A COMPARISON OF DOMESTIC AND INTERNATIONAL ACCOUNTING STUDENTS' ACADEMIC PERFORMANCE USING THE GOAL EFFICACY FRAMEWORK

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A comparison of domestic and international accounting students' academic performance using the goal-efficacy framework

Abstract

This study considers the psychological and cognitional influences on domestic students compared with international students undertaking a core accounting unit at an Australian university, using the goal-efficacy framework. A survey questionnaire was used to determine the differences and similarities between the two groups. The results indicate significant differences between the two groups of students with regard to self-efficacy.

Key words: academic performance, goal efficacy, international students

1. INTRODUCTION

The investigation of factors relating to academic performance of students is a key concern for educators. While extensive work has been undertaken to explore students' academic performance based on gender, age, prior knowledge, language skills and numeracy ability, such as studies by Gul and Fong (1993) and Hartnett *et al*., (2004), little research has been done from a student's psychological perspective. Recognizing the complexity and subjectivity of academic performance, this study attempts to explore students' academic performance from a psychological perspective. The study seeks to gain an understanding of how psychological factors influence academic performance by considering specifically the differences and similarities between domestic and international students.

Using Latham and Locke's (1991) goal-efficacy model, this study investigates academic performance of domestic and international accounting students at a university in Australia. The study expands the Latham and Locke model by including self-regulated learning strategy as a variable in predicting academic performance in the model.

The findings from this study are expected to contribute to research in four ways. First, the current study examines the effects of psychological factors on academic performance. In contrast, prior research (eg., Gul and Fong, 1993; Hartnett *et al*., 2004; Koh and Koh, 1999) tends to stress the demographic and academic background factors affecting students' academic performance, to the exclusion of the psychological factors that are also at play. Second, given the high number of international students in Australian universities, this study makes an important contribution to the limited literature on the importance of psychological influences on the comparative academic performance of domestic and international students. Third, few accounting studies have utilized the goal-efficacy model, which has been claimed to be a more powerful model than the other models in predicting academic performance of students (Earley and Lituchy, 1991; Locke *et al*., 1984). Fourth, this study expands the Latham and Locke model by including in the model self-regulated learning strategy as a mediating variable to the relationship between academic self-concept ability, college self-efficacy, goal orientation and academic performance.

The remainder of this paper is organized as follows. Section two reviews prior studies on factors influencing students' academic performance and develops a model based on Latham and Locke's (1991) goal-efficacy framework and develops the research questions. Section three explains the research and data collection methods. Section four discusses the results of the study and the paper concludes with implications and limitations of the study and recommends possible directions for future research.

2. REVIEW OF LITERATURE AND DEVELOPMENT OF THE MODEL

Prior studies on academic performance have presented a variety of conflicting and inconclusive findings on factors explaining differences in academic performance. The impact

of prior knowledge is one of the most relevant perspectives in understanding academic performance. For instance, the study by Balwin and Howe (1982) concludes that there is no difference in overall performance of students with prior accounting knowledge and those without. This finding is further affirmed by Bergin (1983) and Schroeder (1986). Both studies concur that students with prior accounting knowledge did not attain significantly better academic performance than students without previous exposure. Similarly, a later longitudinal study by Bartlett *et al*. (1992, 1993) also found that prior study of accounting has no significant effect on academic performance.

In contrast, studies by Mitchell (1985, 1988), Gul and Fong (1993) and Tho (1994) offer different findings. Studies by Mitchell (1985, 1988) find that students with prior knowledge in accounting and mathematics perform significantly better in computational courses. Similarly, Gul and Fong (1993) and Tho (1994) confirm that prior accounting knowledge has a significant positive influence on academic performance. More recently, studies by Duff (2004) and Tickell and Smyrnios (2005) also consistently reveal the significance of prior accounting knowledge on academic performance. Other studies including Doran *et al*. (1991) and Bartlett *et al*. (1993) present conflicting results in relation to the impact of prior accounting knowledge on academic performance. While prior accounting knowledge may affect academic performance positively at the initial stage of studies, this advantage tends to disappear soon after (Barlett et al., 1993; Loveday, 1993).

Similarly, findings on the impact of gender on academic performance are often contradictory as well, and hence inconclusive in nature. For instance, findings by Fraser *et al*. (1978), Mutchler *et al*. (1987) and Tyson (1989) support the view that female students outperform their male counterparts. Koh and Koh (1999), in contrast, find that male students perform better than female students. Studies by Lipe (1989), Auyeung and Sands (1994), Duff (2004) and Tickell and Smyrnios (2005), however, fail to find any evidence of gender effect on academic performance and concur that there is no significant difference between the performance of male and female students.

The difference between domestic and international students' academic performance has also been widely investigated. However, the studies have largely produced inconclusive results. For instance, Hartnett *et al*. (2004) found that there is no significant difference between the accounting performance of domestic and international students. However, international students appeared to be outperformed by domestic students after controlling some of the key variables. Similarly, Guney (2009) finds that the country of origin does not significantly affect performance, but the results show that domestic students performed better in accounting than did international students after controlling exogenous factors. Wilson (1985) investigates the importance of language skill on academic performance for graduate business students. The results indicate that English language skill is a predictor of performance only for students studying in the fields of bioscience and social sciences, but not with performance on quantitative examinations. Naser and Peel (1998) find that English ability has no significant impact on performance in a first year accounting course and, Krausz, *et al*. (2005) suggest that the TOEFL score is not a significant factor associated with performance in graduate accounting for international students. Some studies suggest that different learning styles, learning preferences and learning approaches between domestic

and international students determine academic performance between the two groups (Christopher and Debreceny, 1993; Rankin *et al*., 2003; Hartnett *et al*., 2004, Cooper, 2004).

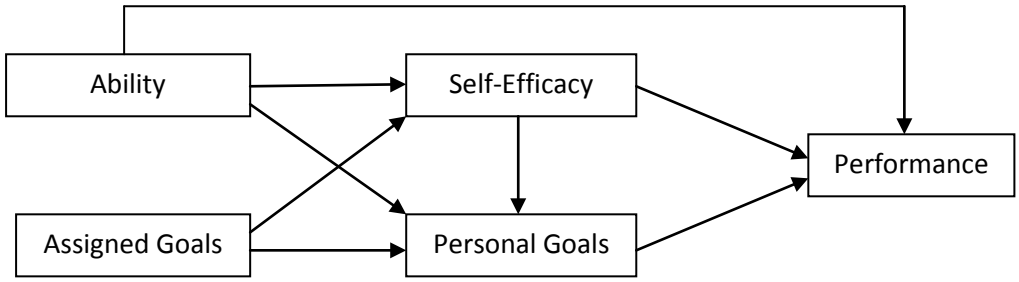
Other studies have investigated the relationships between academic performance and absenteeism (Romer, 1993; Marburger, 2001; Rodgers, 2002; Guney, 2009), age (Saljo, 1979; Bartlett *et al*., 1993; Koh and Koh, 1999; Lane and Porch, 2002; Guney, 2009); numeracy (Cohn, 1972; Gist *et al*., 1996; Bachan and Reilly, 2003; Guney, 2009); and work experience (Jackling and Anderson, 1998; Koh and Koh, 1999; Hartnett *et al*., 2004; Guney 2009). For example, Bartlett *et al*. (1993) reported that age had a significant negative impact on academic performance in an accountancy degree program. While older students were better equipped to deal with basic understanding, they were disadvantaged when it came to routine undergraduate study and examination. Koh and Koh (1999) found that work experience was a significant determinant of academic performance. They explained that real life experience appeared to be beneficial to those pursuing an accounting degree and suggested professional attachment as part of the undergraduate accounting program.

While the aforementioned studies have contributed significantly to the academic performance literature, they have mainly focused on the demographic or academic background factors. The disparate results of these studies suggest that there may be other more active and subjective forces that have an effect on students' academic performance. The literature reveals that academic performance is not a simple phenomenon that can be predicted and explained based only on demographic or academic backgrounds. It seems likely that psychological theories may provide a deeper understanding of the students' perceptions toward their studies and their academic performance.

For several decades, prior studies on academic performance based on psychological theories have sought to isolate and measure the influence of psychological factors from other factors. Over the years, research in this area has schematically developed a substantial body of literature that illustrates the importance of psychological factors on academic performance and aptitude. In particular, Latham and Locke (1991) developed a goal-efficacy framework to predict performance. In the model (see Figure 1), Latham and Locke (1991) identify four key factors that either directly or indirectly influence performance: self-efficacy, assigned goals, self-set goals and ability.

Figure 1

Goal efficacy model (Latham and Locke, 1991)



Self-efficacy, rooted in social cognitive theory, is one's judgment about one's capabilities to accomplish specific tasks and to attain designated types of performances (Bandura, 1986; 1994). It affects the judgments of what individuals can do with whatever skills they possess (Maurer et al., 2003). According to Bandura (1977, 1986, 1997), self-efficacy is domain specific, that is, an individual's level of self-efficacy is dependent on certain contexts in which certain tasks are undertaken. Within the academic domain, self-efficacy has been widely studied with college-age populations with respect to college experience and performance. For example, Sorberg *et al*. (1993) examined the relationship between self-efficacy and college adjustment for Hispanic students. More recently, Gore (2006) explored the impact of self-efficacy on postsecondary academic success and persistence.

As self-efficacy affects students' choice of activities and the amount of effort expended on their studies, it is expected that students with a high level of self-efficacy tend to be more motivated and have higher achievement than students with a low level of self-efficacy. Prior studies find self-efficacy to be positively related to intentions and participation in self-development activities (Maurer and Palmer, 1999; Maurer and Tarulli, 1994; Noe and Wilk, 1993) and it is an important determinant of goal orientation, behaviours and performance (Bandura, 1977; 1986; Schunk, 1991; Pajares, 1996).

The goals that individuals implicitly pursue create a framework through which they interpret and react to events as they occur (Ames and Archer, 1988; Dweck, 1986; Dweck and Leggett, 1988; Elliott and Dweck, 1988; Goetz and Dweck, 1980). Meece *et al*. (1988) concur that students pursue different achievement goals depending on their individual needs and competencies, as well as the demands of the situation. They further assert that students with high perceived ability are likely to develop an intrinsic goal orientation; in contrast, students with a low perceived ability develop an extrinsic goal orientation. Hence, an individual's goal orientation is a robust predictor of behaviour and performance, particularly in achievement situations. In the goal-efficacy model, Latham and Locke (1991)

note that assigned goals do not have a direct influence on performance, while self-set goals do exert a direct effect on performance.

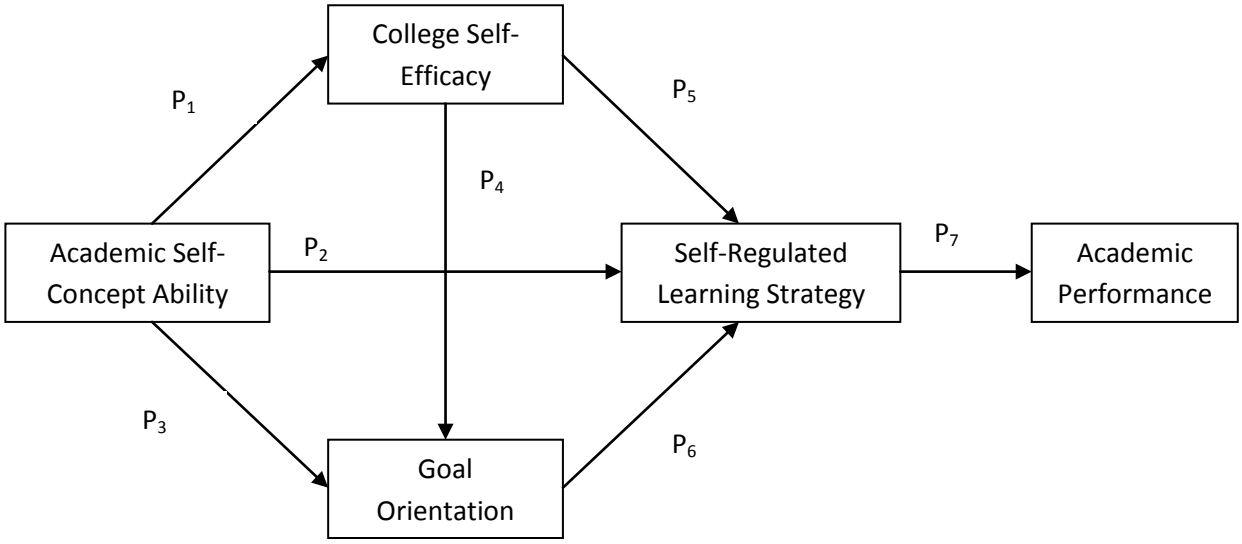
Academic ability or aptitude is an important determinant of academic achievement (Eckel and Johnson, 1983; Hicks and Richardson, 1984; Eskew and Faley, 1988; Doran *et al*., 1991). Others, including Booker (1991) and Ward *et al*. (1993), who extended Booker's (1991) study, support this argument. Both studies establish a positive relationship between ability and performance in accounting courses. In the goal-efficacy model (Latham and Locke, 1991), ability exerts both direct and indirect influence on academic performance. As with the concept of self-efficacy, ability results in students' choice of activities, amount of effort expended on their studies and their academic performance (Carroll and Garavalia, 2004). The indirect influence of ability on academic performance is realized through its effects on self-efficacy and personal goals.

Based on Latham and Locke's (1991) goal-efficacy model, the current study develops an extended model (Figure 2) by incorporating self-regulated learning strategy in the Latham and Locke model. The Latham and Locke (1991) goal-efficacy model is chosen because it provides an important and tested theoretical framework for understanding multiple psychological factors that influence academic performance and is reported to have superior statistical properties over other models in educational psychology research (Earley and Lituchy, 1991; Locke *et al*., 1984).

Psychological factors such as self-efficacy, academic self-concept ability and goal orientation are positively related to cognitive engagement and performance. Self-efficacy is a key concept in Bandura's (1977) social learning theory. It represents a person's expectation of what he or she can accomplish in a given situation (Bong and Skaalvik, 2003; Schunk and Pajares, 2002). Bandura (1982) has argued that self-efficacy is strongly related to actual (future) task performance. Self-concept is a person's subjective judgment of his or her competence in a given domain. As such, academic self-concept ability is formed based on a student's conception of his or her own ability to learn or perception of his or her academic capability (Bong and Skaalvik, 2003). Goal orientation represents the purpose and meaning that a person ascribed to achievement behaviour (Ames, 1992). A considerable amount of research has demonstrated the relations between goal orientation and performance under conditions of varying task demands (Ames and Archer, 1988; Dweck and Leggett, 1988). Self-regulated learning strategy is incorporated as an additional psychological variable underlying students' academic performance as prior research has suggested that self-efficacy is linked to self-regulated learning (Pintrich and DeGroot, 1990). Biggs (1984) suggested that strategies students use to learn new materials often are similar to strategies they use to solve new problems.

Figure 2

Extended research model



Additionally, this study inquires specifically into whether there are differences in psychological influences between domestic and international students. Research suggests that the difference between the two groups' academic performance is partly determined by different learning styles, learning preferences and learning approaches (Christopher and Debreceny, 1993; Rankin *et al*., 2003; Hartnett *et al*., 2004;Cooper, 2004). In this regard, the influence of psychological factors could be expected to differ between students from different origins or cultures, which in turn, could be expected to affect academic performance differently.

Over the last decade, the proportion of international students enrolled in Australian universities has grown exponentially and steadily. According to the Department of Education, Employment and Workplace Relations (2008), there were 228,627 international students studying in Australia in the first half of 2008, an increase of 6.1 percent over the same period in 2007. Given the high population of international students in Australia, it is important to consider whether there are differences in academic self-concept ability, college self-efficacy, goal orientation and self-regulated learning strategy between domestic and international students. For the purpose of this study, domestic students are denoted as students who hold Australian citizenship or permanent residency and have completed their pre-tertiary education in Australia and international students are those students who have completed their pre-tertiary education overseas and have come to Australia to complete their tertiary education.

Based on the above review of the literature, this study attempts to address the following research questions:

RQ_1: How well does academic self-concept of ability, goal orientation, college self-efficacy and self-regulated learning strategy, contribute to predicting and explaining academic performance?

RQ_2: Are there differences in academic self-concept ability, goal orientation, college self-efficacy, and self-regulated learning strategy between domestic and international students?

RQ_3: Are there mediating relationships through college self-efficacy and goal orientation between academic self-concept and self-regulated learning strategies?

RQ_4: Are there mediating relationships through a self-regulated learning strategy between academic self-concept ability, goal orientation, college self-efficacy and academic performance?

3. RESEARCH METHOD

The data were collected during Trimester 1 in 2010. The participants were students undertaking a second year core management accounting unit for the Bachelor of Commerce at an Australian university. The 375 usable responses represented a response rate of 42%, based on the number of students registered for the unit (886 students). Students completed the survey questionnaire during their fortnightly workshops and participation was voluntary. Of the 375 students who participated in the survey, 99 (26%) were domestic students and 276 (74%) were international students. Gender distribution was 44% males and 56% females with an average age of 22 (SD = 2.738), ranging from 16 to 43 years old. The respondents had a variety of majors: accounting (29%), accounting and finance (48%), accounting and financial planning (7%) and accounting and law (4%). Most of the participants were full-time students (97%), but a majority of the participants (52%) work more than 20 hours per week.

Interestingly, the participants spend an average of 22 hours (SD = 12.583) on their studies per week with 43% of them studying more than 20 hours per week for all units undertaken during the trimester. Demographic characteristics of the sample are shown in Table 1. A comparison of the respondents with the student population enrolled for this unit of study indicated that there was no significant difference in demographics between respondents and non respondents.

Table 1

Respondents' demographic profile

	Percent		Percent
Gender		**Study mode**	
Male	44.0	Full-time	97.3
Female	56.0	Part-time	2.7
Residence		**Have a job**	
Local	26.4	Yes	57.0
Overseas	73.6	No	43.0
First language		**Number of hours working per week**	
English	22.2	Less than 10 hours	6.4
Mandarin	44.3	10 - 20 hours	42.1
Sinhalese	7.5	More than 20 hours	51.5
Indonesian	5.8		
Cantonese	5.6	**Major**	
Vietnamese	4.4	Accounting	28.8
Others	10.2	Accounting and Finance	48.1
		Accounting and Financial Planning	6.8
Country of origin: overseas		Accounting and Law	3.8
China	49.8	Others	12.5
Sri Lanka	11.0		
Malaysia	8.5	**Unit scores**	
Indonesia	7.8	Less than 50 marks	14.9
Hong Kong	7.1	50 - 59 marks	15.5
Vietnam	5.0	60 - 69 marks	27.2
Others	10.8	70 - 79 marks	18.1
		More than 80 marks	24.3
Entry pathway			
VCE	25.7	**Number of hours studying the unit per week**	
MIBT	53.0	Less than 5 hours	27.2
TAFE	5.1	5 - 10 hours	48.3
Foreign partners	9.2	More than 10 hours	24.5
Others	7.0		

The students responded to a self-report questionnaire. All items on the questionnaire were rated on 7-point Likert scales. Pre-existing scales were used to develop the questionnaire. The questionnaire was pilot-tested with a group of 20 students who undertook the same unit during Trimester 1 in 2009 and was reviewed by three academics at the same university. The wording of some of the questions was modified after the pilot test to suit the context of accounting students. The questions used for the study are presented in Appendix A.

Academic self-concept ability. The instrument for measuring academic self-concept ability is based on 10 items drawn from the Self-Description Questionnaire III (Marsh and O'Neill, 1984) to measure students' perceived academic ability. Students were asked to rate how true the statements are as descriptions of their impression and opinion about accounting subjects on a scale of (1) Not at all true of me to (7) Very true of me. Total score is obtained by summing and averaging all individual items, with a higher score reflecting a greater sense of academic ability in accounting subjects.

College self-efficacy. The study measures self-efficacy based on the College Self-Efficacy Inventory (Solberg *et al*. 1993). This instrument consists of 20 items measuring students' belief in their capability to successfully complete university-related tasks. Students were asked to rate how confident they feel about successfully completing various tasks in diverse aspects of university life on a scale ranging from (1) not at all confident to (7) extremely confident. Responses are summed and averaged to obtain a scale score with a high score indicating high levels of college self-efficacy.

Goal orientation. For goal orientation, this study adopts eight items in the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich *et al*. (1993). Students were asked to rate how true the statements are as descriptions of their motivation for attitudes about a management accounting unit on a scale ranging from (1) not at all true of me to (7) very true of me. Total score is obtained by summing and averaging all items, with a higher score indicating higher level of goal orientation.

Self-regulated learning strategy. Self-regulated learning strategy is measured using the Self-Efficacy for Self-Regulated Learning (SESRL) instrument developed by Gredler and Garavalia (2000). The 27 items measure students' perception about the frequency and effectiveness of their use of various learning strategies to complete their study-related activities. Students were asked to rate their perceived ability to assume individual responsibility for learning on a scale ranging from (1) not well at all to or not often at all (7) very well or very often. Responses were summed and averaged to obtain a score with higher scores representing better self-regulated learning strategy.

Academic performance. The measurement of academic performance is based on students' final grades in the unit.[1]

[1] To ensure that the results are robust, the study also tested the hypothesized path model using students' weighted average marks and found that the statistical inferences are unchanged.

Each variable was tested for reliability and validity using Cronbachs' alpha and factor analysis. Several items were deleted due to low internal consistency or lack of discriminant validity. The final set of items is shown in Appendix A. Table 2 shows the results for Cronbachs' alpha, factor loadings and item-to-total correlation. With the exception of social integration self-efficacy (.679), all Cronbachs' alpha coefficients were above the minimum recommended standard of 0.7 (Hair *et al*., 2006; Nunnnally and Berstein, 1994; Pallant 2001). However, it is quite common to find a slightly lower Cronbach's alpha value (e.g. 0.50) if a scale has less than ten items (Pallant, 2001). The item-to-total correlation coefficients and factor loadings were found to be above the minimum recommended standards of 0.3 and 0.4, respectively (Pallant, 2001). After the reliability and validity of the measures were determined, the items measuring each variable were summated by averaging the scores to form scales representing the related factors.

Table 2

Cronbachs' alpha, factor loading and item-total correlation

Items	Academic self-concept ability[2]	Item-total correlation
SC1	.792	.689
SC3	.744	.620
SC9	.731	.639
SC7	.721	.608
SC5	.686	.578
SC2	.659	.577
SC8	.650	.596
SC4	.581	.499
SC6	.550	.455
SC10	.475	.393
α	**.854**	

Items	Social self-efficacy	Course self-efficacy	Roommate self-efficacy	Social integration self-efficacy	Item-total correlation
SE5	.874				.817
SE3	.858				.830
SE6	.855				.806
SE2	.779				.765
SE4	.762				.759
SE11		.782			.683
SE10		.767			.660
SE7		.762			.670
SE12		.763			.714
SE9		.675			.576
SE20			.745		.588
SE18			.748		.543
SE19			.740		.498
SE17			.683		.452
SE15				.880	.520
SE14				.742	.520
α	**.921**	**.850**	**.728**	**.679**	

Continue...

[2] Only one factor.

Items	Intrinsic goal orientation	Extrinsic goal orientation				Item-total correlation
GO8	.862					.631
GO7	.822					.622
GO5	.647					.521
GO4		.810				.553
GO2		.755				.544
GO3		.740				.580
α	**.759**	**.735**				

Items	General organizing and planning strategy	Recall ability	External regulation	Typical study strategy	Environmental restructuring	Item-total correlation
SL3	.772					.789
SL7	.771					.793
SL8	.771					.813
SL6	.769					.836
SL9	.769					.813
SL5	.751					.799
SL26		.787				.725
SL27		.744				.648
SL25		.715				.687
SL24		.694				.734
SL15			.763			.779
SL16			.710			.715
SL14			.701			.643
SL12			.650			.573
SL18				.817		.710
SL19				.752		.710
SL23					.777	.536
SL20					.703	.536
α	**.935**	**.854**	**.842**	**.831**	**.697**	

Extraction method: Principal component analysis
Rotation method: Varimax with Kaiser normalisation

4. RESULTS AND DISCUSSIONS

The data were first factor analysed using SPSS and the hypothesized path model was tested using AMOS. The relationships between the variables were evaluated using Pearson correlation coefficients. Table 3 reports the mean scores, standard deviations, and zero-order correlations for all the variables incorporated into this study. The results in Table 3 show that there are significant positive associations between academic self-concept ability, college self-efficacy, goal orientation and self-regulated learning strategy. With the exception of goal orientation, there are also strong and positive associations between all psychological variables and academic performance.

Table 3

Descriptive statistics and zero-order correlations

Variable	Mean	SD	1	2	3	4	5
1. Academic self-concept ability	4.852	.944	1.000				
2. College self-efficacy	4.076	.871	.455*	1.000			
3. Goal orientation	5.015	1.045	.431*	.503*	1.000		
4. Self-regulated learning strategy	4.799	.915	.489*	.642*	.663*	1.000	
5. Academic performance	61.918	9.681	.264*	.136*	.061	.142*	1.000

Significant at: * $p < 0.01$ (2-tailed)

To test the research model in Figure 2, a path analysis was conducted using AMOS 17.0 to explore the strength of the direct and indirect effects among variables incorporated into this study. The study evaluates the parameter estimates to determine whether they are consistent with predictions. In Figure 3, the study reports the results of the research model corresponding to Figure 2 for total sample.

The results of the path analysis provide support for the path relationships. Overall, 58% of the variance in self-regulated learning strategy was accounted for by academic self-concept, college self-efficacy and goal orientation. For college self-efficacy and goal orientation, 21% and 30% of the variances were explained by academic self-concept respectively. However, only 2% of the variance was accounted for by academic performance in the model.

Paths P_1, P_2 and P_3 predicted that academic self-concept would be associated positively with college self-efficacy, self-regulated learning strategy and goal orientation. Table 3 shows that academic self-concept is significantly correlated with college self-efficacy (r = .455, p = .001), self-regulated learning strategy (r = .489, p = .001), and goal orientation (r = .431, p = .001). Analysing the path model results in Figure 3 and Table 4 provided results consistent with the correlation analysis. Thus, paths P_1, P_2 and P_3 are supported.

Path P_4 predicted that college self-efficacy would be associated positively with goal orientation. Table 3 shows a highly significant correlation between college self-efficacy and goal orientation (r = .503, p = .001). An examination of the model results in Figure 3 and Table 4 indicated that the path from college self-efficacy to goal orientation was significant, providing support for path P_4.

Paths P_5 and P_6 predicted that college self-efficacy and goal orientation would be positively related to self-regulated learning strategy. Consistent with these predictions, Table 3 shows that the correlations between college self-efficacy and self-regulated learning strategy (r = .642, p = .001) and between goal orientation and self-regulated learning strategy (r = .663, p = .001) were highly significant. Similarly, an examination of the path model results in Figure 3 and Table 4 indicated significant links between them. Thus, paths P_5 and P_6 are supported.

Path P_7 predicted a positive relationship between self-regulated learning strategy and academic performance. Consistent with this prediction, Table 3 and Table 4 shows a highly significant correlation between these two factors (r = .176, p = .001). Additionally, the path model results in Figure 3 and Table 4 were significant. Thus, path P_7 is supported.

Figure 3

Hypothesized model

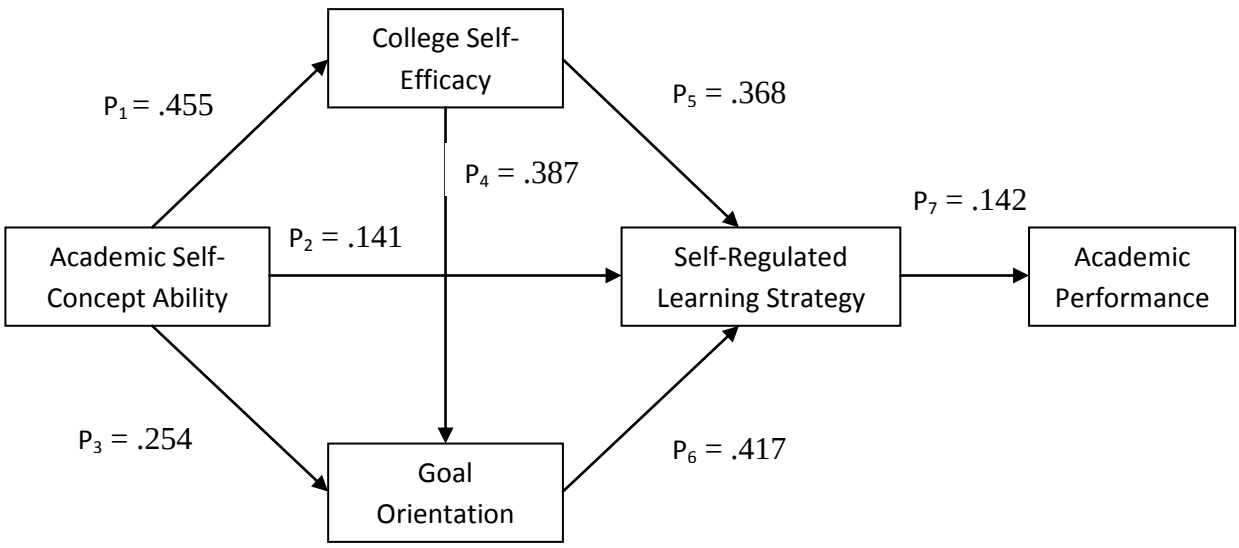


Table 4

Results of path analysis

Paths	Estimate	*p* value
P_1: Academic self-concept ability → College self-efficacy	.455	.001
P_2: Academic self-concept ability → Goal Orientation	.254	.001
P_3: Academic self-concept ability → Self-regulated learning	.141	.001
P_4: College self-efficacy → Goal orientation	.387	.001
P_5: College self-efficacy → self-regulated learning strategy	.368	.001
P_6: Goal orientation → self-regulated learning strategy	.417	.001
P_7: Self-regulated learning strategy → academic performance	.142	.006

To examine the differences between domestic and international students, the total sample was split into two subsamples. Domestic students are denoted as students who hold Australian citizenship or permanent residency and have completed their pre-tertiary education in Australia and international students are those students who have completed their pre-tertiary education overseas and have come to Australia to complete their tertiary education.

Table 5 presents descriptive statistics for the main variables for domestic and international students. The table shows that international students appear to have higher college self-efficacy and self-regulated learning strategy, but lower academic self-concept ability, goal orientation and academic performance, than domestic students. With the exception of college self-efficacy, the ANOVA results in Table 6 indicate that there were no significant differences in the mean scores for the remaining four variables between domestic and international students.

Table 5

Descriptive statistics for domestic and international students

	Domestic students			International students		
	Mean	Std. Dev.	Std Error	Mean	Std. Dev.	Std Error
1. Academic self-concept ability	4.950	.899	.090	4.816	.958	.058
2. College self-efficacy	3.948	.747	.075	4.122	.908	.055
3. Goal orientation	5.023	.953	.096	5.013	1.080	.065
4. Self-regulated learning strategy	4.707	.849	.085	4.833	.936	.056
5. Academic performance	62.000	13.175	1.324	61.890	11.153	.671

Table 6

ANOVA analysis for variables

		Sum of Squares	df	Mean	F	Sig.
1. Academic self-concept ability	Between	1.310	1	1.310	1.474	.226
	Within Group	331.625	373	.889		
	Total	332.936	374			
2. College self-efficacy	Between	2.210	1	2.210	2.927	.088
	Within Group	281.581	373	.755		
	Total	283.791	374			
3. Goal orientation	Between	.008	1	.008	.007	.933
	Within Group	409.847	373	1.099		
	Total	409.855	374			
4. Self-regulated learning strategy	Between	1.151	1	1.151	1.378	.241
	Within Group	311.653	373	.836		
	Total	312.804	374			
5. Academic performance	Between	.922	1	.922	.007	.935
	Within Group	51218.678	373	137.315		
	Total	51219.600	374			

As the difference for college self-efficacy between domestic and international students was marginal, the study further explored the variables incorporated in the research model by examining their respective factors using the mean scores for each factor. The ANOVA results in Table 7 indicate there were significant differences in the mean scores for course self-efficacy (F= 5.409, p = .021), social integration self-efficacy (F= 13.468, p = .001), roommate self-efficacy (F= 4.444, p = .036) and general organising and planning strategy (F= 5.425, p = .020) between domestic and international students.

Table 7

ANOVA analysis for factors

		Sum of Squares	df	Mean	F	Sig.
1. Social self-efficacy	Between	.505	1	.505	.285	.594
	Within Group	662.286	373	1.776		
	Total	662.792	374			
2. Course self-efficacy	Between	6.146	1	6.146	5.409	.021
	Within Group	423.812	373	1.136		
	Total	429.958	374			
3. Social integration self-efficacy	Between	27.664	1	27.66	13.468	.000
	Within Group	766.170	373	2.054		
	Total	793.835	374			
4. Roommate self-efficacy	Between	5.767	1	5.767	4.444	.036
	Within Group	484.055	373	1.298		
	Total	489.822	374			
5. Intrinsic goal orientation	Between	2.250	1	2.250	1.742	.188
	Within Group	481.613	373	1.291		
	Total	483.862	374			
6. Extrinsic goal orientation	Between	2.810	1	2.810	1.846	.175
	Within Group	567.794	373	1.522		
	Total	570.604	374			
7. General organising and planning	Between	6.782	1	6.782	5.425	.020
	Within Group	466.322	373	1.250		
	Total	473.105	374			
8. External regulation	Between	.245	1	.245	.202	.654
	Within Group	453.594	373	1.216		
	Total	453.840	374			
9. Typical study strategy	Between	.418	1	.418	.266	.606
	Within Group	585.799	373	1.571		
	Total	586.217	374			
10. Environmental restructuring	Between	.125	1	.125	.090	.765
	Within Group	518.535	373	1.390		
	Total	518.660	374			
11. Recall ability	Between	1.601	1	1.601	1.700	.193
	Within Group	351.272	373	.942		
	Total	352.873	374			

In Figure 4, the study reports the results of the research models corresponding to Figure 2 for domestic and international students respectively in Panel A and Panel B. As with the total sample, the results of the path analysis in Figure 4 and Table 8 indicate the direct paths among the variables in the models are statistically significant for both domestic and international students and provide support for the predicted path relationships.

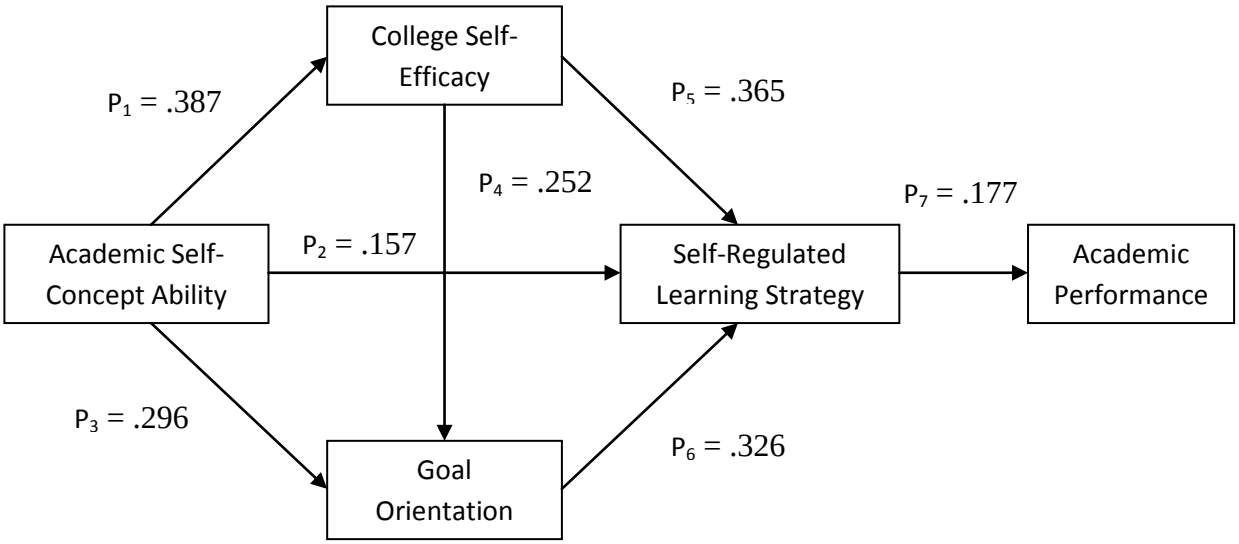
Overall, 44% and 63% of the variances in self-regulated learning strategy for domestic and international students, respectively, were accounted for by academic self-concept, college self-efficacy and goal orientation. Academic self-concept ability explained 15% and 21% of variances in college self-efficacy and goal orientation for domestic students; it explained 25% and 36% of variances in college self-efficacy and goal orientation for international students. However, only 3% and 2% of the variances in the models were accounted for by academic performance for domestic students and international students respectively.

To investigate whether there are differences between the two groups' path coefficients in Figure 4, the study conducted general linear tests. With the exception of P_6 (goal orientation → self-regulated learning strategy), the general linear tests indicate that the path coefficients between domestic and international students are not significantly different from each other. For P_6, the general linear test indicates that there is a difference between domestic and international students; however, the path coefficients are only marginally different from each other ($F_{1, 371} = 3.201$, $p = 0.074$).

Figure 4

Models for domestic and international students

Panel A. Domestic Students



Panel B. International Students

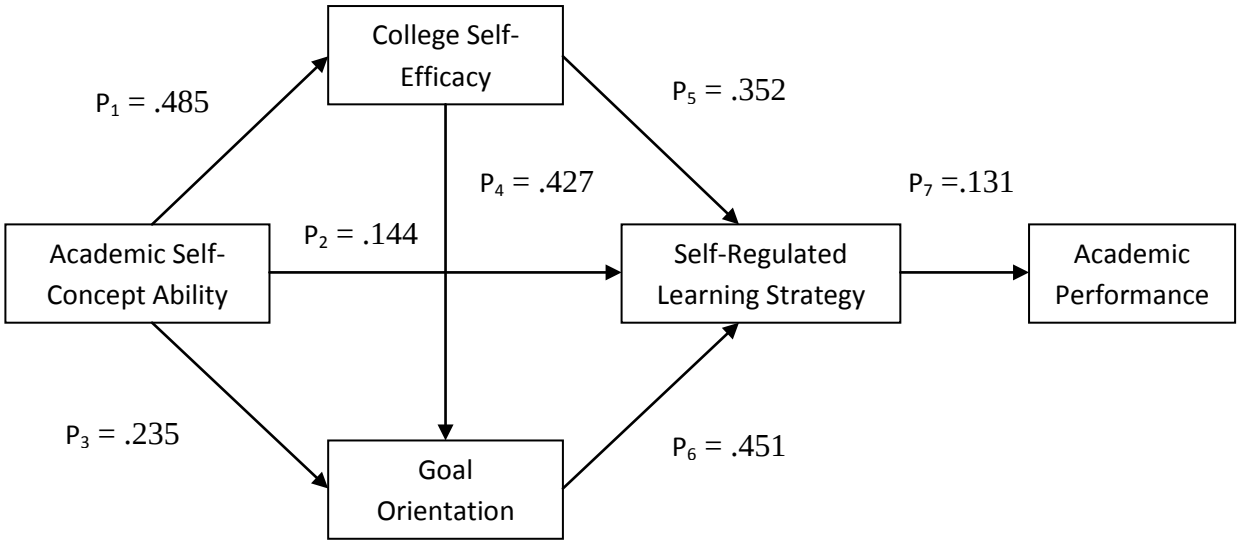


Table 8

Results of path analysis for domestic and international students

	Domestic Students		International Students	
Paths	**Estimate**	***p* value**	**Estimate**	***p* value**
P_1: Academic self-concept ability → College self-efficacy	.387	.001	.485	.001
P_2: Academic self-concept ability → Goal Orientation	.296	.002	.235	.001
P_3: Academic self-concept ability → Self-regulated learning	.157	.068	.144	.001
P_4: College self-efficacy → Goal orientation	.252	.010	.427	.001
P_5: College self-efficacy → self-regulated learning strategy	.365	.001	.352	.001
P_6: Goal orientation → self-regulated learning strategy	.326	.001	.451	.001
P_7: Self-regulated learning strategy → academic performance	.177	.075	.131	.029

In addition to the direct effects, the indirect effects between the variables were examined. The decomposition of the paths for total sample, domestic and international students is shown in Table 9. Based on the decomposition results of the paths, the following mediation relationships were tested using the Sobel test:

(1) Does college self-efficacy mediate the relation between academic self-concept ability and goal orientation?

(2) Do college self-efficacy and goal orientation mediate the relation between academic self-concept and self-regulated learning strategy?

(3) Does goal orientation mediate the relation between college self-efficacy and self-regulated learning strategy?

The results indicate that for the total sample, domestic students and international students, the indirect effects of academic self-concept ability on self-regulated learning strategy through both college self-efficacy and goal orientation are greater than the direct effects. On the other hand, the indirect effects of college self-efficacy on self-regulated learning strategy through goal orientation, and academic self-concept ability on goal orientation through college self-efficacy are smaller than the direct effects. Furthermore, all indirect effects for domestic students are lower than the corresponding indirect effects for international students.

To test the significance of the indirect effects, the study adopted the technique suggested by Baron and Kenny (1986), Sobel (1982), Goodman (1960) and MacKinnon *et al*. (1995). Table 10, Table 11 and Table 12 report the results of the Sobel test for indirect effects. The *z* scores are all greater than 1.96 and significant at .05 level for all three mediation relationships stated above.

The results of the first mediation test show that higher level of academic self-concept will enhance college self-efficacy, which in turn will improve goal orientation. For the second mediation test, the results suggest that as academic self-concept ability increases, there will be greater influences on college self-efficacy and goal orientation, which in turn will induce better self-regulated learning strategy. Similarly, for the third mediation test, the results indicate that higher level of college self-efficacy will set off better goal orientation and will lead to improved self-regulated learning strategy.

Additionally, the study also examined the mediating relationships between academic self-concept ability, college self-efficacy and goal orientation and academic performance through self-regulated learning strategy. The Sobet test results in Table 13 show that while the *z* scores for total sample and international students are greater than 1.96, the *z* scores for domestic students are all below 1.96. The results indicate that higher levels of academic self-concept ability, college self-efficacy and goal orientation will enhance self-regulated learning strategy for international students only but not for domestic students. Consequently, the findings suggest that better self-regulated learning strategy is expected

to improve international students' academic performance but not domestic students' academic performance.

In answering the first research question, the results have shown that even though the path coefficients in Figure 3 and Figure 4 for total sample, domestic students and international students are all significant, only very small amounts of the variation in academic performance were explained in the models. This suggests that there might be an alternate model that may better explain academic performance.

The results also reveal that other than three of the four factors of college self-efficacy (i.e. course self-efficacy, social integration self-efficacy, roommate self-efficacy) and one of the five factors of self-regulated learning strategy (i.e. general organising and planning strategy), the differences in other factors between domestic and international students are insignificant, which answers the second research question. International students appear to have higher levels of course self-efficacy, social integration self-efficacy and general organising and planning strategy, but lower level of roommate self-efficacy, than domestic students. The results suggest that while international students are more confident in their own capabilities with regards to university related activities (e.g. course work, student organisations) and have better organising and planning abilities (e.g. prioritise their time, plan their work), they are less confident about independent living or living with others.

In reference to the third and fourth research questions, the results have shown mediating roles of college self-efficacy, goal orientation and self-regulated learning strategy. The indirect effects appear to have greater influences on international students than on domestic students. In particular, the present study expands significantly on Latham and Locke's (1991) goal-efficacy model by providing support for the mediating role of self-regulated learning strategy.

Overall, the findings are in congruence with the goal-efficacy model. In a multivariate context, academic self-concept ability, college self-efficacy, goal orientation and self-regulated learning strategy are significantly and positively related to academic performance. This finding corroborates what Carroll and Garavalia (2004) found in their earlier studies, that the beliefs people have about themselves are key factors in determining what they can accomplish. Additionally, the findings are consistent with Rittman's (1999) contention that psychological factors are important in understanding academic performance, which may have policy implications for teaching methods, assessment and curriculum development.

The findings have important implications for course counsellors, academic advisors, mentors and other university staff who work with international students. Program interventions should be developed by taking the realistic needs of international students into consideration, as they are often struggling with demanding academic requirements and trying to adjust or survive in an unfamiliar culture. One way to positively impact roommate self-efficacy is by providing appropriate interventions or programs to help international students to more effectively deal with barriers relating to living in a foreign country with others. This is particularly true in a university context where students may come from

different socio-economic groups and educational backgrounds, and have different personality traits and life styles.

Table 9

Decomposition of path analysis for total sample, domestic and international students

	Total Sample			Domestic Students			International Students		
Paths	**Direct**	**Indirect**	**Total**	**Direct**	**Indirect**	**Total**	**Direct**	**Indirect**	**Total**
P_1: Academic self-concept ability → College self-efficacy	.457	---	.457	.386	---	.386	.487	---	.487
P_2: Academic self-concept ability → Goal Orientation	.253	.177	.430	.294	.097	.392	.234	.208	.442
P_3: Academic self-concept ability → Self-regulated learning	.145	.346	.491	.157	.269	.426	.149	.370	.519
P_4: College self-efficacy → Goal orientation	.387	---	.387	.253	---	.253	.427	---	.427
P_5: College self-efficacy → self-regulated learning strategy	.367	.161	.528	.365	.082	.448	.350	.192	.542
P_6: Goal orientation → self-regulated learning strategy	.416	---	.416	.326	---	.326	.450	---	.450
P_7: Self-regulated learning strategy → academic performance	.176	---	.176	.259	---	.259	.150	---	.150

Table 10[3]

Mediation effects of college self-efficacy on academic self-concept ability and goal orientation

	Total Sample			Domestic Students			International Students		
Paths	***B***	**Std. error**	***t stat.***	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t* Stat.**
SC → SE	.420	.043	9.877	.322	.078	4.137	.460	.050	9.190
SE → GO	.604	.054	11.237	.467	.120	3.877	.644	.060	10.660
Sobel test (*z* score)	7.418			2.829			6.961		

SC: Academic self-concept ability, SE: College self-efficacy, GO: Goal orientation, LS: Self-regulated learning strategy, AP: Academic performance.

[3] All *β* values in Table 10 are unstandardized regression coefficients.

Table 11[4]

Mediation effects of college self-efficacy and goal orientation on academic self-concept ability and self-regulated learning strategy

	Total Sample			Domestic Students			International Students		
Paths	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t* Stat.**
SC → SE	.420	.043	9.877	.322	.078	4.137	.460	.050	9.190
SE → LS	.674	.042	16.173	.620	.097	6.409	.687	.046	14.789
Sobel test (*z* score)	8.429			3.476			7.806		
SC → GO	.478	.052	9.213	.417	.099	4.211	.499	.061	8.168
GO → LS	.579	.034	17.098	.465	.077	6.021	.611	.037	16.461
Sobel test (*z* score)	8.111			3.451			7.317		

SC: Academic self-concept ability, SE: College self-efficacy, GO: Goal orientation, LS: Self-regulated learning strategy, AP: Academic performance.

[4] All *β* values in Table 11 are unstandardized regression coefficients.

Table 12[5]

Mediation effects of goal orientation on college self-efficacy and self-regulated learning strategy

	Total Sample			Domestic Students			International Students		
Paths	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t* Stat.**
SE → GO	.604	.054	11.237	.467	.120	3.877	.644	.060	10.660
GO → LS	.579	.034	17.098	.465	.077	6.021	.611	.037	16.461
Sobel test (*z* score)	9.390			3.260			8.948		

SC: Academic self-concept ability, SE: College self-efficacy, GO: Goal orientation, LS: Self-regulated learning strategy, AP: Academic performance.

[5] All *β* values in Table 12 are unstandardized regression coefficients.

Table 13[6]

Mediation effects of self-regulated learning strategy on academic self-concept ability, college self-efficacy, goal orientation and academic performance

	Total Sample			Domestic Students			International Students		
Paths	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t stat.***	***β***	**Std. error**	***t* Stat.**
SC → LS	.474	.044	10.813	.403	.087	4.645	.503	.051	9.939
LS → AP	1.816	.656	2.769	2.746	.177	1.771	1.556	.714	2.180
Sobel test (*z* score)	2.682			1.655			2.130		
SE → LS	.674	.042	16.173	.620	.097	6.409	.687	.046	14.789
LS → AP	1.816	.656	2.769	2.746	1.550	1.771	1.556	.714	2.180
Sobel test (*z* score)	2.729			1.707			2.157		
GO → LS	.579	.034	17.098	.456	.077	6.021	.611	.037	16.461
LS → AP	1.816	.656	2.769	2.746	1.550	1.771	1.556	.714	2.180
Sobel test (*z* score)	2.733			1.699			2.162		

SC: Academic self-concept ability, SE: College self-efficacy, GO: Goal orientation, LS: Self-regulated learning strategy, AP: Academic performance.

[6] All *β* values in Table 12 are unstandardized regression coefficients.

5. CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

Based on the goal-efficacy framework, the primary objective of the study was to examine the relationships among various psychological factors believed to be associated with students' academic performance in a second year management accounting unit at an Australian university. Additionally, the study also examined the potential mediating role of a new variable, self-regulated learning strategy, included in the model.

Overall, the results from the study are consistent with the predictions of the goal-efficacy model. Specially, academic self-concept ability was significantly related to college self-efficacy, goal orientation and self-regulated learning strategy. College self-efficacy was significantly related to goal orientation. College self-efficacy and goal orientation were significantly related to self-regulated learning strategy, which in turn was significantly related to academic performance.

Results from the path analyses reveal that college self-efficacy mediates the relation between academic self-concept ability and self-regulated learning strategy. Students with higher academic self-concept ability have stronger college self-efficacy than students with lower academic self-concept ability, which in turn contribute to enhanced self-regulated learning strategies and improved academic performance. In other words, students might experience more college-self efficacy as they have more confidence in their academic ability, which in turn might have a positive effect on their learning strategies and academic performance.

The hypothesized path model also shows that the relationship between academic self-concept and a self-regulated learning strategy are partially mediated by goal orientation. In other words, students who have a high level of academic self-concept ability have better goal orientation than students who have a low level of academic self-concept ability and in turn, goal orientation is positively related to self-regulated learning strategy. So, lower levels of goal orientation would be related to less self-regulated learning strategy. This finding suggests that as students feel academically confident, they are likely to be more goal oriented, which consequently leads them to have a better learning strategy. The finding of this study sheds light on our understanding of the relationship between academic self-concept ability and learning strategies adopted by accounting students. Specifically, the findings indicate that academic self-concept ability leads to higher levels of goal orientation, which in turn leads to a better learning strategy. Consequently, it is expected that a better learning strategy will guide students to perform better academically.

It is interesting to note that international students have higher levels of course self-efficacy, social integration self-efficacy and general organising and planning strategy, but a lower level of roommate self-efficacy than domestic students. This finding will be useful for student advisors and counsellors, in providing early prevention and intervention services for international students to help international students increase their roommate self-efficacy and to effectively deal with living with outsiders in an unfamiliar environment.

Although there is no significant difference between domestic and international students with respect to their academic performance, the impacts of all the indirect effects for international students are higher than the corresponding indirect effects for domestic students. In other words, academic self-concept translates into academic performance only to the extent that international students keep hold of high levels of college self-efficacy, goal orientation and self-regulated learning strategy. This evidence reinforces the notion of interdependency between the three psychological factors for international students.

There are limitations to this study. Firstly, the dichotomous classification of domestic and international students may disguise differences within a particular group. For instance, international students in the sample come from different countries, cultural backgrounds and educational systems. Secondly, bias may exist due to the use of non-randomized convenient sampling. Thirdly, the survey was limited to one trimester and students who were undertaking a management accounting unit only. Fourthly, the use of unit grade may not truly reflect the effect of goal-efficacy variables on academic performance and may be potentially affected by types of assessments and teaching styles of the lecturer.

In summary, given that educators are often faced with teaching students who are from different educational backgrounds and countries, it is important to be aware not only of the psychological factors affecting domestic students but also how they contrast to the profiles of international students. In view of this, future studies should explore other psychological variables. In addition, it is also imperative to pool both demographical and psychological factors into an integrative model to further explain variations in academic performance than is possible with the current model.

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Appendix A
Measurement items

Items	Questions
How true each item is as a description of your impression of your impression and opinion about accounting subjects:	
SC1	I enjoy doing work for most accounting subjects
SC2	I hate studying for accounting subjects (R)
SC3	I like most accounting subjects
SC4	I have trouble with most accounting subjects (R)
SC5	I am good at most accounting subjects
SC6	I am not particularly interested in most accounting subjects (R)
SC7	I learn most accounting subjects quickly
SC8	I hate most accounting subjects (R)
SC9	I get good marks in most accounting subjects
SC10	I could never achieve 'Distinction' in accounting subjects even if I worked harder (R)
How confident you are as a student that you could successfully complete the following tasks in various aspects of university life:	
SE2	I talk to university staff
SE3	I ask questions in class
SE4	I participate in class discussion
SE5	I talk to my lecturers or tutors
SE6	I ask my lecturers or tutors questions
SE7	I manage my time effectively
SE9	I do well in my exams
SE10	I take good class notes
SE11	I read and understand my textbook
SE12	I keep up to date with my course work
SE14	I join student organisations
SE15	I join sport teams in university
SE17	I divide chores with others I live with
SE18	I get along with others I live with
SE19	I divide space in my shared residence
SE20	I socialise with others I live with

Continue...

How true each item is as a description of your motivation and attitudes about management accounting unit:

GO2	In a class like this, I prefer unit materials that arouse my curiosity, even if they are difficult to learn
GO3	The most satisfying thing for me in this unit is trying to understand the content as thoroughly as possible
GO4	When I have the opportunity in this unit, I choose questions/exercises/problems that I can learn from even if they don't guarantee a good grade
GO5	Getting a good grade in this unit is the most satisfying thing for me right now
GO7	If I can, I want to get a better grade in this unit than most of the other students
GO8	I want to do well in this unit because it is important to show my ability to my family, friends, employer or others

How well or how often you complete or implement your study related activities:

SL3	How well can you concentrate on your studies
SL5	How well can you plan your work
SL6	How well can you organise your class work
SL7	How well can you motivate yourself to do your assignments
SL8	How well can you set and honour your priorities
SL9	How well can you prioritise your time to complete your work for your classes
SL12	How often do you consider the lecturers' introductions, objectives, and instructions as essential for your studies
SL14	How often do you study all the subject matter in the same order as addressed in class
SL15	How often do you study according to the lecturers' instructions
SL16	How often do you rely on the learning goals set by lecturers
SL18	How often do you re-read your summaries of unit materials when preparing for a test
SL19	How often do you re-read the notes you took in class when preparing for a test
SL20	How well can you arrange a place to study without distraction
SL23	How often do you study for your units in a quiet room or area
SL24	How well do you understand information presented in class
SL25	How well do you understand information presented in textbooks
SL26	How often do you remember the facts and ideas presented in your classes
SL27	How often do you remember the facts and ideas presented in your classes after the units are completed?