finally section four asked about the source of where his or her self-efficacy comes from. This study reports the results from the final section of the survey, which specifically asked about where the students believed that self-efficacy comes from. We asked a series of questions, asking the students to self-report on whether the four main sources of self-efficacy had previously influenced them in a positive or negative manner. As mentioned previously, we distributed the survey in the final week of semester, just ten days before the students sat the final exam. This allowed the students to reflect on the experience of the course, and report the level of self-efficacy at a pivotal and stressful part of the semester. The survey was pilot tested, and was found to take no more than ten minutes to complete. Both the section on self-efficacy beliefs, and mindset are well established instruments (Beatson et al, 2018; Dweck 2008) that have been used previously in the literature, however as the sources of self-efficacy are less studied, we created the five

35 See Appendix 3 (the semester two survey) for the questions administered on the source of self-efficacy beliefs.

6.4 Results

The purpose of this research was primarily to examine what are the sources of self-efficacy for achievement in undergraduates in an introductory accounting course, and secondarily to see how those perceived sources relate to self-efficacy and ultimately to the final grade in the course. I also examine gender differences in the results. I begin by looking at the descriptive statistics of the variables in the study and the distributions of the sources of self-efficacy variables.

6.4.1 Preliminary results

Table 21 presents the means and standard deviations for the four sources variables along with the students’ perceived self-efficacy to do well in the course and the final grade that the student received. Note that the ‘n’ for final grade is smaller than for the self-efficacy variables as not all students provided accurate student identification numbers, or did not permit their grades to be examined.

<table>
<thead>
<tr>
<th>Source of Self-Efficacy</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal persuasion</td>
<td>181</td>
<td>7.23</td>
<td>1.997</td>
</tr>
<tr>
<td>Previous experience</td>
<td>181</td>
<td>7.19</td>
<td>2.152</td>
</tr>
<tr>
<td>The success or failure of others</td>
<td>179</td>
<td>6.88</td>
<td>1.942</td>
</tr>
<tr>
<td>Physiological and affective state</td>
<td>180</td>
<td>6.24</td>
<td>2.460</td>
</tr>
<tr>
<td>Final Grade</td>
<td>130</td>
<td>70.66</td>
<td>14.929</td>
</tr>
<tr>
<td>Overall Self-Efficacy</td>
<td>180</td>
<td>7.48</td>
<td>1.959</td>
</tr>
</tbody>
</table>

Shown in Table 21 verbal persuasion has the highest mean, followed by previous experience, success or failure of others, and then the physiological and affective state. The response scale ran from 1 (negative influence) to 11 (positive influence), with 6 being
neutral. A repeated measures analysis of variance was conducted on the sources variables and was found to be highly significant (Wilks’ Lambda F (3, 176) = 8.609 p < .001). Post hoc analyses showed that verbal persuasion and previous experience were significantly different from the physiological and affective state, with no other significant differences. Grades\textsuperscript{36} were on a 100 point scale with the average score being a B-; 8% of the students failed the course and 29% received A’s. Self-reported overall self-efficacy was on a 1 (Low) to 11 (High) scale, with the mean for the sample showing a somewhat positive outlook on their course achievement as they headed into the final exam.

6.4.2 Tests of hypotheses

To look more closely at the sources variables, I constructed histograms for each of the four measures (Figures 2-5). What stands out initially is that the “neutral” category on the scale of 6 is the dominant response for each of the sources, and that each of the sources tends toward a positive influence. Keeping in mind that this scale was administered just before the final exam in the course, it is perhaps not surprising to see how strongly positively influential the verbal persuasion variable is. This is a large lecture course with hundreds of students enrolled, and the lecturer in the course has won multiple awards in the University for teaching excellence. She is highly positive and encouraging of students. In Figure 3, previous experience also shows a somewhat positive distribution; students has already taken a midterm examination and thus had some concrete evidence of their previous experience in the course.

\textsuperscript{36} A fail grade at this University is anything below 50/100 overall. 50-54 is a C-; 55-59 is a C; 60-64 is a C+; 65-69 is a B-; 70-74 is a B; 75-79 is a B+; 80-84 is an A-; 85-89 is an A and over 90/100 is an A+.
Figure 2. Graph of Verbal Persuasion from Others

Figure 3 Graph of Previous Experience
As seen in Figure 4, the success or failure of others variable showed a large neutral rating, but an overall positive distribution. Shown by Figure 5, the physiological and affective state variable also had a large neutral rating, but interestingly had the most negative overall rating of any source variable. It may well be that test anxiety is what students are most concerned about with regard to physical and emotional state when they think of their reactions to the course.
Next, I looked at the relationships among the four sources along with the overall rating of self-efficacy and the final course grade as reported in Table 22. A word of caution is necessary here. What I am correlating are the students’ perceptions of the influence of the various sources of self-efficacy. This is slightly different from having obtained ratings of the various sources themselves and then relating them to self-efficacy beliefs and achievement. Thus, I am not technically relating a student’s prior experience to their grade, but rather their perception of the influence of prior experience to their grade. It is a subtle difference, but one important to point out.

The results show that previous experience has the strongest relationship to perceived overall self-efficacy (.430), followed by the physiological and affective state (.346), verbal persuasion (.258), and the success or failure of others (.247). All sources were significantly and positively related to perceived overall self-efficacy. In terms of relationship to the actual grade received in the course, previous experience shows the strongest relationship (.230), followed by verbal persuasion (.216), and then the success or failure of others, and the
physiological and affective state, which were non-significant. Self-efficacy correlated with final grade in the course at .376, which, while moderately significant, indicates that students’ reported perception of overall self-efficacy when collected in this manner is not a particularly good predictor of performance. This may be due to students simply not having a good idea of how well they will do or perhaps being overly cautious in what they report. Furthermore, this self-reported single measure of self-efficacy overall is not typically how self-efficacy beliefs would be measured, as normally we would collect the data based on several task related questions about learning accounting. This data may show a stronger relationship between overall self-efficacy beliefs, or the factors within it, and academic performance.

**Table 22. Correlations among key variables**

<table>
<thead>
<tr>
<th></th>
<th>Efficacy</th>
<th>Persuasion</th>
<th>Experience</th>
<th>Others</th>
<th>Phys/Affect</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy</td>
<td>1.0</td>
<td>.258**</td>
<td>.430**</td>
<td>.247**</td>
<td>.346**</td>
<td>.376**</td>
</tr>
<tr>
<td>Persuasion</td>
<td>1.0</td>
<td>.249**</td>
<td>.039</td>
<td>.257**</td>
<td>.216**</td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td>1.0</td>
<td>1.0</td>
<td>.193**</td>
<td>.276**</td>
<td>.230**</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>.333*</td>
<td>.094</td>
<td></td>
</tr>
<tr>
<td>Phys/Affect</td>
<td></td>
<td>1.0</td>
<td>1.0</td>
<td>.007</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at .01 level  
* Correlation is significant at .05 level  
N = 180 for all correlations except those with “Grade” where N = 127

I then looked at how the four source variables predicted overall efficacy as a set by running a multiple regression with overall self-efficacy as an outcome measure and the four source variables as predictors. The overall regression was highly significant (p < .001) with an adjusted r-square = .233. Two of the regressors were statistically significantly related to the outcome measure: previous experience (beta = .337, p < .001), and the physiological and affective state (beta = .171, p = .020).
The final set of analyses have to do with gender differences in the findings. First, I looked at whether there were gender differences in the means of the four source variables as well as the overall efficacy measure and the final grade received. Table 23 shows that the only significant difference was on overall self-efficacy, where males were significantly more confident about their achievement than females. It is interesting to note, that although not significant, females outperformed males on the final grade.

**Table 23. Gender Differences in Mean Source Scores**

<table>
<thead>
<tr>
<th>Source</th>
<th>Females</th>
<th>Males</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Persuasion</td>
<td>105</td>
<td>7.20</td>
<td>1.98</td>
</tr>
<tr>
<td>Experience</td>
<td>105</td>
<td>7.03</td>
<td>2.00</td>
</tr>
<tr>
<td>Others</td>
<td>103</td>
<td>6.66</td>
<td>1.85</td>
</tr>
<tr>
<td>Phys/Affect</td>
<td>104</td>
<td>6.08</td>
<td>2.40</td>
</tr>
<tr>
<td>Grade</td>
<td>105</td>
<td>71.09</td>
<td>14.67</td>
</tr>
<tr>
<td>Efficacy</td>
<td>75</td>
<td>7.23</td>
<td>2.03</td>
</tr>
</tbody>
</table>

I then looked at the strength of the relationships of the four source variables in terms of predicting overall self-efficacy by gender. This was a set of multiple regression analyses mirroring the one with the complete sample described above, but done for each gender. The results were somewhat surprising. For the females, the overall regression was highly significant ($p < .001$), with an adjusted r-square of .219. Two of the sources were significantly related to efficacy: previous experience (beta = .320, $p = .002$) and verbal persuasion (beta = .177, $p = .019$). Thus, how well the students had done (in all likelihood on the midterm), and the persuasion of the lecturer in the course (a female) were the dominant factors in influencing the female students sense of self-efficacy.

The males show a different picture. Again, the overall model was highly significant ($p < .001$), with an adjusted r-square of .401. Thus, the model is much more highly predictive for males than for females. For males (as for females), previous experience was by
far the strongest predictor \( \beta = .491, p < .001 \). But for males, the second significant predictor was the physiological and affective state \( \beta = .358, p < .001 \). It appears to be the case that for both genders, prior experience was the strongest predictor of self-efficacy. This isn’t surprising as the students had their midterm grades to influence them. But then, for the females, persuasion from others was the second most influential predictor of self-efficacy, whereas for males it was the physiological and affective state.

### 6.5 Discussion and Implications

In this section, the key findings are first presented, followed by a discussion of both the theoretical and practical implications of this research. Limitations of the research are identified and we conclude this chapter with a comment regarding the opportunity for future projects in this important area of research.

#### 6.5.1 Summary of key findings

The key findings from this study are twofold. Firstly, we see gender differences in reported sources of self-efficacy. I expected to see a gender effect given past work in this area, with males traditionally having a greater level of self-efficacy in mathematically based disciplines (Junge, & Dretzke, 1995; Pajares, 2002; Wigfield, et al., 1996), however it was unexpected to see the model explain over 40% of the variation for males, with the physiological state being a significant factor. Females in the course were mostly influenced by prior experience and verbal persuasion, which again, was an interesting finding. Based on previous literature, we expected to see mastery, or previous experience to be influential to overall self-efficacy beliefs, however I did not expect to see such a large influence from the other variables. Secondly, I have been able to capture data on where self-efficacy beliefs may come from. This understudied area needs more work, but this research provides a base in
which to build from. While mastery experience is important, both verbal persuasion and the physiological and affective state also influence the student experience.

6.5.2 Discussion of the practical and theoretical contributions

The most positive influence for all students as reported by the means is verbal persuasion. This is of particular interest, as Bandura (1986) warned that verbal persuasion without trust between the persuader and persuadee and/or authenticity of the message being given, will have an opposite effect on self-efficacy beliefs. For example, if the lecturer was to tell students that everyone is going to get an A+, this message would not be authentic, as students would question if this actually was the case. The relationship that a lecturer builds with a cohort of students is paramount for verbal persuasion to work. Students must feel supported by the lecturer, and trust what they say. Trust between students and lecturers does not automatically happen, this is something that must be worked upon. In this study, the lecturer was very encouraging, but only once the relationship and trust had built. At the time of data collection, the students had seen the lecturer three times a week for thirteen weeks, and therefore an established relationship was present. This trust was demonstrated by group discussions in lectures, where more than 300 students would be in attendance, and yet students would still feel comfortable to ask and answer questions.

The four sources all had large ‘neutral ratings’, and all were more positive than negative. This shows that the cohort as a whole were reflecting on the experience of the course as mostly positive across all four sources. The physiological and affective state showed the greatest amount of negative influence. This is expected, as just prior to an exam, one would be feeling a physical reaction of nervousness, or anxiety to perform well. If we consider a sports analogy, where the final exam is seen as the game, top athletes would feel anxious/nervous to perform and the couch would offer support on how to turn the physical
feeling into positive action during the game, and to manage the physical reaction to pressure. As educators, we don’t provide the same level of scaffolding, as we send students off to ‘perform’ without coaching them on how to deal with the nerves. Studies have shown support for mastery (the previous experience variable in this study) to be the most powerful influencer of self-efficacy beliefs (Feltz, et al., 1979; Heuvel, et al., 2015), and we too see that it has the most influence towards overall perceived self-efficacy beliefs. However, in this study we see that the physiological and affective state has the second greatest influence in general. Of all the four sources, the physiological and affective state is the hardest to research and what we see here is just the beginning of exploring this important aspect of self-efficacy.

Males and females are influenced by different factors. Both genders self-reported that previous experience had the greatest influence on the level of overall self-efficacy in learning accounting. This is consistent with the literature on enactive mastery and academic performance (Bandura, et al., 1977; Feltz et al., 1979; Heuvel et al., 2015). Interestingly, in our data males reported positive influences in the physiological and affective state. This significant relationship with overall self-efficacy indicates that males are more likely to feel nervously excited as opposed to nervously anxious. When regressed against the overall self-efficacy in learning accounting, this positive significant relationship shows that males will rise to the occasion, and may be more likely to interpret anxiety or nervousness as a positive influence. The combination of both previous experience and the physiological and affective state explains 40% of the variation in overall self-efficacy beliefs for males in the course. For females, the second most influential source from our model is verbal persuasion. When accounting for both previous experience and verbal persuasion, the model explains 22% of variation in overall self-efficacy beliefs for the female students enrolled in the course.
6.5.3 Limitations

As previously mentioned in the results section, one limitation of this chapter is that I am correlating the students’ perceptions of the influence of the sources of self-efficacy. Therefore, it is not the actual source of self-efficacy that I examine in relation to the student’s final grade, but a self-reported perception of where the self-efficacy comes from. Another limitation is the non-response bias here, as those that are more confident in general, would be most likely to be present in class, and therefore in attendance the day the survey was taken. Finally, I did not keep a record of the lecturer’s process in both building trust with the cohort, and verbally persuading them at regular intervals. To have this recorded formally, would enhance the current study.

6.5.4 Future research

The sources of self-efficacy are understudied, especially within accounting education. Future projects should hold interventions of a formal nature, such as regular verbal persuasion, or coaching how to deal with exam pressure and nerves, and then examine the impact upon self-efficacy beliefs, pre and post the intervention. Another possible intervention would be to provide coaching prior to the exam period, such as, strategies on how to deal with nerves and again, survey the students’ pre and post the intervention. It is important for both educators and students to better understand where self-efficacy comes from, as once that is understood, we can attempt to influence self-efficacy beliefs, as the greater the self-efficacy beliefs in learning accounting, the greater the chance of academic success (Beatson, et al., 2019).
CHAPTER SEVEN: CONCLUSIONS

This research holds the potential to influence many stakeholders in accounting education and beyond, including students and educators, the wider community, professional bodies, and institutions that teach accounting. This chapter concludes the thesis by drawing together the theoretical and practical implications of the results presented in chapters four, five, and six. I provide a holistic view of the project and draw linkages from the results chapters to the research literature. Each of the three studies makes a contribution in its own right, and the relationships of the findings and the literature are discussed within those chapters. This chapter presents the contribution to both theory and practice from the thesis as a whole, and a discussion on the main overarching research question: What is the role of self-efficacy beliefs in accounting education? Finally, limitations are outlined and future research opportunities are identified.

7.1 Summary of Key Findings

Chapters four, five, and six investigated different aspects of the relationship between self-efficacy and academic success for first-year accounting students. The common thread throughout the chapters is the importance of self-efficacy within the learning environment for first-year accounting students. In this section, I summarize the key findings in each of those chapters. I briefly relate those findings to the research literature that is pertinent to that particular study. Then I present the implications of where this research sits more broadly within the relevant literature, and finally what the results mean for scholarly understanding, practice, and the developing field of accounting education research.
7.1.1 Prior learning and self-efficacy beliefs in learning accounting.

Chapter four examines Bandura’s (1997) striking statement that self-efficacy beliefs hold more power to influence achievement than actual ability. By using ‘opportunity to learn’ as an indicator of prior exposure to the discipline of accounting, I found that self-efficacy beliefs do hold a considerable amount of prediction. The beta was higher for self-efficacy than the opportunity to learn variable when I examined the model as a whole. I acknowledge that self-reported exposure to accounting at high school may not be the most robust measure of prior learning; however, the findings are still interesting and informative. Consistent with Bandura’s prediction, student success in learning accounting can in part be attributed to the level of self-efficacy beliefs, over and above whether a student has previously learned accounting at high school.

Much work has been done on self-efficacy beliefs in educational settings, but less so in accounting education (O'Leary, 1985; Moritz et al., 2000; Stone et al., 1996; Zimmerman et al., 2000). As discussed at length in chapter two, there has been a growing interest in self-efficacy as a variable to study in accounting education, as the importance of non-cognitive variables is becoming realised (Byrne et al., 2014). The context of accounting is important; it is perceived as mathematically difficult when in fact it is not more than basic arithmetic at the introductory level (Joyce et al., 2006). Accounting is more about judgement and interpretation of the numbers than complicated mathematical formuli. This context provides an interesting environment in which to investigate self-efficacy, as often the perception of achievement can override the reality. It is not just cognitive ability that matters towards academic success, and chapter four demonstrates this within the context of accounting education.
Prior learning matters in learning accounting; however, it is not all that matters. Self-efficacy beliefs, especially those associated with the belief in one’s ability to succeed academically in learning accounting, also contribute towards success. If students hold high levels of confidence in the ability to succeed in a course, then it is more likely that they will succeed. The results of chapter four confirm Bandura’s (1986) prediction and extends it to learning accounting.

In approaching learning tasks, those who perceive themselves to be highly self-efficacious in the undertaking may feel little need to invest much preparatory effort in it. However, in applying skills already acquired, a strong belief in one’s self-efficaciousness intensifies and sustains the effort needed to realize difficult performances, which are hard to attain if one is doubt-ridden (Bandura, 1986, p. 394).

Bandura (1986) rightly argued that a student who has higher levels of self-efficacy is better prepared when challenges and obstacles arise. Within the present study’s context, this relates mostly to students who are required to enrol in the accounting course, with little or no motivation to do so. The only reason they are there is because they have to be. If a student is ‘doubt-ridden’ at the beginning of the course, this will influence his or her learning progress. Often people choose to focus on what they believe they are good at, but in this context, the students do not get a choice, they have to study accounting. “People tend to avoid tasks and situations they believe exceed their capabilities, but they undertake and perform assuredly activities they judge themselves capable of handling” (Bandura, 1986, p. 393). Further complicating the mandatory enrolment is that students often perceive accounting as mathematically challenging (Joyce et al., 2006) and that the experience of that first course of accounting study often influences a student’s career path (Geiger & Ogilby, 2000). Within this context, chapter four provides evidence that when the course is mandatory and misconceptions are present regarding the difficulty of the subject matter, self-efficacy beliefs become an important variable to consider. Self-efficacy beliefs are malleable, and as such,
educators have a unique opportunity to enact change (Bandura, 1997; Bloom, 1968; Burnett et al., 2010). Students have a greater chance of success if they have higher levels of self-efficacy. It is the responsibility of educators to explore options for positively influencing students’ self-efficacy beliefs when learning accounting.

7.1.2 Self-efficacy beliefs and enactive mastery feedback

The relationship between self-efficacy beliefs and enactive mastery feedback provides a tool for educators to effect change. Chapter five shows one of the many ways in which self-efficacy can be influenced when learning accounting. The usual investigation path of looking at the effects of self-efficacy was reversed. Instead of following the traditional approach, the chapter presented results from the effects of achievement upon self-efficacy. What was found was that the feedback provided by way of the students’ midterm result had an influence on the self-efficacy beliefs of accounting students. The midterm results can be conceptualised as a realistic operationalisation of Bandura’s (1987) notion of enactive mastery. All categories of self-efficacy beliefs—academic success, academic organisation, and help-seeking behaviour—changed as a result of the feedback given to varying degrees. Unsurprisingly, self-efficacy beliefs with regards to confidence in academic success was most affected by the feedback on enactive mastery. Both the level of self-efficacy beliefs in week three and the midterm result had a strong association with self-efficacy beliefs in week thirteen. The self-efficacy at week three had a slightly stronger beta than the midterm result (.495 to .362). Help-seeking and organisational self-efficacy beliefs were less affected by the enactive mastery; however, they still had significant results. ‘Help-seeking self-efficacy’ had a beta of .476 compared with .252 for the midterm (in the reduced regression) and ‘Organisation self-efficacy’ also showed a significant result in the reduced regression with a beta of .497 compared with .228 for the midterm result. This shows that by providing
feedback to students on mastery, a follow-on impact can occur in ways unimagined previously. It is not intuitive that the level of confidence that a student has regarding organisational skills would be impacted by receiving a midterm grade; however, the results show it does.

Another key aspect here is that students with low self-efficacy at the beginning of the course continued to have low self-efficacy results at the end of the course. The evidence shown in chapter five provides educators with information about how to reinforce self-efficacy beliefs, or to potentially enact a change in self-efficacy levels. Byrne et al. (2013) provided compelling evidence regarding the stress that university students feel as they learn and the implications of that stress. Some of that stress may be related to their own self-efficacy beliefs. The mindfulness needed from those designing courses is something to consider here. Self-efficacy has influence on a student’s chance of academic success. Educators need to consider this when designing assessments and giving feedback in their courses.

### 7.1.3 Sources of self-efficacy beliefs

Chapter six examined where the self-efficacy beliefs come from for accounting students. In general, the findings showed that the two most important sources of self-efficacy beliefs for this sample were verbal persuasion and enactive mastery. As previously stated, this is not surprising given that the students had received a midterm exam result back (allowing mastery experience to be influenced), and that the lecturer was very enthusiastic. The unique findings from this chapter, come from the analysis undertaken to investigate gender differences. The results show that males and females have differences in where the self-efficacy beliefs come from when learning accounting. Males report more influence from enactive mastery and the physiological/affective state, whereas females were influenced from
enactive mastery and verbal persuasion. Interestingly, Bandura (1986) cautioned against using verbal persuasion as a tool to affect change in self-efficacy beliefs, as it can very easily be misinterpreted by students. However, in this case, there was positive influence on the level of self-efficacy beliefs from verbal persuasion. The only source of self-efficacy that showed negative influences was that of the physiological and affective state, which is expected prior to an examination period.

7.2 The Relationship to the Literature

Bandura (1997) argued that self-efficacy beliefs are more powerful than actual ability. Much work has been done on self-efficacy and performance in varying contexts (Barling & Beattie, 1983; Pajares, 1996; Zimmerman et al., 2000) including some within accounting education (Byrne et al., 2014; Christensen et al., 2002; Stone et al, 1996; Ravenscroft et al., 2012). The present study adds to this literature by empirically investigating both prior learning and self-efficacy beliefs within the accounting education context. Despite the measure for prior learning being less robust, the findings add to the field by providing evidence that there is a relationship between self-efficacy beliefs and academic performance in accounting which holds more power than exposure to the subject matter at high school.

Non-cognitive variables in general impact learning (Lipnevich et al., 2013; Pascarella et al., 1986; Paunesku et al., 2015). Furthermore, there has been a call from prior work that we need to consider the obstacles which students face at university (Dweck, 2000; Tinto, 1987; 2006; 2012). To succeed, individuals need more than just cognitive processing; learning is far more complicated than that (Becker et al., 2010; Lleras, 2008). The present study builds from work done both within accounting education and beyond to establish empirically that within accounting education non-cognitive variables do indeed matter. The
recent growth in accounting education papers on non-cognitive variables speaks to the importance of this body of work.

Enactive mastery is a powerful source of self-efficacy beliefs (Bandura, 1986; Bandura et al., 1977; Feltz et al., 1979; Heuvel et al., 2015). As such, enactive mastery becomes a tool with which to effect change. Accounting education research shows that motivation can be affected by enactive mastery (Dull et al., 2015) and the present study builds from these findings. As shown in the previous chapters, enactive mastery impacts the self-efficacy beliefs of accounting students. In addition, the matrix presented in chapter five provides a framework for future work in this area. In the next section, the practical and theoretical implications of this thesis are presented.

7.3 Key Theoretical and Practical Implications

Chapter four provided evidence of the explanatory power of self-efficacy beliefs and supported Bandura’s (1986) claim about the influence of self-efficacy beliefs over and above actual ability within an accounting context. Chapter five showed the development of three factors/types of self-efficacy when learning accounting which builds from Byrne et al.’s (2014) work on self-efficacy in accounting education. These factors can be used in future research in this area. Furthermore, chapter five reversed the ‘normal’ direction of the model, thereby contributing to the theoretical development in this area. By using self-efficacy as the dependent variable and seeing what influenced the levels over the course of a semester, I was able to show the change in efficacy levels which were in part explained by the feedback on enactive mastery which was provided to the students. By using the sources of self-efficacy and the factors of self-efficacy together, the matrix provides a tool for future research to be done on interventions. The self-efficacy to performance relationship has been shown to hold in many contexts (Barling & Beattie, 1983; Bouffard-Bouchard et al., 1991; Kirsch, 1995).
The next step is to see how self-efficacy can be changed to better set up students for success in their learning.

Educators are tasked with teaching their discipline. From this research, accounting educators can be better informed of the power that self-efficacy holds within learning accounting. There are easy ways in which self-efficacy beliefs can be altered positively; the next step is to help accounting educators to perform interventions, thus setting up students for success. This will result in several positive effects for students. In the short term, they will be empowered to believe they can learn accounting and pass the course. In the long term, if self-efficacy is built up, this will result in long-term benefits for the students as they move into their professional careers. They will believe in their ability to learn new skills and to perform the ones required of them on the job (Bandura, 1986).

7.4 Limitations and Future Research

There is much work to do in this area. From the matrix presented in chapter five, opportunities to perform interventions on self-efficacy beliefs in learning accounting is the most obvious place to start. Chapter five focused on one column of this matrix. The other sources of self-efficacy that should also be investigated relate to organisation, help-seeking, and academic success. Educators could influence the self-efficacy beliefs of accounting students by positive encouragement (verbal persuasion), or by showing examples of other students who thought they would fail, and then were able to succeed (vicarious learning). The hardest column to investigate is the physiological state; however, this too could and arguably should be done. The physical reaction that students have in an examination will influence their self-efficacy with regards to the next examination they sit. Research needs to be done on this to see how this self-efficacy can be changed, by potentially reducing stress levels.
The sources are only one aspect of the matrix which offers future research. More work can be done on the rows as well as the columns. The rows represent the factors of self-efficacy: academic success, academic organisation, and academic help-seeking. This research has shown that all three factors hold significance with regards to performance, with academic success being the most powerful.

The non-experimental design of this thesis limits the ability to say with certainty that there is a casual relationship here between self-efficacy beliefs and academic performance in learning accounting. However, what has been presented is evidence that there is explanatory power within the model. Self-efficacy does correlate with academic performance, and while other factors may have also been influencing students over the course of their study, I have shown that self-efficacy beliefs have an important role in learning accounting.

The possibility that not all students were fully represented must also be acknowledged. Coupling this is the concern that student numbers from the week three survey were higher than in week thirteen. This drop in students present to complete the survey should be acknowledged as there may have been a non-response bias. The sample was limited to those who were present in the lecture on the day that it was administered. Although there were no significant demographic differences between the whole population and those that filled in the survey, this may have influenced the results as students who are less confident in general are more likely to not engage with the course (i.e. not show up to class). A further consideration is that the research has been undertaken by a member of the teaching team on the course; however, I have no reason to believe that that has had any influence on the findings, as no data was examined until after results were released (and all students were informed of this).
Finally, this study was conducted in one year, in one course, at one institution. One cannot necessarily assume that these results generalize to other first-year accounting courses, other institutions, or other cohorts of students. However, this work provides a solid base in which to explore if in fact the results do hold in these other contexts. Future research could explore these and many other areas.

To conclude, self-efficacy has an important role to play in accounting education. This thesis has supported Bandura’s (1986) claim that the level of self-efficacy beliefs does in fact matter more than someone’s ability. To conclude this thesis, consider the analogy used in chapter one. If the output we desire is for students to learn accounting, then we need to consider and investigate what they arrive at university with, how they experience the process, and what happens if they do not achieve the goal of ‘accounting knowledge’. The input and the process matter greatly to the end outcome. Therefore, we must consider all parts. Where our students come from matters, as does how we influence them while they are within our learning institution. Self-efficacy beliefs are malleable; we can influence how our students feel towards learning the discipline of accounting. To have the opportunity to enable and empower our students is a privilege. We need to see what interventions positively influence the self-efficacy beliefs of our students to set them up for academic success. Self-efficacy beliefs are a critical factor in a student’s chance of success in learning accounting.

“I think I can”
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OBS: http://www.otago.ac.nz/business/contact/departments/ date accessed, 27 March 2018


Otago quick stats, http://www.otago.ac.nz/about/quickstats.html date accessed, 27 March 2018


Appendix One: Information Sheet for Participants

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?

This project aims to understand the variation in academic performance of students in compulsory accountancy papers. We are interested in how prior confidence, motivation to be successful, and beliefs about learning may impact on student success. This study is part of a PhD project.

What Types of Participants are being sought?

This project is interested in business students enrolled in ACCT101 in 2016. All students enrolled will be invited to participate. There is no reward for participating and you are not obliged to participate.

What will Participants be asked to do?

Should you agree to take part in this project, you will be asked to fill in a survey that will take approximately 10-15 minutes. The survey will be administered within class time.

Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

What Data or Information will be collected and what use will be made of it?
You will be asked to complete the attached survey. Information will be kept in a secure filing cabinet. We will be matching your final grade for this paper to your data once the semester is completed.

All of the information will be collected by questionnaire survey that you complete during class time. While your ID number will be collected, no one participating in this project will be identified as an individual. By completing the survey, you are consenting to the information you provide being used in the project. We will be summarising all details into group results. Also, we will not be identifying any groups in any publications or public discussion of the results.

Please be assured of the confidential nature of this information. The questionnaires that you complete will be kept in locked secure cabinets, and will be destroyed after five years (according to University guidelines).

Information relating to your ID number will not be available to anyone other than the research team, all of whom are bound by confidentiality agreements.

The results of this project will be included in a series of academic articles available to the public. If you wish to know about the progress of the project ahead of publication, we will provide opportunities for this upon request.

**Can Participants change their mind and withdraw from the project?**

You may withdraw from participation in the project at any time without any disadvantage to yourself.

**What if Participants have any Questions?**

If you have any questions about our project, either now or in the future, please feel free to contact either:-

*Professor Jeffrey Smith*  
College of Education  
University Telephone Number: - 479 5467  
jeffrey.smith@otago.ac.nz

*Nicola Beatson*  
Department of Accountancy and Finance  
University Telephone Number: - 479 8321  
nicola.beatson@otago.ac.nz

*Dr David Berg*  
College of Education  
University Telephone Number: - 479 8808  
david.berg@otago.ac.nz

This study has been approved by the Department stated above. However, if you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
Appendix Two: Survey used in semester one

THE MIND SET AND SELF-EFFICACY OF FIRST-YEAR BUSINESS STUDENTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:
1. My participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage;
3. Personal identifying information [e.g. student ID numbers] will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;
4. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

Handing in a completed questionnaire will be seen as an indication of informed consent

1. Student ID number:______________________________

2. Age:__________________________________________

3. Gender (please circle):
   a) Male
   b) Female
   c) Trans*
   d) I prefer not to answer

4. Which ethnic group do you belong to (please circle):
   a) New Zealand European
   b) Māori
   c) Samoan
   d) Cook Island Māori
   e) Tongan
   f) Niuean
   g) Chinese
   h) Indian
   i) Other (please state) ________________________________

5. Is this paper required as part of your degree? (please circle) YES NO

6. What is your major__________________________________________________
7. Why have you chosen to take this paper? (circle all that apply)
   a. It is part of my degree requirements
   b. It looked like an interesting paper
   c. I was encouraged by family
   d. This subject is important for my future career
   e. Other (please explain)__________________________________

8. What background do you have in this subject? (circle all that apply)
   a. I have taken this paper before
   b. I have worked in this field before
   c. I have studied this subject at high school
   d. I have studied this subject at another tertiary institution
   e. None
   f. Other (please explain)___________________________________

9. Please show how much you agree or disagree with each statement by circling the appropriate number:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Mostly Disagree</th>
<th>Mostly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>You have a certain amount of intelligence and you can’t really do much to change it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>You are either good with numbers or you aren’t: a person’s ability to solve number problems is hard to improve</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Regardless of your current level of ability, you can significantly improve your written skills</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I’m interested in the content in this course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I’m eager to do anything I can in order to do well in this course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
10. Please circle the appropriate number for each question indicating how confident you are in your ability to:

<table>
<thead>
<tr>
<th>Task</th>
<th>1 not confident at all</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7 Completely confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask for help from my lecturers</td>
<td>1</td>
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<td>7</td>
</tr>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Draw up a study plan</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Find and write up additional notes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
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<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Understand the expectations to get good marks in my exams</td>
<td>1</td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Pass this course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Respond to questions asked in tutorials</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Ask questions in tutorials</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Make sense of theoretical aspects of the course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Get the grade/mark that I want in this course</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Answer a word problem that describes an accounting situation</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Answer a calculation/numeric style question</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Study effectively on my own</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Follow and make sense of material covered in lectures</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Make sense of material I read in textbooks</td>
<td>1</td>
<td>2</td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Answer a question that involves discussing my response</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
11. Directions: Please read the following aspects of being a good accounting student and provide three self-assessments on them.

First, give a number between 1 = ‘very poor’ and 10 = ‘excellent’ for where you think you are TODAY. Do all eight of those first. Then go back and give a number between 1 = ‘very poor’ and 10 = ‘excellent’ for where you WANT to be when you have completed BSNS107. Then, finally, give a number between 1 = ‘very poor’ and 10 = ‘excellent’ for where you EXPECT to be when you complete BSNS107. An example is presented in bold. This person thinks she is fairly low now, wants to be near excellent, and expects to be very good.

<table>
<thead>
<tr>
<th>Example: Know how to use accounting standards</th>
<th>TODAY (how good are you at this today)</th>
<th>WANT (how good do you want to be when you complete BSNS107)</th>
<th>EXPECT (how good do you expect to be when you complete BSNS107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read and understand financial statements</td>
<td>2</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Read and understand annual reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand the purpose of financial statements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know how financial statements are prepared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare a budget</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand how much a product costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make decisions in business from cost information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand ethics within a business context</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you for taking the time to complete this survey.
Appendix Three: Survey used in semester two

THE MIND SET AND SELF-EFFICACY OF FIRST-YEAR BUSINESS STUDENTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.
I know that:
1. My participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage;
3. Personal identifying information [e.g. student ID numbers] will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;
4. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

Handing in a completed questionnaire will be seen as an indication of informed consent

1. Student ID number:________________________________________

2. Age:______________________________________________________

3. Gender __________________________________________________

4. Which ethnic group do you belong to (please circle):
   j) New Zealand European
   k) Māori
   l) Samoan
   m) Cook Island Māori
   n) Tongan
   o) Niuean
   p) Chinese
   q) Indian
   r) Other (please state)_______________________________________

5. Is this paper required as part of your degree? (please circle)       YES    NO

6. What is your major________________________________________

7. Why have you chosen to take this paper? (circle all that apply)
   a. It is part of my degree requirements
   b. It looked like an interesting paper
   c. I was encouraged by family
   d. This subject is important for my future career
   e. Other (please explain)________________________________________
8. What background do you have in this subject? (circle all that apply)
   a. I have taken this paper before
   b. I have worked in this field before
   c. I have studied this subject at high school
   d. I have studied this subject at another tertiary institution
   e. None
   f. Other (please explain) __________________________________________

9. The following items are designed to measure attitudes people have toward themselves, their performance and towards others. There are no right or wrong answers. We truly appreciate you sharing your ideas. Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree Mostly</th>
<th>Neutral Mostly</th>
<th>Disagree Mostly</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

You have a certain amount of intelligence and you cannot really do much to change it.

Your intelligence is something about you that you cannot change very much.

No matter who you are, you can significantly change your intelligence level.

To be honest, you cannot really change how intelligent you are.

You can always substantially change how intelligent you are.

You can learn new things, but you cannot really change your basic intelligence.

No matter how much intelligence you have, you can always change it quite a bit.

You can change even your basic intelligence level considerably.

You are either good with numbers or you aren’t: a person’s ability to solve number problems is hard to improve.

Regardless of your current level of ability, you can significantly improve your written skills.

I’m interested in the content in this course.

I’m eager to do anything I can in order to do well in this course.
10. Please circle the appropriate number for each question indicating how confident you are in your ability to:

<table>
<thead>
<tr>
<th>Activity</th>
<th>1 not confident at all</th>
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</tr>
<tr>
<td>Pass this course</td>
<td>1</td>
<td>2</td>
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<td>Study effectively on my own</td>
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<td>7</td>
</tr>
<tr>
<td>Follow and make sense of material covered in lectures</td>
<td>1</td>
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<td>7</td>
</tr>
</tbody>
</table>
11. Think about your confidence in your ability to do well in this course. By this we mean doing the things you need to do to get the grade you want in this course. This might include getting organized, asking for help when needed, staying on top of your work, etc. How confident are you in your ability to succeed in this course? Please tick where appropriate.

Not at all confident    Neutral    Highly confident

Now please think about why you have that level of confidence? What are the sources of your confidence? Please rate each of the following possible sources.

a) Persuasion from others. By this we mean people who have persuaded you that you could do well or caused you to doubt your abilities (teachers, friends, family members, others). Please rate this influence:

Negative influence    Neutral    Positive influence

b) Previous experience. By this we mean your past efforts in learning situations that you see as similar to this one. That would be courses you’ve done well in, or courses where you have struggled. Please rate this influence:

Negative influence    Neutral    Positive influence

c) The success or failure of others. By this we mean people whom you see as similar to you who have succeeded or failed in this course or in similar contexts. Please rate this influence:

Negative influence    Neutral    Positive influence

d) Physical/emotional state. By this we mean how your physical or emotional state influences your ability to do well when trying to learn this material or show your learning in a course (as on a test). This could be feeling too anxious to do well on a test or getting “psyched” to do your best. Please rate this influence:

Negative influence    Neutral    Positive influence

Thank you for taking the time to complete this survey.
Appendix Four: Message to all students enrolled in ACCT101 in semester two 2016, identifiers removed.

Hi everyone,
As most of you know, in addition to teaching ACCT101, I am currently doing my PhD. My topic is looking at why some students fail ACCT101.
So, I have a favour to ask of you all.
If you have failed ACCT101 (or if you feel at risk of failing), then would you please write me a one page summary of ‘why I failed’
I really want to find out why students fail this course, so I can help you all to succeed.
If you want, you can email it directly to me (just reply to this email), or if you want it to be anonymous, that’s fine, I have a mailbox on the 5th floor of commerce, come out of the lifts, turn left, go through the double doors and you will see blue boxes: number 24 has my name on it.
I really appreciate it, see you all tomorrow in the lecture, enjoy the sunshine!
Many thanks in advance, XX
Appendix Five: emails from editors granting permission for inclusion in the thesis.

Chapter Four: Editor from Accounting and Finance Professor Tom Smith.

Hi Nicola

Yes, I grant permission. Good luck with the thesis submission :)

Kind regards,

tom

-----Original Message-----
From: Nicola Beatson [mailto:nicola.beatson@otago.ac.nz]
Sent: Monday, 27 August 2018 9:19 AM
To: Tom Smith <t.smith@business.uq.edu.au>
Subject: RE: Accounting and Finance - Decision on Manuscript ACFI-2017-083.R2
[background: DL-RW-2-a]

Dear Tom,

Thank you for this opportunity to revise and resubmit.

This paper in a revised form is also included as a chapter in my PhD thesis. I am planning on submitting the thesis within the next week or so. Would you grant your permission as editor for the chapter to remain as part of my thesis if I am successful in the publishing process?

I appreciate your consideration.

Kindeest regards

Nicola

Nicola Beatson
Department of Accounting and Finance, Room 3.32, Otago Business School, Te Kura Pakihi, University of Otago Te Whare Wananga o Otago, PO Box 56, Dunedin, New Zealand.
Phone: +64 3 479 8321
Instagram: nicolajbeatson; twitter:@NicolaJBeatson; Blog:
http://www.talkingaccounting.com/ Co-Director and Co-Founder of SERGE:
www.otago.ac.nz/serge
Chapter Five: Editor from Studies in Educational Evaluation Dr. Peter Van Petegem

On Fri, May 4, 2018 at 9:03 PM, Van Petegem Peter <peter.vanpetegem@uantwerpen.be> wrote:
Dear Jeff,
With this permission is granted by the publisher!
Good luck with your work (and that of your doctoral student).
Kind regards
Peter
Van: "l.ashby@elsevier.com" <l.ashby@elsevier.com>
Datum: vrijdag 4 mei 2018 om 09:56
Aan: Van Petegem Peter <peter.vanpetegem@uantwerpen.be>
Onderwerp: RE: Request on article
That’s totally fine – it’s a standard part of the agreement they signed on publication.
Thanks
Lauren
Lauren Ashby
Publisher, Education and History & Philosophy of Science
ELSEVIER | STM Journals
Phone: +44 (0) 207 424 4649
Email: l.ashby@elsevier.com
125 London Wall, London, EC2Y 5AS
From: Van Petegem Peter [mailto:peter.vanpetegem@uantwerpen.be]
Sent: 04 May 2018 07:22
To: Ashby, Lauren (ELS-LOW) <l.ashby@elsevier.com>
Subject: FW: Request on article
Dear Lauren,
Can I have your advise on this?
Kind regards
Peter
Van: Jeffrey Smith <jeffreyksmith@gmail.com>
Datum: donderdag 3 mei 2018 om 23:06
Aan: Van Petegem Peter <peter.vanpetegem@uantwerpen.be>
Onderwerp: Re: Request on article
Hi Peter,
If you could do that, it would be great. Yes, we would do this in just the way you do it!
Best,
Jeff

159
Dear Jef,

Thanks for your email.

For me it’s ok to include the article in the thesis, but you will have to ask that question to the publisher as well, given certain legal aspects I might not be aware of. If you want I can ask it on your behalf.

A common practice in case of article based PhD’s, at least in the Netherlands and Belgium, is that we include the particular article (not a copy with the journal lay-out, but with an ordinary lay-out) with the message that ‘the chapter is based on …’

Let me know if I can contact the publisher.

Kind regards

Peter

---

Van: Jeffrey Smith <jeffreyksmith@gmail.com>
Datum: donderdag 3 mei 2018 om 10:42
Aan: Van Petegem Peter <peter.vanpetegem@uantwerpen.be>
Onderwerp: Request on article

Hi Peter,

My student, Nicola Beatson, who is the first author on the paper we recently published in JSEE would like to use the paper as part of her PhD thesis. Using multiple published papers together in a thesis is one route to the PhD down here. She would like to request permission to include the article in her thesis (with proper citation of course).

If this is permissible, could you please send me an email to that effect?

Hope all is well with you and yours.

Best,

Jeff

--

Professor Jeffrey Smith
Associate Dean, University Research Performance
University of Otago
College of Education
+ 643 479 5467
Chapter Six: Editor from Heliyon Dr Paige Shaklee

Hi Nicola, yes. Absolutely, this is no problem. Also, because all papers published in Heliyon are fully open access and the authors retain the license you’re welcome to reuse and redisseminate in all/any forms you would like after publication.

Best wishes,

Paige

From: nicola.beatson@otago.ac.nz
Sent: Thursday, April 11, 2019 6:03 PM
To: Shaklee, Paige (ELS-CMA)
Subject: Enquiry: Paper submission HELIYON_2019_2442

The following enquiry was sent via the Elsevier Journal website:

-- Sender --
First Name: Nicola
Last Name: Beatson
Email: nicola.beatson@otago.ac.nz

-- Message --
Dear Dr. Shaklee,
I have a paper under consideration with Heliyon (HELIYON_2019_2442) that is based on one of the chapters in my PhD thesis. It is one of four papers (two are already published) which are included in my dissertation. I have permission from the other three editors to include the paper (either under consideration, or already published) in my thesis. If my paper that is currently under review with Heliyon is successful in gaining publication, do I have your permission for it to be included as part of my PhD thesis?
I appreciate you taking the time to consider my request.
Kindest regards
Nicola

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This email was sent to you by Nicola Beatson (nicola.beatson@otago.ac.nz) via the Elsevier Journal Editor contact form at https://www.journals.elsevier.com:443/heliyon/editorial-board/paige-shaklee

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