Factors contributing toward student performance in a distance education accounting degree

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Abstract

Purpose – The purpose of this paper is to examine the effects of five determinates of performance in students ($N = 677$) who completed three years of financial accounting to obtain a Bachelor of Accounting Science (BCompt) degree by distance education through the University of South Africa.

Design/methodology/approach – Regression analysis is used on three yearly measures of performance with five independent variables (age, gender, prior accounting knowledge, mathematics background and academic aptitude).

Findings – Results show that mathematics background and academic aptitude are both significantly associated with student performance, throughout the financial accounting subjects. Prior accounting knowledge is also important in the first year of study but not thereafter.

Research limitations/implications – Prior research has found that other factors may influence student performance, and future studies which include these variables will add to these findings.

Practical implications – The results of this study have important implications for instructors, students and career advisers, particularly as research linking various factors with performance in accounting subjects over the length of a degree is limited.

Originality/value – The current study considers the determinants of student performance over three financial accounting years (rather than one year or one subject) and from a distance education perspective. As distance education becomes a more important delivery method of study in the future, these results have important implications.

Keywords Accounting, Gender, Academic aptitude, Age, Mathematics background, Prior accounting knowledge, Student performance

Paper type Research paper

1. Introduction

While prior research has examined many determinants of student performance in accounting subjects (see for example, Baldwin and Howe, 1982; Doran *et al.*, 1991; Eskew and Faley, 1988; Farley and Ramsay, 1988; Gul and Fong, 1993; Rohde and Kavanagh,

1996; Halabi, 2009), research has continually been prompted due to different and contradictory findings. An examination of studies into the determinates of student performance shows most of the existing studies involve face-to-face teaching, with performance being only examined in one or two accounting subjects. This study differs from previous research, as its objective is to examine the effect of a number of important variables on student performance in financial accounting modules across three years of a Bachelor of Accounting Science (BCompt) degree offered through distance education. Albrecht and Sack (2000) noted that as distance education becomes a more popular and efficient educational delivery system, research into these programs becomes very important, particularly in developing the channel of prospective chartered accountants (Olivier and Bulman, 2009). The variables examined in this study include age, gender, prior accounting knowledge, mathematics background and academic aptitude. The effect of these variables are analysed in relation to performance in eight financial accounting modules across a three-year distance education degree.

The rest of this paper is organised as follows. Section 2 reviews the prior research and the development of the research question. Section 3 summarises the research methodology. The results are presented in Section 4 and the findings discussed. Finally, Section 5 discusses the implications, the limitations and suggestions for future research.

2. Literature review
A primary aim of tertiary teaching is to encourage and facilitate student learning (Laurillard, 1993). While "learning" can also encompass an affective or psychomotor sort, it is the cognitive change and development that is the central aim of most instruction (Wild and Quinn, 1998). Once learning has occurred, it is most common to have this evaluated through some assessment performance (Michlistsch and Sidle, 2002).

In the general education literature, it has been found that there are many determinates of student performance (Laurillard, 1993). Educational research into which factors effect performance have shown results that are mixed and inconsistent. The inconsistent findings have prompted on-going research in different settings and contexts. Previous accounting research has also noted that many different factors could affect performance; however, the literature does not always agree on how individual factors or indeed what set of factors influence performance (D'Souza and Maheshwari, 2010).

To contribute to the accounting education literature and knowledge, the present study examines five commonly used variables and their effect on performance. Unlike prior research however, these factors will be assessed over three years of financial accounting study and in a distance education setting. The variables selected were based on a number of factors including the conflicting prior research; their relevance to this particular study and positive theories which seek to explain and predict, rather than prescribe a particular approach (Deegan and Unerman, 2011). The five variables include age, gender, prior accounting knowledge, mathematics background and academic aptitude.

2.1 Age
General educational literature has noted that the impact that the variable age (a proxy for maturity) has on student performance has been inconclusive (Duff, 2004; Guney, 2009). In accounting, Bartlett *et al.* (1993) found that on average older students achieved lower grades in all examinations but significantly so in respect of their third year subjects. Similarly, Koh and Koh (1999) found that younger students performed

significantly better than older students in an accounting degree, while Müller *et al.* (2007) found a similar result for performance in the first year of study. In contrast, Lane and Porch (2002) noted that older students performed better in accounting.

These prior findings show that accounting research related to the determinant of age are mixed. Koh and Koh (1999) suggest that no definite theory exists to explain the directional effect of age on performance and thus reasons to corroborate findings vary. For example, as students mature, they realise that completing their studies can be linked to financial success and as a result are more focussed. Guney (2009) suggests that as students grow older, they become more disciplined and as a result achieve better marks. Bartlett *et al.* (1993) propose that students' maturity equip them to deal with initial understanding but disadvantage them in the long run, as they have to adapt to the routine of study and examination.

2.2 Gender

Accounting gender studies, have also found inconsistent performance results. Doran *et al.* (1991) reported that, on average, males had significantly higher examination scores than females in Accounting Principles I. Koh and Koh (1999) found that males performed significantly better than females throughout an accountancy degree programme. Gammie *et al.* (2003), however, found that females outperformed their male counterparts in the first year accounting subject but no gender differences were found thereafter. Other studies reported that after controlling for "academic ability" there was no evidence of gender differences in examination performance (Buckless *et al.*, 1991; Keef and Roush, 1997). Both McDowall and Jackling (2006) and Halabi *et al.* (2010), when examining computer-based learning materials, found that gender did not affect performance, while Guney (2009) could not find a meaningful relationship between gender and performance.

The effect of gender on student performance remains inconclusive. This could be due to a number of factors, including institutional settings and research methodologies, or different learning strategies (De Lange and Mavondo, 2004).

2.3 Prior accounting knowledge

Cognitive entry behaviours, more commonly known as prior knowledge, are "those prerequisite types of knowledge, skills and competencies which are essential to the learning of a particular new task or set of tasks" (Bloom, 1976, p. 32). Early studies on prior knowledge, found that students who had followed an accounting course in high school performed no better than students who did not follow such a course (Baldwin and Howe, 1982) which was later confirmed by Byrne and Flood (2008). Most studies, however, have noted that prior accounting knowledge is a significant predictor of student performance, particularly in the first year of study (see Eskew and Faley, 1988; Farley and Ramsay, 1988; Gul and Fong, 1993; Rohde and Kavanagh, 1996; Rankin *et al.*, 2003; Alcock *et al.*, 2008; Cheung and Wong, 2011). While students who studied accounting at high school performed significantly better, Eskew and Faley (1988) and Gul and Fong (1993) noted that over time, prior accounting knowledge did not appear to benefit students (see also Bartlett *et al.*, 1993 and Doran *et al.*, 1991). Keef (1992) sought to determine whether extra years of prior accounting study held any benefit to students, and found the results to be insignificant.

From these prior studies, the influence of prior accounting knowledge on student performance is inconclusive. Reasons for the differences in results can be ascribed to a number of factors including research design, institutional settings and methods used

(Eskew and Faley, 1988). For example, Baldwin and Howe (1982) indicated that they did not differentiate the amount of high school accounting taken by the student, which in turn could have had an impact on the results reported.

2.4 Mathematics background

In accounting education, the influence of secondary mathematics as a determinant of student performance has also led to conflicting conclusions. Bartlett *et al.* (1993), found mathematics to be insignificantly linked to student performance. In contrast, Eskew and Faley (1988) and Gul and Fong (1993) reported that prior knowledge in mathematics was a significant predictor of student performance for introductory accounting students. Additionally, Wong and Chia (1996) found a significant relationship between students with a higher degree of proficiency in mathematics and performance in first year accounting (see also Yunker *et al.*, 2009) and throughout the accounting degree programme (Koh and Koh, 1999).

2.5 Academic aptitude

Academic aptitude (also known as "prior academic performance/achievement", "academic ability" or "previous performance") has been found to be an important determinant of performance (Byrne and Flood, 2008; Doran *et al.*, 1991; Eskew and Faley, 1988; Koh and Koh, 1999). Standardised measures such as Scholastic Assessment Test (SAT), American College Test (ACT) and Grade Point Average (GPA) scores have been used to measure academic performance (Koh and Koh, 1999). Mohrweis (2010) highlighted academic aptitude as a significant predictor of student performance. Guney (2009) found a positive relationship between previous academic success and student performance. Eskew and Faley (1988) and Doran *et al.* (1991) found that measures of academic performance and aptitude were the most important determinants of examination performance in Accounting Principles I and II and academic performance overall (see Koh and Koh, 1999). Byrne and Flood (2008) confirmed "prior academic achievement" was the most important variable in explaining first year academic performance of accounting students. In contrast to the above, however, Bartlett *et al.* (1993) found that "academic ability" did not have a significant impact on university examination performance, but explained that one of the reasons for this finding could be due to the low variation in the A-level scores of the sample group used.

2.6 Significance of the present study

In summary, prior accounting-based research has shown that the five variables selected for this study have been inclusive as to their predictive value on performance. The variables discussed have been primarily limited to a single accounting course or a combination of one or two accounting courses (Koh and Koh, 1999). Extending the research from the first module through to the final module of an accounting degree would further provide important information and clarify prior research, and the distance education nature of the way in which accounting subjects have been taught has not been previously examined.

2.7 The current setting

The curriculum for the BCompt degree at the University of South Africa comprises 34 modules of which eight are financial accounting, spread over three years or levels. For the purposes of this study, student performance at each level will be used. Reference to student

performance in the first two modules will be referred to as Accounting I; the second two
modules as Accounting II; and performance in the final four modules as Accounting III.

2.8 Research questions and hypotheses
The research questions stated in null form are as follows:

> *H1.* Age has no significant effect on performance in Accounting I, II or III.

> *H2.* Gender has no significant effect on performance in Accounting I, II or III.

> *H3.* Prior accounting knowledge has no significant effect on performance in
> Accounting I, II or III.

> *H4.* Mathematics background has no significant effect on performance in
> Accounting I, II or III.

> *H5.* Academic aptitude has no significant effect on performance in Accounting I, II or III.

3. Research methodology
3.1 Data
This study was based on $N = 677$ students from the University of South Africa who
completed all eight financial accounting modules in the BCompt degree in 2011. Data
obtained (via the ethical clearance committee) contained the following information:
student's personal details, including date of birth and gender; student's academic record
indicative of marks obtained for all modules completed to obtain the degree; student's
academic record indicating the date each module was passed; and final year of schooling
(Grade 12) results.

3.2 Model, variable definition and measurement
The regression model can be specified as:

$$
\begin{aligned}
ACCOUNTING\ I_i =\ & \beta_0 + \beta_1 AGE_i + \beta_2 GENDER_i \\
& + \beta_3 PRIOR\ ACCOUNTING\ KNOWLEDGE_i \\
& + \beta_4 MATHEMATICS\ BACKGROUND_i \\
& + \beta_5 ACADEMIC\ APTITUDE_i + e_i
\end{aligned}
$$

$$
\begin{aligned}
ACCOUNTING\ II_i =\ & \beta_0 + \beta_1 AGE_i + \beta_2 GENDER_i \\
& + \beta_3 PRIOR\ ACCOUNTING\ KNOWLEDGE_i \\
& + \beta_4 MATHEMATICS\ BACKGROUND_i \\
& + \beta_5 ACADEMIC\ APTITUDE_i + e_i
\end{aligned}
$$

$$
\begin{aligned}
ACCOUNTING\ III_i =\ & \beta_0 + \beta_1 AGE_i + \beta_2 GENDER_i \\
& + \beta_3 PRIOR\ ACCOUNTING\ KNOWLEDGE_i \\
& + \beta_4 MATHEMATICS\ BACKGROUND_i \\
& + \beta_5 ACADEMIC\ APTITUDE_i + e_i
\end{aligned}
$$

Where:
i = data for the ith student.
e_i = a random error term.

The definition and measurement of each variable is summarised in Table I.

Table II specifically refers to Academic aptitude and Mathematics background variables.

4. Results and discussion
4.1 Descriptive statistics
Table III presents the descriptive statistics of the dependent and independent variables. Table III shows the mean students' performance[1] (dependent variable) decreases as students progress into the degree. In Accounting I, the mean student performance was 68.83 (standard deviation = 11.022), Accounting II, 60.20 (standard deviation = 8.2181) and Accounting III, 56.60 (standard deviation = 5.677). The mean over the three years is 61.88

Variable name	Definition/measurement
	Dependent variable
Student performance	
Accounting I	Average marks obtained for the two financial accounting modules at level one
Accounting II	Average marks obtained for the two accounting modules at level two
Accounting III	Average marks obtained for the four accounting modules at level three
	Independent variables
Age	Age of the student on completion of the final module in Accounting I, II and III, respectively
Gender	1 = female
	0 = male
Prior accounting knowledge	1 = accounting taken as a subject in Grade 12
	0 = no accounting taken as a subject in Grade 12
Mathematics background	Achievement level (1-7)[a]
Academic aptitude	APS (admission point score)[b]

Table I.
Measurement of dependent and independent variables

Notes: [a] The achievement level (see Table II) obtained for mathematics in the final year of schooling (Grade 12) is used to measure mathematics background; [b] The APS score is calculated using the NSC achievement levels table (see Table II). When standardised, the maximum APS that can be obtained is a score of 42 points

Achievement	Achievement level	Marks (%)
7	Outstanding achievement	80-100
6	Meritorious achievement	70-79
5	Substantial achievement	60-69
4	Adequate achievement	50-59
3	Moderate achievement	40-49
2	Elementary achievement	30-39
1	Not achieved	0-29

Table II.
National senior certificate achievement levels

Source: University of Pretoria (2012)

Variable[a]	N	Mean	SD	Minimum	Maximum	Frequency (%)
Student performance[b]						
Accounting I	677	68.83	11.022	50	98	
Accounting II	677	60.20	8.2181	50	94	
Accounting III	677	56.60	5.677	50	80	
Average performance[c]	677	61.88	6.906	50	88	
Age[d]						
Accounting I	677	21.77	4.216	17	45	
Accounting II	677	23.53	4.455	19	46	
Accounting III	677	26.31	5.102	20	48	
Average age[e]	677	23.87	4.473	19	46	
Academic aptitude[f]	677	30.14	6.612	12	42	
Mathematics background[g]	677	4.36	1.715	1	7	
Gender[h]	677					
Female						384 (56.7)
Male						293 (43.3)
Prior accounting knowledge[i]	677					
Accounting in Grade 12						549 (81.1)
No accounting in Grade 12						128 (18.9)

Notes: [a] Higher variable values represent better student performance, academic aptitude and mathematics background; [b] Student performance is measured by the student's average mark obtained in Accounting I, II and III, respectively; [c] Average student performance is measured as the average mark obtained by the student in Accounting I, II and III; [d] Age is measured as the students' age at the point that the student completed the final module in Accounting I, II and III, respectively; [e] Average age of the student is calculated as the average age of the student during the period taken to complete Accounting I, II and III; [f] Academic aptitude is measured as the student's APS on completing the final year of schooling (Grade 12). The APS score is calculated using the NSC achievement levels table (see Table II). The maximum APS that can be obtained is a score of 42 points; [g] Mathematics background is measured as the achievement level (1-7, see Table II) obtained by the student in the final year of schooling (Grade 12) for mathematics; [h] Gender is coded as "1" for female students and "0" for male students; [i] Prior accounting knowledge is coded as "1" for students who had accounting as a subject in the final year of schooling (Grade 12) and "0" for students who did not have accounting as a subject in the final year of schooling (Grade 12)

Table III.
Descriptive statistics

(standard deviation = 6.906). The mean age of students completing Accounting I, II and III is 21.77 (standard deviation = 4.216), 23.53 (standard deviation = 4.455) and 26.31 (standard deviation = 5.102), respectively, while the average age is 23.87 (standard deviation = 4.473). The mean for academic aptitude when completing Grade 12 is 30.14 (standard deviation = 6.612) and the mean mathematics score (range = 1 to 7) is 4.36 (standard deviation = 1.715). In terms of gender, 384 (56.7 per cent) were female and 293 (43.3 per cent) male, while N = 549 (81.1 per cent) had studied accounting in their final year of schooling.

4.2 Regression analysis
Multiple regression analysis was used to evaluate how well the five independent variables predict performance. Table IV shows that there is a significant relationship between the dependent variable (student performance) and the five independent

	Beta	Standardised coefficients Beta	t-statistic	p-value	VIF
Panel A: Performance in Accounting I					
Constant	39.953		12.181	0.000	
H1: Age	0.158	0.060	1.646	0.100	1.239
H2: Gender	−0.500	−0.022	−0.672	0.502	1.032
H3: Prior accounting knowledge	3.977	0.141	3.908	0.000*	1.205
H4: Mathematics background	1.138	0.177	3.411	0.001*	2.480
H5: Academic aptitude	0.582	0.349	6.593	0.000*	2.584
Model F = 49.957 (p-value =0.000); R-square = 0.271; adjusted R-square = 0.266					
Panel B: Performance in Accounting II					
Constant	49.269		17.933	0.000	
H1: Age	−0.003	−0.002	−0.042	0.966	1.249
H2: Gender	0.413	0.025	0.685	0.494	1.034
H3: Prior accounting knowledge	0.501	0.024	0.613	0.540	1.181
H4: Mathematics background	1.220	0.254	4.515	0.000*	2.475
H5: Academic aptitude	0.168	0.135	2.331	0.020**	2.609
Model F = 21.572 (p-value =0.000); R-square = 0.138; adjusted R-square = 0.132					
Panel C: Performance in Accounting III					
Constant	55.311		27.810	0.000	
H1: Age	−0.165	−0.148	−3.573	0.000*	1.322
H2: Gender	−0.160	−0.014	−0.380	0.704	1.036
H3: Prior accounting knowledge	−0.574	−0.040	−1.014	0.311	1.178
H4: Mathematics background	0.542	0.164	2.891	0.004*	2.472
H5: Academic aptitude	0.127	0.148	2.508	0.012**	2.670
Model F = 20.050 (p-value =0.000); R-square = 0.130; adjusted R-square = 0.123					

Notes: *Significant at the 0.01 level; **Significant at the 0.05 level; to detect any multicollinearity issues, the variance inflation factor (VIF) is calculated; a common rule is that if the VIF is greater than five (5), multicollinearity is severe
Source: Studenmund (2001)

Table IV.
Regression analysis results

variables. Accordingly, the model used is significant with a good fit, and the *R*-square compares favourably with prior studies (see Koh and Koh, 1999). To detect any multicollinearity issues, the variance inflation factor (VIF) was calculated. A common rule of thumb is that if the VIF is greater than five (5), multicollinearity is severe (Studenmund, 2001, p. 258). As can be seen from Table IV, no multicollinearity issues exist. An additional regression was run which excluded the effect of mathematics background from academic aptitude. The results (untabulated) remained unchanged.

4.3 Testing hypothesis

H1. Age

Table IV shows that age is not statistically significant in Accounting I and II, yet it is in Accounting III. Thus, the null hypothesis (*H1*), namely, age has no significant effect on student performance in Accounting I, II and III can be partially rejected. The negative coefficients in Accounting II and III indicate that younger students perform better, and significantly so in Accounting III. A reason for this finding could

be, for example, it can be assumed that students entering the BCompt degree are generally younger, therefore, more motivated to pass their examinations, as they may have less commitments (for example, time, work, family, financial) and consequently can focus more on their studies.

H2. Gender

Table IV also illustrates that gender is not significantly associated with student performance in Accounting I, II or III. Thus, the null hypothesis (*H2*), namely, gender has no significant effect on student performance in Accounting I, II or III, cannot be rejected. The negative coefficient for Accounting I and III indicates that male students perform better than females but not significantly so; however, in Accounting II, the opposite applies. Koh and Koh (1999) proposed that for a more systematic study, student gender should not be identifiable from the examination answer scripts. This suggestion was addressed in the current study, as a student number identifies students at Unisa resulting in examiners not knowing their gender. The indifferent gender results could be indicative that gender no longer plays a role in success due to equal opportunities available to both genders in the modern world.

H3. Prior accounting knowledge

Prior accounting knowledge is statistically significant in Accounting I but not so in Accounting II and III (see Table IV). Thus, for Accounting I, the null hypothesis (*H3*), namely, prior accounting knowledge has no significant effect on performance can be rejected. The positive coefficient for Accounting I indicates that students with prior accounting knowledge perform better than students without such knowledge. Reasons for these results can be ascribed to a number of factors such as research design, institutional settings and methods used. The results showing that prior accounting knowledge is only significantly associated with student performance in Accounting I (the student's first year of study) in the BCompt degree may be that prior accounting knowledge gives those who have such knowledge an early advantage; however, as the work becomes more integrated in the second and third year of studies, such prior knowledge is not enough to get them through the subject at the more advanced level.

H4. Mathematics background

Table IV confirms that mathematics background is statistically significant in Accounting I, II and III. Thus, the null hypothesis, namely, mathematics background has no significant effect on student performance in Accounting I, II or III can be rejected. At all three levels, students with a stronger mathematics background perform better. These findings confirm the expectation that a strong mathematical background will have a positive effect on student performance in the accounting subject. A reason to substantiate this finding could be that as mathematics is a subject that requires a high level of logic and skill, accordingly a student who obtained a higher grade in mathematics will have an advantage over the student with a lower grade.

H5. Academic aptitude

The null hypothesis academic aptitude has no significant effect on student performance in Accounting I, II or III can be rejected as academic aptitude is statistically significant in Accounting I, II and Accounting III (see Table IV). The positive coefficient indicates

that students with better academic aptitude scores perform better than students with lower scores. The findings show that academic aptitude is a strong predictor of performance and an important determinant of student performance. As indicated by prior literature, academic aptitude can be measured in various ways; however, regardless of the measure used academic aptitude is a strong indicator of success.

The standardised betas (see Table IV), further indicate that academic aptitude is the most important determinant of student performance in Accounting I followed by mathematics background; while in Accounting II and III mathematics, background is the strongest determinant.

5. Implications, limitations and conclusion

Factors influencing performance in accounting have been extensively researched over the past few decades. The effect that such factors have on performance in a distance education environment, over the duration of a course, and in a South African context are however limited, which prompted the motivation for the current study.

The results show that of the five variables tested, mathematics background and academic aptitude are the two most important determinants of performance in Accounting I, II and III. The findings thus confirm that a strong mathematical background will have a positive effect on performance (see Koh and Koh, 1999; Eskew and Faley, 1988; Gul and Fong, 1993; Wong and Chia, 1996). Similar to prior literature (Byrne and Flood, 2008; Duff, 2004; Guney, 2009; Koh and Koh, 1999; Mohrweis, 2010), these findings also show that academic aptitude is a strong predictor of performance. The present study also clarified the issue with respect to prior accounting knowledge, with results showing this factor is only significantly associated with performance in Accounting I and that such knowledge does not appear to benefit students over time (Eskew and Faley, 1988; Farley and Ramsay, 1988; Gul and Fong, 1993; Rohde and Kavanagh, 1996; Alcock et al., 2008). In relation to age, this study finds this factor to be pertinent to younger students performing significantly better in later years, which reinforces the findings of Bartlett et al. (1993), Koh and Koh (1999) and Müller et al. (2007). Finally, similar to studies by McDowall and Jackling (2006), Guney (2009) and Halabi et al. (2010), this study found no meaningful relationship between gender and performance.

The results showing the significance of academic aptitude, has important implications for educators and policymakers. Admission to the BCompt degree through Unisa has traditionally not been assessed using an admission point system. The implication and recommendation of this research is that Unisa examine the possibility of applying admission requirements to their BCompt degrees. The introduction of a minimum admission point system should increase student success and, as a result, throughput rates.

The findings also emphasise the importance of mathematics as a pre-requisite for admission to an accounting degree. An implication here is that student counsellors and student advisers, at the high school level in particular, should highlight this finding when advising prospective students who would like to pursue a career in accounting. A good mathematical knowledge developed at school will likely advantage students throughout their university accounting studies.

Prior accounting knowledge was found to be significantly associated with student performance in the first year of study but not thereafter. An implication is that this can also assist counsellors when advising students of career choices that prior accounting knowledge does not necessarily equip them to pass all the accounting modules in an

accounting degree. This could possibly widen the pool of prospective students taking accounting at university – that you do not need to complete accounting at high school to be successful overall. Additionally, the findings show that educators should caution students in accounting degree programs beyond the first year that having studied accounting as a subject in their final year of school does not guarantee that they will succeed in second- and third-year university accounting.

Finally, the findings also have implications for professional bodies. Accounting degrees are usually the starting point for students who want to qualify as chartered accountants, and it is important that professional bodies be aware of the results that show that academic aptitude and mathematics background are strong indicators of success. As professional bodies are continuously involved in ensuring universities adhere to a high standards of training, a recommendation would be to introduce a minimum admission point system for admission to a distance education accounting degree. This could increase the quality and throughput of students who eventually qualify as chartered accountants.

While statistical significance has been found in many of the variables tested, there are a number of limitations that should be borne in mind. These limitations however can be used to address further research. While the present study tested five variables, prior research has found that numerous other factors such as learning styles, student perceptions, motivation, home language and schooling may influence student performance (Lane and Porch, 2002; Guney, 2009). Due to fact that this study was designed to rely only on institutionally available data, these factors were not included in this study. Including these or perhaps other factors in future studies will add to findings pertaining to determinants of student performance. Byrne and Flood (2008) also noted that, if a greater understanding of academic performance is to be achieved, future research should aim to combine background variables (for example, study effort, part-time work commitments and family circumstances) with others. Additionally Arquero *et al.* (2007) state "Accounting is about measuring and communicating" and emphasise the importance of communication apprehension. Extending the current study to include communication skills will contribute to the current literature. Finally, only students at one university were included in this study; thus, the generalisability of the results to other institutions, therefore, may be limited, and future research could be extended to other distance education institution providers in South Africa and internationally.

Note

1. The study only includes successful students, thus the minimum performance percentage obtained is 50 per cent.

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