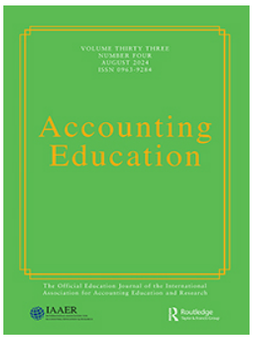

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ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/raed20

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**To cite this article:** Nicolas Choo, Peter Fieger, Paul Wells & Katie Tseng (25 Sep 2024): The influence of prior knowledge on the self-efficacy of students enrolled in a tertiary introductory accounting course, Accounting Education, DOI: 10.1080/09639284.2024.2405603

**To link to this article:** https://doi.org/10.1080/09639284.2024.2405603



Published online: 25 Sep 2024.

ACCOUNTING EDUCATION
https://doi.org/10.1080/09639284.2024.2405603

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# The influence of prior knowledge on the self-efficacy of students enrolled in a tertiary introductory accounting course

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**ABSTRACT**

Given that self-efficacy has been found to influence the achievement of learning outcomes, this study examines the influence of prior knowledge on the self-efficacy levels of students enrolled in a tertiary level introductory accounting course. The self-efficacy levels of 272 students, captured through an in-class survey, were compared by gender, age, prior knowledge and work experience. The results suggest there was no significant difference in self-efficacy levels between students who had previously studied accounting at secondary school and those who had not. This research makes a theoretical contribution by confirming that prior knowledge does not necessarily influence an individual's level of self-efficacy when there are few similarities between the prior knowledge gained and the current course being studied. In addition, there is a practical contribution which suggests that students who have not studied accounting at secondary school should not be discouraged from studying accounting at tertiary level.

**ARTICLE HISTORY**
Received 27 October 2022
Revised 21 August 2024
Accepted 6 September 2024

**KEYWORDS**
Prior knowledge; self-efficacy; tertiary level study; introductory accounting course

## Introduction

Self-efficacy is defined by Bandura (1977) as the individual's belief that they can accomplish a particular task. Bandura (1977) claimed that a person's self-efficacy affects how they react in a given situation, and that stronger self-efficacy beliefs would motivate the individual to attain better academic performance. Research has found links between self-efficacy and student success in accounting education (Beatson et al., 2020; Cheng & Chiou, 2010; Dull et al., 2015; Viviers et al., 2023). Studies in other disciplines have shown a link between prior knowledge and self-efficacy (Lindstrøm & Sharma, 2011). The purpose of this research is to investigate the effects of prior knowledge, gained through the study of accounting at secondary school, on the self-efficacy levels of students enrolled in an introductory tertiary accounting course at a university in New Zealand.

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In New Zealand there have been calls to improve 'the performance and value for money of the tertiary education system' (Ministry of Education, 2014, p. 5). These calls follow recommendations in the academic literature to investigate strategies that could help us understand student learning issues and improve the achievement of learning outcomes for accounting students (Booth et al., 1999; Byrne et al., 2014; Duff, 2004).

This study measures the students' perceived self-efficacy by adapting the New General Self-Efficacy Scale (NGSE) developed by Chen et al. (2001) and compares the scores of those who have studied accounting at secondary school with those who have not. It was found that unlike studies in other disciplines (Hutchison et al., 2006; Lindstrøm & Sharma, 2011), there was no significant difference in the self-efficacy levels of the two groups of students. This study provides an explanation for this inconsistency between disciplines.

Research undertaken by Tan and Laswad (2008) and Koh and Koh (1999) has demonstrated that prior knowledge has a positive effect on student learning outcomes, but little is understood about why this occurs. More recent research undertaken by Cheng and Chiou (2010) and Beatson et al. (2020) has found links between self-efficacy and student success in accounting education. As both self-efficacy (Beatson et al., 2020) and prior knowledge (Tan & Laswad, 2008) can positively affect a student's academic performance, it is possible that prior knowledge could influence an individual's self-efficacy which in turn can influence academic performance (Thompson & Zamboanga, 2004; Yenilmez et al., 2006). While it is desirable to develop strategies which help students to perform better academically, an equally important challenge is to understand why certain groups are performing better than others. Given the relationship between self-efficacy and the achievement of student learning outcomes, further analysis of the sources of self-efficacy may assist in the development of strategies to improve student learning outcomes.

## Contribution

This study contributes to previous research first by confirming that prior knowledge (PK) may not necessarily contribute to higher levels of self-efficacy and second by providing an explanation as to why this study's findings differ from those of prior research in other disciplines. This study focuses on the influence of environmental factors on self-efficacy, in this case curricula differences. These curricula differences are used to provide a possible explanation for an inconsistency in the findings of Ineson et al. (2013). The findings also provide insights for student advisors, accounting educators and students who may have previously believed that students who do not have prior knowledge in accounting gained at secondary school would be disadvantaged in the completion of a tertiary level introductory accounting course.

The next section describes the background to this study, the prior literature relevant to this research, and the theoretical lens of social cognitive theory (Bandura, 1986) which is used to frame the study. This is followed by a description of the research design and data analysis methods used. The empirical findings are then reported, followed by a discussion of these findings and concluding commentary.

## Background

### The New Zealand scene

In New Zealand (NZ), students complete 13 years of schooling before proceeding to university level study. The last five years of study are usually undertaken at a secondary school and students successfully completing Year 13 gain University Entrance. Accounting is currently available as a separate subject at Years 11, 12 and 13 in many secondary schools. Completion of accounting at secondary school is not a pre-requisite for enrolling in the first accounting course which is usually studied by students in their first year of study at NZ universities.

There have been calls by the Accounting Education Change Commission (1990) and The Pathways Commission (2012) to update the accounting syllabi in tertiary level introductory accounting courses, and these have been heeded at all NZ universities. These suggested changes to the syllabi include an increased focus on teaching students about the application of accounting knowledge in the current business environment, and how financial information organised through accounting would influence decision-making in the organisation (Accounting Education Change Commission, 1990). While the first accounting course which is undertaken by all business students at each university in NZ is taught with this user focus, it is not necessarily the case in other jurisdictions. Despite the changes being implemented in the tertiary education sector in NZ, there has been minimal change to the focus of the secondary school accounting syllabi in the past 40 years (Wells, 2010). The secondary school curriculum has retained a focus on bookkeeping skills such as recording and processing transactions using the double-entry system and the preparation of accounting reports.

### Theoretical framework

Social cognitive theory can be used to explain the determinants and mechanisms behind an investigated phenomenon in different research contexts including the effects of contextual factors on student learning outcomes. Central to social cognitive theory is the concept of Triadic Reciprocal Determinism, which is used to explain human functioning (Bandura, 1986). Triadic Reciprocal Determinism refers to the multidirectional effects that a person's behavioural, personal and environmental factors have on each other (Bandura, 1986) as illustrated in Figure 1. Bandura (1986) found that the interactions between a person's behavioural, personal and environmental factors are not always equal although they might be bidirectional.

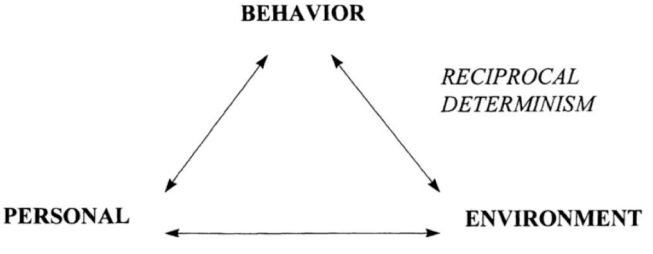


**Figure 1.** Triadic reciprocal determinism proposed by Bandura (1986).

Environmental factors relate to the physical and social environments in which behaviours occur (Bandura, 1997; Dirette, 2010). Personal factors are thoughts, emotions, physical characteristics or biological properties of a person which are unique to the individual (Bandura, 1999; Dirette, 2010; Lent et al., 1994; Love, 2016). Behavioural factors are those that relate to actions carried out by the individual (Dirette, 2010; Lent et al., 1994).

Bandura (1997) found that humans try to exercise control over the events that occur in their lives through behaviours that are perceived to benefit them, after considering personal and environmental factors surrounding the individual. This finding supports a subsequent claim that humans are products of their environments and that they also have an influence on the environment they live in (Bandura, 2001).

One personal factor that has attracted the attention of researchers due to its links with improved academic achievement is self-efficacy (Chemers et al., 2001; Zajacova et al., 2005). It is one of the most widely researched personal factors (Usher & Pajares, 2009). A person's self-efficacy can be derived from vicarious experiences, verbal persuasion, physiological states, and performance accomplishments (Bandura, 1977). Each of these sources contributes differently to the individual's self-efficacy beliefs (Bandura, 1986), and a person's self-efficacy could be influenced by a combination of these different sources (Bandura, 1977). Bandura (1977) further claims that of these factors, performance accomplishments are one of the strongest sources of self-efficacy. Bandura (1977, p. 195, 211) also used the terms 'performance accomplishments', 'mastery experiences' and 'enactive mastery' throughout his study. These terms could be used interchangeably, with recent research using the term 'enactive mastery experiences' (Beatson et al., 2018, p. 59).

In the case of vicarious experiences, people learn by observing others perform a task, and this is one of the basic human capabilities in social cognitive theory. However, Bandura (1986) claimed that vicarious experiences are a weaker source of a person's self-efficacy as they are dependent on the individual comparing themselves with others around them to gauge their performance. When there are other more direct sources of self-efficacy (e.g. performance accomplishments), these direct sources of self-efficacy will play a more significant role in influencing a student's self-efficacy (Lent et al., 1991). These researchers further claimed that vicarious sources of self-efficacy are not as strong as performance accomplishments, as the participants in their study were more likely to have had direct knowledge of their maths skills through performance accomplishments and would rely less on efficacy information obtained from observing others.

Another source of self-efficacy is verbal persuasion where individuals could be led to believe that they possess the ability to perform a task in response to suggestions by others. Like vicarious experiences, verbal persuasions are weaker than performance accomplishments as a source of self-efficacy because 'they do not provide an authentic experiential base' (Bandura, 1977, p. 198).

Stressful or taxing situations can also impact a person's self-efficacy (Bandura, 1986). If a person is feeling tense when thinking about facing a stressful situation, their physiological state will make them feel inadequate when judging their capabilities to accomplish a particular task (Bandura, 1977).

Performance accomplishments are one of the strongest sources of self-efficacy and have been researched in other fields such as mathematics (Hailikari et al., 2008; Usher & Pajares, 2009), music (de Vries, 2017; Zelenak, 2015) and engineering (Hutchison et al., 2006). Interestingly, Ineson et al. (2013) found only a partial similarity in the

results among hospitality students taking a business course (Hotel Operations Tactics and Strategy) when examining the effect of prior knowledge on the respondents' self-efficacy. These results suggest that prior education has a positive effect on a student's self-efficacy. These findings suggest that enactive prior knowledge may be a primary source of self-efficacy that deserves the attention of future research in other domains where such relationships have not been established.

## Prior research

Prior research in accounting education has linked different factors such as goal setting (Cheng & Chiou, 2010), prior results (Beatson et al., 2020; Cheng & Chiou, 2010), and mastery feedback (Beatson et al., 2018) to the self-efficacy of accounting students. However, there are no studies that have investigated the effect of prior knowledge gained from the study of accounting at secondary school on a student's self-efficacy in an introductory tertiary accounting course. Since self-efficacy can positively impact a student's academic performance (Cheng & Chiou, 2010), prior accounting knowledge could indirectly have an effect on a student's academic performance if it can influence the individual's self-efficacy. In Ireland, Byrne et al. (2014) found that accounting students who were willing to seek help in their studies displayed higher levels of self-efficacy. These researchers suggested that all students should be provided with a supportive environment that encourages them to seek help in their studies. As a consequence, this could increase their self-efficacy levels and motivate them to achieve better grades at university (Byrne et al., 2014). However, such suggestions are not practicable if there is a lack of understanding of the demographics which could be contributing to lower levels of self-efficacy and thus need more academic support in an introductory tertiary accounting course.

The connection between prior knowledge and self-efficacy has been established in other university-level courses such as physics (Lindstrøm & Sharma, 2011) and engineering (Hutchison et al., 2006), and it was found that prior knowledge could lead to higher levels of self-efficacy. These links suggest that enactive prior knowledge may be a primary source of self-efficacy that deserves the attention of future research in other domains. These findings should not be generalised to other disciplines or levels of education as the way people perceive information that could influence their self-efficacy in a particular discipline is non-linear (Usher & Pajares, 2009).

Adapting the work of Ineson et al. (2013), this investigation seeks to determine whether prior knowledge gained from the study of accounting at secondary school would have a positive effect on a student's self-efficacy levels when they undertake an introductory tertiary accounting course. The following hypothesis is intended to evaluate this research question.

> H1: Studying accounting as a subject at secondary school has a positive effect on a student's self-efficacy.

As work experience is also a source of prior knowledge (Bandura, 1977), we tested for an interaction between studying accounting in secondary school and work experience.

> H1a: Studying accounting as a subject at secondary school combined with work experience in accounting has a more pronounced effect on a student's self-efficacy than either studying accounting at secondary school level or work experience on its own.

Prior research has also found that differing levels of education can influence an individual's self-efficacy (Loreman et al., 2013), this study also investigates the effects of different forms of prior knowledge on the self-efficacy of the respondents. These forms of prior knowledge are the highest level of accounting studied at secondary school and the accounting syllabus taken at secondary school. In the New Zealand context, Keef and Hooper (1991) found that studying the highest level of an accounting syllabus at secondary school had a statistically significant effect on a student's performance in an introductory tertiary accounting course at university. They attributed this result to the similarities between the material taught at the highest level of accounting studied at secondary school and the syllabus covered in the introductory tertiary accounting course at university. The findings of Keef and Hooper (1991) contradicted another prior study involving New Zealand students, where Keef (1988) found that different levels of accounting study at secondary school did not have any statistically significant effect on a student's performance in an introductory tertiary accounting course.

The following hypothesis evaluates whether taking the highest level of any accounting syllabus has a positive effect on a student's self-efficacy in an introductory tertiary accounting course.

> H2: Studying the highest level of any accounting syllabus at secondary school has a positive effect on a student's self-efficacy.

As work experience is an alternative form of prior knowledge, we tested for an interaction between studying accounting at the highest level (Loreman et al., 2013) of any accounting syllabus at secondary school and work experience in accounting.

> H2a: Studying accounting at the highest level of any accounting syllabus combined with work experience in accounting has a more pronounced effect on self-efficacy than either of the two individually.

Although prior knowledge in accounting had an effect on the academic performance of accounting students, there were several inconsistencies between the findings of Gul and Fong (1993), and Koh and Koh (1999). The inconsistent findings on the effect of prior accounting knowledge on academic performance in an accounting course could be due to the different secondary school accounting syllabi (Koh & Koh, 1999). Different types of accounting syllabi might focus on different aspects of the subject or be taught using a different pedagogy, for example, the subject taught in a modular format for the National Certificate of Educational Achievement (NCEA) or in a continuous format for Cambridge (A-Levels) or the International Baccalaureate Examinations (IB). These are the three most common secondary school accounting syllabi in New Zealand. Hence, each accounting syllabus could have a particular effect on a student's self-efficacy in an introductory tertiary accounting course. This inference leads to the hypotheses below.

> H3a: Students who studied NCEA at secondary school have higher self-efficacy than those who did not study accounting at secondary school.

> H3b: Students who studied Cambridge (A-Levels) at secondary school have higher self-efficacy than those who did not study accounting at secondary school.

> H3c: Students who studied other accounting syllabi at secondary school have higher self-efficacy than those who did not study accounting at secondary school.

As Koh and Koh (1999) attributed syllabi differences in the prior knowledge gained to academic performance, we tested for an interaction between secondary school accounting syllabi and self-efficacy.

These hypotheses are summarised in Figure 2.

## Method

### *Data selection*

This research was undertaken with ethics approval at a New Zealand university. To improve the unbiased and representativeness of the sampling frame, the following issues were considered. First, the research population was defined as all students who enrolled in the core introductory accounting course for all Bachelor of Business students. This course was selected to prevent the students' self-efficacy from being influenced by other university-level accounting courses. Second, the sample was collected through a paper-based questionnaire surveyed during lecture time in week four of the twelve-week semester. Week four was chosen to avoid the potential disruption resulting from the changes in timetable and student enrolments in the first three weeks of the semester. Third, to maximise the response rate, a chocolate fish was offered to each of students who returned a completed questionnaire; this small incentive was unlikely to influence the students' responses (Mizes et al., 1984). Lastly, the questionnaire was conducted anonymously and voluntarily to avoid any bias in participants' responses due to potential concerns as to whether their participation would affect academic performance.

The course selected for this study was the first course in accounting which is the core course taken by all students taking the business degree regardless of whether or not they intend to major in accounting.

| | |
|---|---|
| **H1** | **Studying accounting as a subject at secondary school has a positive effect on a student's self-efficacy.** |
| **H1a** | **Studying accounting as a subject at secondary school combined with work experience in accounting has a more pronounced effect on a student's self-efficacy than studying accounting at secondary school level or work experience on its own.** |
| **H2** | **Studying the highest level of any accounting syllabus at secondary school has a positive effect on a student's self-efficacy.** |
| **H2a:** | **Studying accounting at the highest level of any accounting syllabus combined with work experience in accounting has a more pronounced effect on self-efficacy than either of the two individually.** |
| **H3a** | **Students who studied NCEA at secondary school have higher self-efficacy than those who did not study accounting at secondary school.** |
| **H3b** | **Students who studied Cambridge (A-Levels) at secondary school have higher self-efficacy than those who did not study accounting at secondary school.** |
| **H3c** | **Students who studied other accounting syllabi at secondary school have higher self-efficacy than those who did not study accounting at secondary school.** |

**Figure 2.** Hypotheses 1–3.

**Table 1.** Sample selection process.

| | *N* |
|---|---|
| Total student enrolment in the introductory tertiary accounting course | 919 |
| Questionnaires distributed during lecture times | 574 |
| Questionnaires received | 366 |
| Less: questionnaires with missing data | 91 |
| Less: questionnaires of students listing their gender as 'other' | 3 |
| Questionnaires used in this research (final sample) | 272 |

Table 1 shows the sample selection process for this research. There were 574 copies of the questionnaire distributed among the 919 students who enrolled in the introductory tertiary accounting course during semester one of 2019. There were 366 completed questionnaires returned, representing a response rate of 40%. Following this, 91 cases with missing data were excluded. While the statistical power of the sample would be reduced, list-wise deletion was an acceptable method to manage missing data in this instance as the missing data was missing completely at random (Acock, 2005), as demonstrated by the untabulated results of Little's MCAR test, $X^2 = 38.878$, $df = 41$, $p = 0.565$. Finally, three cases of specifying other as gender were deleted due to variance inflation, caused by multicollinearity, which resulted in 272 effective cases of questionnaires as the final sample for tests.

## *Instrument*

As stated, the questionnaires were distributed and administered during lecture time. On average it required approximately five minutes to complete under the supervision by the course leader.[1] The questionnaire comprised two parts. Part A covered basic demographic information such as the student's gender, age, and primary ethnicity. It also surveyed more specific questions on: (a) the student's background in learning accounting (i.e. whether they had studied accounting as a subject at secondary school, and, the highest level and types of accounting syllabus thereof); (b) whether the students had enrolled in (but eventually failed or withdrawn from) the introductory tertiary accounting course before; (c) whether the student had paid or unpaid work experience in accounting field before. Overall, Part A collected students' academic and work experiences, which contribute to their efficacy belief (Bandura, 1997; Cunnien et al., 2009; Lane et al., 2002).

Part B measured the students' perceived self-efficacy by adapting the New General Self-Efficacy scale (NGSE) developed by Chen et al. (2001), which is an alternative to the 17-item General Self-Efficacy scale (GSE) by Sherer et al. (1982). The 8-item NGSE scale has higher construct validity and reliability when compared to the GSE scale and has been commonly used in self-efficacy studies such as Ineson et al. (2013), Judd et al. (2006), and Ng and Earl (2008). Also, the single-dimension of the NGSE scale makes it easier to interpret (Chen et al., 2001) and therefore the NGSE scale is considered appropriate as it minimises any disruption when being conducted in a class environment. The participants reported self-efficacy through a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. A lower score indicates perceived lower self-efficacy levels, while a higher score indicates otherwise. More details of the questionnaire are provided in Appendix A.

### Participants

As shown in Table 2, the demographic information of the sample was summarised according to age and gender. The majority of respondents were aged 18–19 years old (55%) while older students (30 years old and over) were the minority (3%). This distribution is similar to that reported by Beatson et al. (2020), who also used the New Zealand context involving students enrolled in an introductory tertiary accounting course. They reported that a majority of participants were between 18 and 19 years old (67%) and would have been school leavers, while the oldest group of students (23 year and over) barely made up 4% of the sample in semester one and similar results were reported in semester two.[2] In terms of gender, the respondents were 48% male and 52% female students. The last two columns in Table 2 show whether respondents have accounting work experience or if they were repeating the course. For 96% of the students, this was their first attempt at studying the introductory tertiary accounting course and only 4% of the respondents were repeating students. It is noted that the same course offered in the second semester often has a higher level of repeating students.

Some of the students (15%) involved in this research had previously worked in an accounting role.[3] Beatson et al. (2020) had a sample where 10% of all respondents were repeating students and 2% of all respondents had prior work experience across the two semesters when their research was undertaken. Compared to Beatson et al. (2020), who used identical descriptors of what counts as work experience and who were repeating students, this research had a lower percentage of repeating students but a higher percentage of students who had prior work experience. The reason for the low number of repeating students in this study is that the study was undertaken in the first semester while most of the repeating students re-take the course in the second semester. In order to validate the representativeness of our sample, we undertook a chi-square test with regard to gender and age group distributions across enrolled student population and sample. In both cases we found no statistically significant difference between population and sample (gender: $p = 0.375$; age groups: $p = 0.39$).

**Table 2.** Frequencies and cross tabulation of age, gender, work experience, and repeating students.

| Age groups | Gender | Total *n* | % of age groups subtotals based on the total sample size | Work experience | | Repeating students | |
|---|---|---|---|---|---|---|---|
| | | | | No (*n*) | Yes (*n*) | No (*n*) | Yes (*n*) |
| 17 or younger | Male | 5 | | 3 | 2 | 5 | 0 |
| | Female | 7 | | 5 | 2 | 7 | 0 |
| | Total | 12 | 4% | | | | |
| 18–19 | Male | 71 | | 60 | 11 | 68 | 3 |
| | Female | 79 | | 71 | 8 | 77 | 2 |
| | Total | 150 | 55% | | | | |
| 20–24 | Male | 41 | | 34 | 7 | 38 | 3 |
| | Female | 41 | | 32 | 9 | 39 | 2 |
| | Total | 82 | 30% | | | | |
| 25–29 | Male | 11 | | 11 | 0 | 11 | 0 |
| | Female | 9 | | 8 | 1 | 9 | 0 |
| | Total | 20 | 7% | | | | |
| 30 or older | Male | 2 | | 2 | 0 | 2 | 0 |
| | Female | 6 | | 6 | 0 | 6 | 0 |
| | Total | 8 | 3% | 85% | 15% | 96% | 4% |
| Total sample size | | 272 | 100% | 232 | 40 | 262 | 10 |

**Table 3.** Prior study at secondary school.

| | No | % |
|---|---|---|
| NCEA | 95 | 34.9% |
| Cambridge | 7 | 2.6% |
| IB | 0 | 0.0% |
| Other | 11 | 4.0% |
| Not studied | 159 | 58.5% |
| Total | 272 | 100.0% |

**Table 4.** Highest level of study at secondary school.

| Highest level | No. | % |
|---|---|---|
| L1 | 17 | 15.0 |
| L2 | 8 | 7.1 |
| L3 | 77 | 68.1 |
| | 102 | 90.3 |
| Not stated | 11 | 9.7 |
| Total | 113 | 100.0 |

Table 3 reports on the breakdown of enrolments in different secondary school accounting syllabi. It should be noted that 41.5% of participants had undertaken accounting study at secondary school with the most popular curriculum being NCEA.

Table 4 reports on the breakdown of the highest level of accounting study completed by the participants. Over two thirds of participants who had studied accounting at secondary school, had completed accounting at Year 13.

## Research model

To test the hypotheses, several regression analyses were employed to investigate the effect of prior knowledge gained from the study of accounting in secondary school on the self-efficacy of students enrolled in an introductory tertiary accounting course (*SE*).[4] Each of the regression analyses used one of three proxies for prior knowledge gained from the study of accounting in secondary school when testing the hypotheses in this research. These proxies were (1) the presence or absence of prior knowledge gained from the study of accounting at secondary school (*PK*), (2) the highest level of any accounting syllabi studied at secondary school (*HL*) and (3) the type of accounting syllabi studied at secondary school (*AS*). The regression models used to test the hypotheses in the research were as follows:

$$SE = \beta_0 + \beta_1 PK + \beta_2 AGE + \beta_3 ETHNICITY + \beta_4 GENDER + \beta_5 REPEATINGSTUDENTS + e \quad (1)$$

$$SE = \beta_0 + \beta_1 PRIORKNOWLEDGE + \beta_2 WORKEXPERIENCE + \beta_3 PRIORKNOWLEDGE \times WORKEXPERIENCE + \beta_4 AGE + \beta_5 ETHNICITY + \beta_6 GENDER + \beta_7 REPEATINGSTUDENTS + e \quad (2)$$

The dependent variable in this research was the sum of the respondents' self-reported

self-efficacy scores (*SE*). Following Maurer and Andrews (2000) and Maurer and Pierce (1998) who summed the Likert-type scale responses to obtain a self-efficacy score for a particular participant, *SE* was measured by summing the student responses on the NGSE questionnaire ((1) strongly disagree to (5) strongly agree). The three proxies of the test variable (prior knowledge) were: (1) the presence or absence of prior knowledge gained from the study of accounting at secondary school (*PK*), (2) the highest level of any accounting syllabi studied at secondary school (*HL*)CSITALICSTART CSITALICEN-Dand the type of accounting syllabi studied at secondary school (*AS*). Also, *WORKEX-PERIENCE* indicates whether the student had accounting-related work experience before taking the introductory accounting course at university. Lastly, control variables included in the regression model due to their potential effects on an individual's self-efficacy were age, ethnicity, gender, and whether the participant was repeating the course.

### *Regression analysis to test hypotheses*

There are three main hypotheses in this research relating to the effects of prior knowledge on self-efficacy. Hypothesis 1 (H1) predicts that studying accounting as a subject at secondary school has a positive influence on a student's self-efficacy. This is tested using the proxy called *PK*. H1a proposes an incremental effect of the interaction between prior knowledge (*PK*) and prior work experience on self-efficiency. Hypothesis 2 (H2) predicts that studying the highest level of accounting syllabus at secondary school has a positive influence on a student's self-efficacy. This is tested using the proxy called *HL*. Hypothesis 2a tests the impact of the interaction between studying the highest level of accounting syllabi at secondary school (*HL*) and prior work experience on self-efficacy. Hypotheses 3 (i.e. H3a, H3b, and H3c) predict that studying each of the different accounting syllabi at secondary school has a positive influence on a student's self-efficacy. This is tested using the proxy called *AS (*i.e. *AS_NCEA, AS_CAMBRIDGE*, and *AS_OTHERS*, respectively). The tests for the hypotheses comprise regressions of Model (1) and Model (2). The regression model examined the effects of PK, HL, AS and Work Experience on a student's self-efficacy in an introductory tertiary accounting course after controlling for variables such as age, ethnicity, gender and whether the respondent was a repeating student.

The definition of the dependent variable and the test variables are as follows. The student's self-efficacy (*SE*; dependent variable) is measured using an NGSE questionnaire by Chen et al. (2001), calculated as the sum, mean, and median of their NGSE scores. There are three proxies used to represent prior knowledge (test variables): the presence or absence of prior knowledge gained from the study of accounting at secondary school (*PK*), whether they studied the highest level of any accounting syllabus at secondary school (*HL*), and which accounting syllabus the respondent studied at secondary school (*AS*). *PK* is a dummy variable coded as one if they studied accounting at secondary school and zero otherwise. *HL* is also a dummy variable specifying as one if the students studied the highest level of any accounting syllabus at secondary school, and zero otherwise. The interaction between PK (or HL) and work experience in Model 2 is tested via the addition of the product of these two dummy variables into the regression equation. For *AS*, three dummy variables are created to examine the effects of three different types of accounting syllabi on the self-efficacy of the respondents, i.e. *AS_NCEA*,

*AS_CAMBRIDGE*, and *AS_OTHERS*. Each dummy variable has a heading that corresponds to the type of accounting syllabus it represents, which was coded as one if the dummy variable matches the specific type of accounting syllabus and zero otherwise. *AS_NCEA* indicates whether the student studied NCEA at secondary school. *AS_CAMBRIDGE* indicates whether the student studied the Cambridge curriculum at secondary school. Lastly, *AS_ OTHERS* represents whether the student studied other accounting syllabi at secondary school.

The expectation for each of the three proxies of prior knowledge is as follows. The coefficient for *PK* in Model 1 captures the effect of studying accounting at secondary school on the respondent's self-efficacy. If H1 was supported, the coefficient for *PK* should be significantly positive in the regression based on the regression model. The coefficient for *PK* and work experience in Model 2 measures the incremental effect of studying accounting at secondary school on the respondent's self-efficacy for the students who had work experience related to accounting relative to those who did not. H2 would be supported if the coefficient for *PK* X *WORKEXPERIENCE* is significantly positive. The coefficient for *HL* in Model 3 captures the effect of studying the highest level of any accounting syllabus at secondary school on the respondent's self-efficacy. If H2 was supported, the coefficient for *HL* should be significantly positive in the regression based on the regression model. Also, the coefficient for the interaction term between HL and WORKEXPERIENCE represents the incremental effect of studying the highest level of any accounting syllabus at secondary school on the respondent's self-efficacy, for the students who experienced accounting-related work, relative to those who did not. H2a would be shown to be true by the significance of the interaction between *HL* and *WORKEXPERIENCE*. Lastly, the coefficient for *AS* in the revised Model 1 (adding the original Model 1 with *WORKEXPERIENCE*) captures the effect of studying different types of accounting syllabus at secondary school on the respondent's self-efficacy. If H3a (or H3b or H3c) was supported, the coefficient for the dummy variables representing *AS (*or *AS_NCEA* or *AS_Cambridge* or *AS_Others)* should be significantly positive in the regression based on the regression model.

## Results

### *Descriptive statistics*

Table 5 presents the descriptive statistics for this research. Two hundred and seventy-two students participated in the survey in class. Of the 272 respondents, 130 were male and 142 were female. The average age of the respondents was 20.54 years, and 25% of the sample were 21 years of age or older. The youngest respondent was 17 years old and the oldest respondent was 58 years old. In terms of ethnicity, 32% of respondents were of European/NZ European descent while the rest identified with other ethnic groups.[5] As for variables on self-efficacy beliefs (*SE*), the mean self-efficacy score in the sample was 30.41, with the lowest score being 16 and the highest score being 40. Approximately 5% of respondents had a maximum self-efficacy score of 40. Within the sample, 42% of the respondents had studied accounting at secondary school (PK), while 31% of respondents studied the highest level of accounting at secondary school (*HL*). Among different types of accounting syllabi accepted at the university, 35% of respondents studied the

**Table 5.** Descriptive statistics.

| Variables<br>$n = 272$ | Mean | SD | Min | Max |
|---|---|---|---|---|
| SE | 30.41 | 4.93 | 16.00 | 40.00 |
| PK | 0.42 | | 0.00 | 1.00 |
| HL | 0.31 | | 0.00 | 1.00 |
| WORKEXPERIENCE | 0.15 | | 0.00 | 1.00 |
| AS_NCEA | 0.35 | | 0.00 | 1.00 |
| AS_Cambridge | 0.03 | | 0.00 | 1.00 |
| AS_Others | 0.04 | | 0.00 | 1.00 |
| AGE | 20.54 | 4.72 | 17.00 | 58.00 |
| ETHNICITY | 0.32 | | 0.00 | 1.00 |
| GENDER | 0.48 | | 0.00 | 1.00 |
| REPEATINGSTUDENTS | 0.04 | | 0.00 | 1.00 |

The dependent variable was the sum of self-efficacy scores (*SE*). PK was a dummy variable coded as one if the respondents studied accounting at secondary school and zero if they did not take accounting at secondary school. HL was also a dummy variable where students who studied the highest level of any accounting syllabi at secondary school were coded as one, and those who did not do so were coded as zero. *WORKEXPERIENCE* was a dummy variable where respondents with prior work experience in accounting were coded as one, and other respondents were coded as zero. For AS, four dummy variables were created to investigate the effects of different accounting syllabi on the self-efficacy of the respondents when compared to students who did not study accounting at secondary school. Each dummy variable had a heading that corresponds with the type of *AS* it was supposed to represent, this was coded as one if the dummy variable matched the accounting syllabus it was supposed to represent; and zero if otherwise. AGE was a continuous variable that indicated how old the respondent was when the research was undertaken. ETHNICITY was a dummy variable where students who considered themselves as European/NZ European were coded as one, and respondents in all other ethnic groups were coded as zero. GENDER was a dummy variable where males were coded as one, and females were coded as zero. REPEATINGSTUDENTS was a dummy variable where respondents who were repeating the introductory tertiary accounting course were coded as one and other respondents were coded as zero.

NCEA curriculum (*AS_NCEA*), 3% of all respondents had studied the Cambridge curriculum (*AS_CAMBRIDGE*), and 4% of respondents had studied other types of accounting syllabi not mentioned above (*AS_OTHERS*). Lastly, to ensure the sample is representative of the students enrolled for the introductory tertiary accounting course at university, a Pearson's Chi-Square test (Chi-Square test) was conducted to compare the goodness-of-fit between the sample and enrolment data by age and gender. No significant difference was found in the two groups.

Before the main regression analysis, an exploratory factor analysis on the dimensionality of the self-efficacy in an introductory tertiary accounting course was performed. Table 4 shows that all eight statements within the NGSE scale loaded onto 1 factor (eigenvalues = 4.817) with high internal reliability ($x = 0.905$), which is similar to Ineson et al. (2013).[6] This demonstrates the validity of the questionnaire as a measure of self-efficacy in this research. Besides that, Table 6 also shows the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was meritorious 0.913, which indicates that in general there is a linear relationship between the self-efficacy statements (Kaiser, 1974). In addition, the Bartlett's test of sphericity conducted on the self-efficacy scores returns a

**Table 6.** Factor analysis of self-efficacy.

| Variables | Factor name: *SE* |
|---|---|
| Loading value (min–max) | (0.676–0.796) |
| Eigenvalue | 4.817 |
| Accumulated rate | 54.621 |
| Cronbach's alpha (reliability coefficient) | 0.905 |
| KMO | 0.913 |
| Bartlett's test (approximate chi-square) | $X^2$ (28) = 1162.388, $p < 0.001$ |

significantly high result ($X^2$ (28) = 1162.388, $p < .001$), which suggests that the eight statements are correlated and confirm the validity of the factor analyses.

### *Results for hypotheses 1–3*

Table 7 reports the regression results of the tests for hypotheses, which investigate the effect of prior knowledge gained from the study of accounting at secondary school on the self-efficacy of students enrolled in an introductory tertiary accounting course. The *R*-squared statistic for the regression analyses is in the vicinity of 7.8%~9.8%, implying a reasonable model fit and slightly higher than those in prior studies that are close in nature to this paper (about 4%) by Beatson et al. (2018). Columns 1 and 2 of Table 5 report the results of the test for H1 and H1a which predict that studying accounting as a subject at secondary school has a positive influence on a student's self-efficacy (H1) and that the effect would be more pronounced if accounting was studied at secondary school combined with work experience (H1a). The coefficient for *PK* in Column 1 is positive but not significant ($\beta = 0.6456$, $p = .294$), thus failing to support H1. This implies that accounting students with prior accounting education do not have higher self-efficacy in the introductory tertiary accounting course relative to those who did not study accounting at secondary school. However, the coefficient for the interaction between *PK* and work experience in Column 2 was positive ($\beta = 3.9362$) and significant ($p = .023$). Estimating the predicted margins for this interaction reveals that the sum of the self-efficacy score is about two points larger for students who had studied accounting in secondary school and had work experience in accounting (32.16) than those who had neither (30.26). Columns 3 and 4 of Table 5 report the results of testing for H1a by replacing the dependent variable (sum of SE) with different measures such as mean and median values of SE. As shown, the coefficients for the interaction term between *PK* and *WORKEXPERIENCE* are significantly positive ($\beta = 0.4920$ and $p = 0.023$ in Column 3; $\beta = 0.4792$ and $p = 0.048$ in Column 4), which suggests consistent results to support H1a.

Regarding hypothesis 2, the coefficient for HL is not significant (untabulated $\beta = 0.11$, $p = 0.869$). It fails to support that studying the highest level of accounting syllabus at secondary school has a positive influence on a student's self-efficacy. Column 5 of Table 5 reports the results of the test for H2a, which predicts that studying the highest level of accounting syllabus at secondary school has a positive influence on a student's self-efficacy, which is particular to the students who had work experience at accounting-related jobs. The coefficient for *HL* is not significant ($\beta = 0.5250$, $p = .759$), thus also failing to support H2a. Whilst having related work experience, accounting students who studied the highest level of accounting taken at secondary school do not have higher self-efficacy in the introductory tertiary accounting course relative to those who did not study the highest level of accounting at secondary school.

Finally, Column 6 of Table 7 reports the results of the test for H3a, H3b, and H3c, which predict whether studying a particular accounting syllabi at secondary school has a positive influence on a student's self-efficacy. H3a, H3b, and H3c are tested using four dummy variables, *AS_NCEA*, *AS_CAMBRIDGE*, and *AS_OTHERS*. The coefficients are positive but not significant for both dummy variables: *AS_NCEA* ($\beta = .3307$, $p$

**Table 7.** Summary of empirical results, self-efficacy as the dependent variable.

| | (1) Model 1 | (2) Model 2 | (3) Model 2 | (4) Model 2 Median of | (5) Model 2 | (6) |
|---|---|---|---|---|---|---|
| Dependant variable(s) | Sum of SE | Sum of SE | Mean of SE | SE | Sum of SE | Sum of SE |
| *PK* | 0.6456 | −0.0219 | −0.0027 | 0.0339 | | |
| | (0.294) | (0.974) | (0.974) | (0.718) | | |
| *WORKEXPERIENCE* | | −1.7625 | −0.2203 | −0.1669 | 0.5137 | 0.7578 |
| | | (0.189) | (0.189) | (0.373) | (0.637) | (0.379) |
| *PK* × *WORKEXPERIENCE* | | **3.9362**** | **0.4920**** | **0.4792**** | | |
| | | **(0.023)** | **(0.023)** | **(0.048)** | | |
| *HL* | | | | | −0.0295 | |
| | | | | | (0.968) | |
| *HL* × *WORKEXPERIENCE* | | | | | 0.5350 | |
| | | | | | (0.759) | |
| *AS_NCEA* | | | | | | 0.3307 |
| | | | | | | (0.615) |
| *AS_Cambridge* | | | | | | **3.1539*** |
| | | | | | | **(0.096)** |
| *AS_Others* | | | | | | 0.7849 |
| | | | | | | (0.616) |
| *AGE_GROUP* (referent: < 18) | | | | | | |
| 18–19 | 0.1471 | 0.2537 | 0.0317 | 0.0029 | 0.2032 | 0.1266 |
| | (0.851) | (0.745) | (0.745) | (0.978) | (0.797) | (0.872) |
| 20–24 | 0.5016 | 0.4079 | 0.0510 | 0.0731 | 0.4579 | 0.3999 |
| | (0.492) | (0.574) | (0.574) | (0.472) | (0.533) | (0.588) |
| 25–29 | 4.4585*** | 4.6095*** | 0.5762*** | 0.6348*** | 4.4722*** | 4.4575*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| 30–39 | 1.4091 | 1.2301 | 0.1538 | 0.3264 | 1.1926 | 1.4305 |
| | (0.531) | (0.582) | (0.582) | (0.297) | (0.598) | (0.525) |
| >39 | 3.5928 | 3.4094 | 0.4262 | 0.6416 | 3.3822 | 3.6252 |
| | (0.208) | (0.230) | (0.230) | (0.106) | (0.238) | (0.205) |
| *ETHNICITY* (referent: Non-European) | 0.9744 | 1.0710 | 0.1339 | 0.1054 | 1.0460 | 0.9020 |
| | (0.137) | (0.101) | (0.101) | (0.248) | (0.116) | (0.171) |
| *GENDER* (referent: Male) | 1.1225* | 1.1552* | 0.1444* | 0.1364* | 1.0780* | 1.0394* |
| | (0.060) | (0.051) | (0.051) | (0.099) | (0.073) | (0.083) |
| *REPEATINGSTUDENTS* (referent: Non-repeating) | −0.9412 | −0.5586 | −0.0698 | −0.0042 | −1.1111 | −1.3569 |
| | (0.549) | (0.726) | (0.726) | (0.985) | (0.492) | (0.396) |
| *Constant* | 28.3920*** | 28.4679*** | 3.5585*** | 3.5409*** | 28.5459*** | 28.4597*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| **Observations (*n*)** | 272 | 272 | 272 | 272 | 272 | 272 |
| ***R*-squared** | 0.078 | 0.098 | 0.098 | 0.095 | 0.078 | 0.090 |
| ***F*-test** | 2.48*** | 2.57*** | 2.57*** | 2.49*** | 1.99** | 2.08** |

The dependent variable was the sum of self-efficacy scores. *PRIOR _KNOWLEDGE* was coded as 1 if the respondents studied accounting at secondary school and 0 if they did not take accounting at secondary school. *HIGHEST_LEVEL* was coded as 1 where students who studied the highest level of any accounting syllabus at secondary school and those who did not do so were coded as 0. *WORKEXPERIENCE* was a coded as 1 for prior work experiences in accounting and other respondents were coded as 0. For *ACCOUNTING _SYLLABUS*, three variables were created to assess the effects of different accounting syllabi on the self-efficacy of the respondents when compared to students who did not study accounting at secondary school. Each dummy variable had a heading that corresponds with the type of AS it was supposed to represent, this was coded as 1 if the dummy variable matches the type of accounting syllabus it supposed to represent and 0 if otherwise. *AGE_GROUP* was coded as indicated. *ETHNICITY* was coded as European/NZ European = 1 and all other ethnic groups as 0. *GENDER* was coded as 1 for males and 0 for females. *REPEATING_STUDENTS* was coded as 1 where respondents were repeating the introductory tertiary accounting course and 0 for other respondents. The *p*-values were in parentheses; * indicates significance at 10%, ** indicates significance at 5%, and *** indicates significance at 1%.

= .615) and *AS_OTHERS* ($\beta$ = .7849, $p$ = .616), albeit borderline significant for *AS_CAMBRIDGE* ($\beta$ = 3.1539, $p$ = .096). The hypotheses are thus partially rejected. This implies that accounting students who studied the various accounting syllabi taken at secondary school do not have higher self-efficacy in the introductory tertiary

accounting course (except for those taking the Cambridge syllabus) relative to those who did not study accounting at secondary school.

The effects of the control variables are also presented in Table 7. Only two of the control variables are statistically significant. These variables are Age and Gender. Contrary to the expectations developed based on the research of Beatson et al. (2018), Age is not linearly related to self-efficacy. Notably, we find that the age group of 25–29 year olds has substantially higher self-efficacy than other age groups. In all of the regression analyses, males have a higher self-efficacy compared to females. The results supported the findings of Huang (2013), which suggest that males display higher levels of self-efficacy in mathematics, computer science, and the social sciences than females. The other three control variables do not have a significant effect on the self-efficacy of the respondents in this research, and caution should be exercised when interpreting the effects of these control variables. For ethnicity, European/NZ European students do not necessarily have higher or lower self-efficacy levels compared to other ethnicities. Also, differing from prior studies (Ineson et al., 2013; Zhao et al., 2005), our findings suggest that students who have prior work experience in accounting regardless of whether it was a paid or unpaid role do not indicate higher or lower self-efficacy levels compared to students who have no prior work experience, unless they have also taking accounting as a secondary school subject. Lastly, it is suggested that students who repeated the course do not necessarily have lower self-efficacy levels compared to first-timers, which was inconsistent with the findings of Tek et al. (2018), & Ünlü and Kalemoğlu (2011).

## Discussion

The purpose of this research was to investigate the effect of prior knowledge gained in accounting study at secondary school (PK) on the self-efficacy of students enrolled in an introductory tertiary accounting course. The findings confirm that there was no significant difference between the self-efficacy levels of students who had studied accounting at secondary school and those who had not. Further, these findings remained consistent even when the effects of two other forms of PK on the participants' self-efficacy were investigated in this research, i.e. (1) the highest level of any accounting syllabus studied at secondary school or (2) the accounting syllabus studied at secondary school.

These results were inconsistent with prior research undertaken in mathematics (Usher & Pajares, 2009) and engineering (Hutchison et al., 2006) where prior knowledge was found to influence self-efficacy. Interestingly, in hospitality, Ineson et al. (2013) found that while prior study in marketing and management significantly influenced self-efficacy, prior study in accounting did not. Ineson et al. (2013) did not offer an explanation for this anomaly. These inconsistent empirical results might be due to curriculum differences between the syllabi of the secondary school course and the introductory tertiary accounting course. While secondary school accounting tends to focus on traditional bookkeeping aspects of accounting, i.e. the accounting process, the emphasis of the introductory tertiary accounting course at this university is about understanding how accounting is used as a tool to support individual businesses in terms of the management of financial resources, i.e. outputs

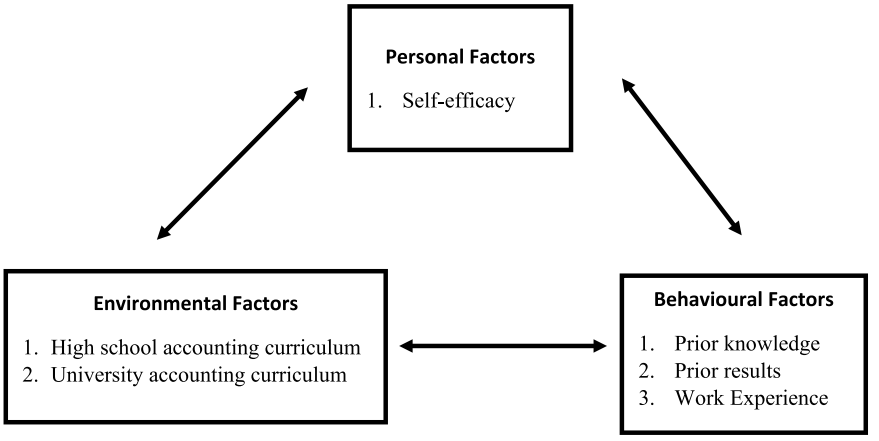


**Figure 3.** Triadic reciprocal determinism factors discussed in this research.

from the process. This might not be the case in other disciplines which have found that the prior knowledge had a positive effect on the self-efficacy levels of an individual (Hutchison et al., 2006).

Several explanations are possible for the results of this research. It is possible that environmental factors could have influenced the results of this study. They are, first, the curriculum differences between the secondary school accounting curriculum and the introductory tertiary accounting course curriculum. Second, that an alternative factor could have a greater influence on the self-efficacy of the research participants (Hailikari et al., 2008) e.g. prior results (another behavioural factor). Examples of these environmental, personal and behavioural factors are presented in the Triadic Reciprocal Determinism model in Figure 3. Third, the difference in the self-efficacy scales used in this research compared with other research.

One of the more significant findings is that self-efficacy levels are higher for students who have prior knowledge and related work experience. These findings suggest that the contribution of these factors to self-efficacy is complementary, and they are not substitutes for each other. One possible explanation for this finding is that work experience tends to focus on the collection and input of accounting data while the secondary school curriculum focuses on an understanding of the accounting process and that the university curriculum focuses on the use of outputs from the accounting process. It could therefore be argued that all three elements together contribute to a clearer understanding of their relevance to accounting practice. The relationship between these factors in this study is illustrated in Figure 4.

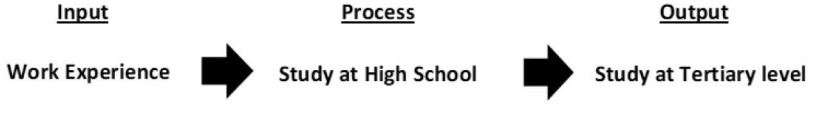


**Figure 4.** The relationship between study and work experience.

## Conclusion

This study has examined the effects of PK on self-efficacy in the accounting discipline. It set out to investigate the effects of accounting study at secondary school (PK) on the self-efficacy of students enrolled in an introductory tertiary accounting course. In summary, this research found that there was no significant difference between the self-efficacy levels of students who had studied accounting at secondary school and those who had not. Besides the effect of PK, this research also investigated the effect of the highest level of any accounting syllabus studied at secondary school and the type of accounting syllabus studied at secondary school on the self-efficacy levels of the respondents which had not previously been investigated. The findings of this research were inconsistent with prior research undertaken by Hutchison et al. (2006), and Usher and Pajares (2009). Possible reasons for this inconsistency are the differences between university and secondary school accounting syllabi, alternative factors that could be a better predictor of self-efficacy (i.e. prior results), or the impact of other sources of self-efficacy besides prior knowledge (i.e. vicarious experiences, verbal persuasion and physiological states). The absence of significantly different levels of self-efficacy remained, even when the prior accounting knowledge was analysed in more detail using the highest level of any accounting syllabi studied at secondary school and the type of accounting syllabi studied at secondary school. However, the contribution of both prior knowledge and work experience to higher levels of self-efficacy suggest that instructors should consider developing experiential learning strategies providing an outcome focus in their teaching pedagogy. These strategies would ensure that attention is given to all three stages of the accounting cycle.

The findings of this research make the following contributions. First, a theoretical contribution by confirming that prior knowledge does not necessarily influence the self-efficacy of an individual when there are few similarities between the prior knowledge gained and the current course being studied. Second, the findings from this study provide a possible explanation for the inconsistency found in the study carried out by Ineson et al. (2013). Third, the results of this research suggest that secondary school teachers, lecturers, and career counsellors should not discourage students who did not study accounting at secondary school from undertaking accounting studies at university.

Our findings should be viewed in the light of some limitations. One explanation for these findings is that prior knowledge alone might not be sufficient to influence the self-efficacy levels of the participants and that it aggregates with other self-efficacy sources to influence an individual's self-efficacy (Bandura, 1986). Evidence to support this suggestion is provided by Hailikari et al. (2008) who found that prior knowledge had a greater effect on student achievement than academic self-beliefs.

Another study found that enactive mastery experiences in the form of midsemester test results had a positive effect on a student's self-efficacy within a similar course (Beatson et al., 2018). Their findings further suggest that the academic results of accounting studied at secondary school might influence the self-efficacy levels of students enrolled in an introductory tertiary accounting course, rather than prior knowledge. This suggestion is consistent with the findings of Hailikari et al. (2008), who found a relationship between prior ability and academic self-beliefs. However, some researchers (Dew et al., 1984; Randhawa et al., 1993) discourage measures using past performance to

predict future performance. This is based on the assumption that self-efficacy measures already include the influence of past performance. Undertaking this analysis in the current study was not possible, as the secondary school assessments upon which the results were based varied depending on the syllabi studied. One possible solution would be to test prior ability at the commencement of the course (Hailikari et al., 2008; Ineson et al., 2013).

The only population data available in this study were gender and age. While a Pearson's Chi-Square test found no significant differences between these two groups, there is the possibility of a response bias. This potential bias could be a result of either non-attendance at class when the survey was undertaken or non-completion of the survey.

As with most studies undertaken within a single institution, the generalisability of the results is limited to the sample used in this research. Further research would need to be undertaken to ascertain the generalisability of these results. While the sample was representative of the population in terms of age and gender (when other genders were excluded), its representativeness in terms of ethnicity has not been established. Also, a majority of the sample respondents took NCEA, and a minority of the sample took other forms of accounting syllabus (i.e. 'Cambridge' and 'Others' on the questionnaire), while none of the respondents studied IB. Given the absence of respondents studying IB and the high numbers of students studying the national curriculum (NCEA), the results of the research might be biased, and caution needs to be exercised when interpreting the results of this aspect of the research.

A further possible explanation for the inconsistent results is the questionnaire used in this research compared to the one used by Beatson et al. (2018). However, this does not explain the reason for the partial inconsistency in findings with the Ineson et al. (2013) study which also used an adapted version of the New General Self-Efficacy scale (NGSE).

Our findings provide opportunities for further investigation. Hailikari et al. (2008) found that prior knowledge had a stronger influence on student achievement than on self-efficacy. This finding suggests that there might be other variables not considered which have a greater influence on self-efficacy. These could include: first in the family to study at university, domestic vs international, major intentions and socio-economic status. This provides an opportunity to extend the study to investigate other sources of self-efficacy.

Given that work and prior knowledge together were found to have a positive effect on self-efficacy, and it has been found that prior knowledge may not have the greatest influence of self-efficacy, there could be benefit in further analysing the type of work (paid/unpaid) and the nature of the duties involved to determine a possible influence on self-efficacy.

Interestingly, we found that the age group of 25–29 year-olds has substantially higher levels of self-efficacy than other age groups. We also found that in all the regression analyses, males have higher levels of self-efficacy compared to females. These findings suggest the need for further research to understand why different self-efficacy levels exist for these groups.

## Notes

1. Literature suggests that the use of a shorter questionnaire likely encourages a higher response rate (Edwards et al., 2002).

2. This research was undertaken across two semesters. For the second semester, Beatson et al. (2020) reported that 65% of their respondents were aged 18–19 while those aged 23 and above made up 8% of the sample.
3. This was regardless of whether the role was paid/unpaid, and the length of work experience was not considered.
4. The software used in this research is SPSS. The regression analyses conducted is also known as an Ordinary Least Squares regression.
5. Of the 272 students in our sample, there were 29.1% Asian, 31.3% European (or NZ European), 5.1% Maori, 18.9% Pasifika, 5.1% Middle Eastern, Latin American, or African, and 10.5% Other ethnicity.
6. Ineson et al. (2013) also used the same questionnaire and reported that all eight statements also loaded onto 1 factor (eigenvalues = 4.794) with high internal reliability ($x = 0.904$) in their factor analysis.

## Acknowledgements

We would like to thank Paul deLange, the two anonymous reviewers, the Associate Editor and the Editor for their helpful feedback and suggestions.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Appendix A

### *Survey questionnaire*

Part A: demographic questions

| | | | |
|---|---|---|---|
| Campus | City ☐ | South ☐ | |
| Gender | Male ☐ | Female ☐ | Other ☐ |
| Age | _____ | | |
| Primary ethnicity | European/NZ European | | ☐ |
| | Maori | | ☐ |
| | Pasifika | | ☐ |
| | Asian | | ☐ |
| | Middle Eastern/Latin American/African | | ☐ |
| | Other Ethnicity | | ☐ |

1. Are you a repeating student in this course (course name)? Yes ☐ No ☐

2. Have you undertaken any previous work in accounting (paid/unpaid)? Yes ☐ No ☐

3. Did you complete any accounting studies at high school or secondary school? If yes, then select the most recent one.

Note: If you did not study accounting at high school, please skip this section and go to Part B.

| | | | | | |
|---|---|---|---|---|---|
| NCEA (level 1, level 2, level 3 | Level 1 | ☐ | Level 2 | ☐ | Level 3 ☐ |
| Cambridge (O-Levels, A-Levels, IGCSE) | O-Levels | ☐ | IGCSE | ☐ | A-Levels ☐ |
| International Baccalaureate (IB) | IB | ☐ | | | |
| Other accounting syllabus not mentioned above | Other | ☐ | | | |

**Please turn over**

Part B: Self-efficacy statements

There is no right or wrong answer. Please use the 5-point scale to express how you feel about each statement.

| Statements | (strongly disagree) | | | | (strongly agree) |
|---|---|---|---|---|---|
| 1. I will be able to achieve most of the goals that I have set for myself in this course. | 1 | 2 | 3 | 4 | 5 |
| 2. When facing difficult tasks in this course, I am certain that I will accomplish them. | 1 | 2 | 3 | 4 | 5 |
| 3. In general, I think that I can obtain outcomes that are important to me in this course. | 1 | 2 | 3 | 4 | 5 |
| 4. I believe I can succeed at most endeavors to which I set my mind to in this course. | 1 | 2 | 3 | 4 | 5 |
| 5. I will be able to successfully overcome many challenges in this course. | 1 | 2 | 3 | 4 | 5 |
| 6. I am confident that I can perform effectively on many different tasks in this course. | 1 | 2 | 3 | 4 | 5 |
| 7. Compared to other people, I can do most tasks very well in this course. | 1 | 2 | 3 | 4 | 5 |
| 8. Even when things get tough, I can perform quite well in this course. | 1 | 2 | 3 | 4 | 5 |