ACCOUNTING STUDENTS' PROFILE VERSUS ACADEMIC PERFORMANCE: A FIVE-YEAR ANALYSIS

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ABSTRACT

The purpose of the study was to explore first-year accounting students' profile (N= 3075) in terms of academic performance over a period of five years (2010–2014) at a South African university. The objectives were to determine the impact of students' profile (age, gender, race) and the students' pre-university knowledge brought to lectures (language, subject choice, whether Accounting was a Grade 12 subject) on academic performance. A quantitative research method was used. The study concluded that student profile, in particular gender, race and pre-university knowledge of first-year accounting students, does have an impact on the academic performance. Interestingly, for the period 2010 to 2013, no correlations was found between Accounting I students' academic performance and languages other than English and Afrikaans but in 2014 significant correlations were found between Accounting I students' academic performance and two first languages; Sepedi and Sesotho. The findings identified trends for at-risk students consequently assisting to implement interventions to assist at-risk students to pass Accounting I. The study's limitations include, firstly, the use of only one university and, secondly, a sample size including only first-year Accounting students. The value of this study should enable the university to identify students who fit the profile in terms of passing Accounting I in their first year at an academic institution.

Key words: academic performance, gender, language, race, South Africa, student profile, university

INTRODUCTION

Accounting students' profile of self, career and employability can play a significant role in degree choices based on prior knowledge and of how potential accounting students perceive a career in accounting that could possibly influence future career paths. Degree and career paths are vital in matching the profile of accounting students with prior knowledge and insights of degree and career prospects (Papageorgiou, Callaghan, Coldwell and Joosub 2014). Students' career pathways have gained momentum since subject and career guidance have been introduced at school level together with 'open days' hosted at most of the South African

academic institutions assisting scholars in guiding students in their degree choices and futures careers. Some students' profiles can often lead to students who become completely indecisive in choosing subjects for a degree, choosing a career and/or experiencing uncertainty among career choices that guarantee employability (Bullock-Yowell, Peterson, Reardon, Leierer and Reed 2011; Weatherby, Winne, MacAllister and Nesbit 2008; Eddy, Burke and Fiksenbaum 2008). While some students' profiles indicate that students who prefer to study towards becoming Chartered Accountants (CAs) indicate lower levels of subject indecision since the professional body together with academic institutions provide a fixed curriculum for the degree (SAICA 2016; Jordaan, Burger and Smithard 2009; Papageorgiou et al. 2014).

Over the past decade, student numbers have increased, wider variety in the prior knowledge of students have been perceived and the changing learning environment (referring to the digital environment) that placed yet more pressure on resources and facilities. These challenges have increased the desires for income cohort and brought about improved flexibility in modes of study, as well as further exploration in relation to quality and standards (Fry, Ketteridge and Marshall 2009). These factors in turn influence the academic performance of undergraduate students, student support systems, degree quality and mode of teaching (DoE 2002). An additional encounter facing higher education is the probability that students need to be more equipped and trained for the 'world of work' (Fry et al. 2009, 3).

Academic institutions may admit students who fulfil the requirements however due to the number of places available for the degree they are applying for only a select few are enrolled. Currently the norm is that students apply at more than one university to avoid disappointment and if accepted at one university it would free up a place at the other university/ies the student applied for. Universities have to rely on pre-university indicators, for example marks obtained in Grade 12, which will provide an indication whether or not students are eligible to register for the degrees they have chosen. Although universities provide a learning environment, facilities, lecturers and study material, all of which should be conducive to succeed at a university, the way in which students learn and adapt to student life can only be influenced to a certain degree. Biggs (1993) states that learning should not be viewed in isolation but forms part of other aspects such as teaching methods, curriculum, assessment, and students' prior experiences and knowledge. Student learning refers to creating a learning environment in which students can learn effectively, which influence the learning approach and, eventually, academic performance and outcome (Booth, Luckett and Mladenovic 1999; Biggs 1993).

A model that indicates student learning processes, developed by Biggs (1985), consisting of three stages: presage, process and product was adapted for this study focusing only on the

presage and product stages (indicated as non-shadowed areas) (uncontrollable factors), as illustrated in Figure 1. The first stage emphasises both the student profile, that is, the age, race and gender of students admitted to the university, and the pre-university knowledge that students bring to lectures which could influence academic performance. The second stage (see Figure 1 – indicated as shaded areas) (controllable factors) was not explored in this study since lecturers/educators can control the learning environment but not the presage stage. The model implies that the product stage can be altered or influenced to some degree through teaching methods and the learning approach to academic performance or product.

The objectives of this study were to explore (see Figure 1) the impact of the accounting student's profile admitted to the university (age, gender, race) and the pre-university knowledge (languages in Grade 12, Grade 12 subject choice, whether Accounting was a Grade 12 subject or not) on academic performance or outcome (measured in marks obtained in Accounting I). The motivation of the research was to establish if the demographics of students (N=3075) (Table 1) admitted to Accounting I for a period of five years (2010–2014) had an impact on students' academic performance and, consequently, to recommend further research into trends and possible patterns in student profiles and pre-university knowledge versus academic performance. To address the objectives of the study, each of the factors were investigated that could have an impact on students' academic performance:
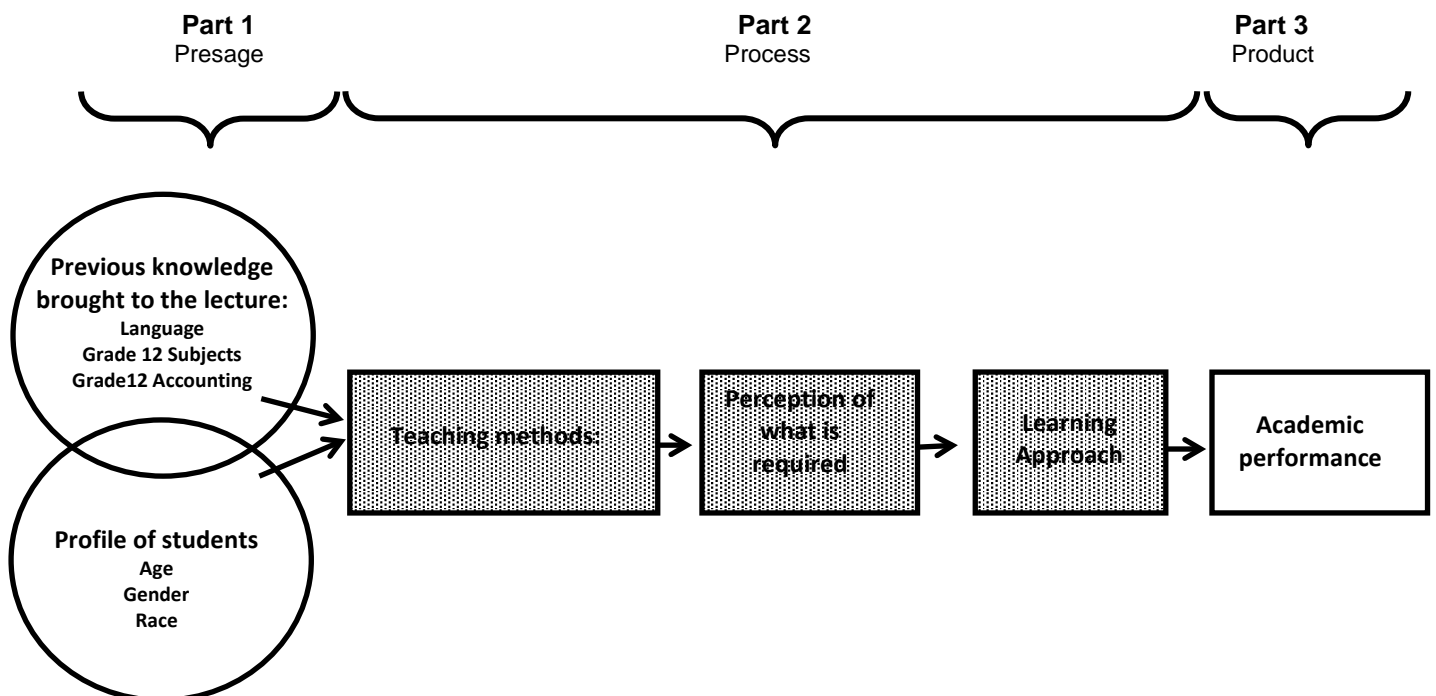
Source: Adapted from Biggs (1985)

Figure 1: Teaching and learning model: emphasis on students' profile and pre-university knowledge versus academic performance

This art begins by reviewing the literature pertaining to the impact of students' profile on academic performance with particular reference to first-year accounting students. Next the research design is documented, thereafter a discussion on the findings of the study, followed by the conclusion, limitations, value of the study and recommendations.

LITERATURE REVIEW

There are currently twenty-three universities in South Africa, eleven universities of which are research intensive in conducting pure and applied research, six universities are of technology and the remaining six universities are comprehensive offering traditional programmes (Pitso 2013). The university under review is a public, urban, comprehensive university in South Africa. South African universities need to attract a variety of students who match the current demographics of the country, thus including students from different backgrounds, schooling systems, and income and socioeconomic groups. It is therefore essential to identify some of the determining factors, age, gender, race, language, Grade 12 subject choice and whether or not Accounting as a Grade 12 subject could influence students' academic performance in the various courses offered at universities.

Previous studies relating to student success factors investigated student profiles and the factors affecting academic performance in various disciplines. The following more recent Accounting studies were discussed by referring to student, lecturer and institution-related factors for academic success. Baard, Steenkamp, Frick and Kidd (2010) investigated factors influencing success in first-year Accounting with reference to the student profile, while Oosthuizen and Eiselen's (2012) study identified factors associated with first-year Accounting students' success. Steenkamp, Baard and Frick (2009) also investigated factors influencing success in first-year Accounting in terms of a comparison of lecturers' assumptions and students' perceptions. Müller, Prinsloo and Du Plessis (2007) reported on a validation of successful first-year accounting students' profile. Prinsloo and Van Rooyen (2007) explored a blended learning approach improving students' success in the teaching of second-year Accounting. Aidoo-Buameh and Ayagre (2013) analysed the impact of university accounting students' entrance marks on the academic performance. Wally-Dima and Mbekomiza's (2013) study examined the causes of gender differences in Accounting performance. Addow, Abubakar and Abukar (2013) investigated the link between English language proficiency and achievement for undergraduate Accounting students, while Balduf (2009) identified underachievement among college students and Akenbor's (2014) study studied institutional

factors influencing the academic performance of students in principles of Accounting.

This study aims to explore the trends and possible patterns in the student profile of first-year Accounting students in terms of academic performance over a period of five years at a South African university. The student profile includes age, gender, race, the eleven official SA languages, 62 different Grade 12 subjects and whether students had Accounting as a Grade 12 subject. As shown in Figure 1, the presage and product stages were investigated to determine whether a relationship exists between the profile of first-year Accounting students and academic performance.

Müller et al. (2007) suggest that a student who is less than 30 years of age is more likely to pass Accounting than students who are older than 30 years. According to Barlett, Peel and Pendlebury (1993), Accounting students' age as a predictor of academic performance has largely been ignored. The study by Wally-Dima and Mbekomiza (2013) investigated gender differences in relation to academic achievement among students enrolled for Accounting at a university in Botswana. The results revealed that female students perform better in terms of their academic performance compared with their male counterparts, since female students 'work harder to break into the historically male dominated accounting profession and they mature and become more serious with their studies than male students' (Wally-Dima and Mbekomiza 2013, 23). Baard et al. (2010) also investigated gender differences in relation to academic achievement among accounting students at a South African university and found that females were more successful than males.

Addow et al. (2013) investigated the relationship between English language proficiency and academic achievement among Business and Accounting students. The results showed that 'English language proficiency correlates positively with academic success' (Addow et al. 2013, 64). Tailab (2013) explored obstacles associated with low student academic achievement in introductory courses in the College of Accounting at a university in Libya. The results indicated that one of the major obstacles was students' lack of English language proficiency. Aidoo-Buameh and Ayagre (2013), who conducted their research at the Central University College in Ghana, investigated relationships between Accounting students admitted to the university predominantly in terms of the prior knowledge they bring to lectures and their academic performance. The results confirmed a correlation between Mathematics as a Grade 12 subject and academic performance but no correlation was found between pre-university English and academic performance.

Baard et al. (2010) highlighted a number of factors which they considered to influence the success of first-year Accounting students. They found, firstly, that the higher the National

Senior Certificate (NSC)[1] mark the more likely the student is to be successful and, secondly, students who did not have English as a first language are more likely to obtain a lower mark for Accounting. Mills, Heyworth and Rosenwax (2009) identified a number of factors associated with first-year students' success; the most influential being an average and above average Grade 12 mark, English as a first language and Accounting as a Grade 12 subject. Lourens and Smit (2003) confirmed that students' aggregate Grade 12 mark and main fields of learning are significant predictors of success in their first year of study at an academic institution.

A study by Akenbor (2014) investigated institutional factors influencing the academic performance of accounting students in their first year at the Federal University Otuoke in Nigeria. One of Akenbor's (2014, 15) recommendations was that 'pre-university Accounting with a minimum pass, as a key success factor for achieving in Accounting, should be part of the requirements for admitting students to the Accounting programme'. Currently, the university in this study does not require Accounting as a Grade 12 subject in order to be admitted to the Accounting commerce (CA) and the General commerce (non-CA) degrees. Baard et al. (2010), however, indicate in this regard that students who had prior knowledge in Accounting are more successful than students with no Accounting in school. Other studies (Müller et al. 2007; Du Plessis, Müller and Prinsloo 2005) contradict from the findings of Akenbor (2014), Baard et al. (2010) and Rowlands (1988) and indicated that pre-university knowledge of Accounting does not significantly influence the academic performance of Accounting students in their first year. In a study aimed at understanding the academic performance and advancement of first-year accounting students at a university in Scotland, Duff (2004) concluded the best predictor of academic performance is prior achievement before entering the academic institution.

METHODOLOGY

This research study used a quantitative research method, focused on accounting students' profile entering the university and the impact on their academic performance at the end of the academic year. The group selected was Accounting students registered for both the Accounting commerce (CA) and General commerce (non-CA) degrees in their first year of study. Data was collected over a period of five years, 2010 to 2014 (Table 1), from the university's central computer system; including the demographics of the students, marks obtained in the NSC exam and the final Accounting I marks. A minimum of a C symbol for Mathematics and English in the NSC exam is required in order to be accepted for the CA degree. Students enrolled for the CA degree have a higher Academic Points Score (APS) than students enrolled for the non-CA

degree. The APS score is based on their NSC exam results with a heavier weighting being given to English and Mathematics results.

Table 1: First-year Accounting students 2010 to 2014

First-year Accounting I students			
Year	Frequency	Valid Percent	Cumulative Percent
2010	470	15.3	15.3
2011	489	15.9	31.2
2012	509	16.6	47.7
2013	656	21.3	69.1
2014	951	30.9	100.0
Total	3075	100.0	

The sample consisted of 3075 first-year accounting students. An increase in students (49.5%) from 2010 to 2014, almost doubling the number of students in the five years under review, was observed as a result of more students with the required APS score qualifying to register for the Accounting I course. Part-time students and students who deregistered from the Accounting I course were excluded from the sample, representing a small percentage of the sample under review. The students' academic performance was measured in terms of the final marks obtained in Accounting I expressed as a percentage out of 100. The final marks were made up of three tests (March, June and September), an exam (November), a project, tutorials and concept tests. The marks for the Grade 12 subjects were expressed as a percentage out of 100. The data was analysed using Statistical Package for the Social Sciences (IBM SPSS V23) to identify frequencies and to compare data across the different frequencies. Cross tabulations with an appropriate test for independence and a chi-square test were conducted to determine whether categorical variables were related. Descriptive analysis provided a very useful initial examination of the data and constituted the initial phase of the statistical analysis. In addition, a frequency distribution showed in absolute and relative (percentage) terms how often the different values of the variable were actually encountered in the sample. A one-way analysis (ANOVA) and a *t*-test were used to determine the differences between each of the student profile variables and academic performance.

RESULTS AND DISCUSSION

This section deals with the discussion of the results as per the results of the statistical analysis conducted (Illustrated in Tables 2 to 8 and Figures 2 and 3).

Age

The students' age in this study varied from 19 to 21 years. It is assumed that age would have no effect on first-year Accounting students' academic performance, though the mean score (19–21) could not be compared with any other age group. However, the current age group (19–21) might have displayed a significant difference if the part-time students had been included in the study. The number of part-time students varied for the period under review with an average of ± 40 students per year. Part-time students were excluded from the study since the Grade 12 subjects written prior to 2010 (previously subjects were divided into higher and standard grades) were not aligned with the current Grade 12 subjects in the NSC examination (Kraak and Press 2008) for the period 2010 to 2014.

Gender

Table 2 illustrates the gender of 3075 first-year Accounting I students. In 2010, 56.8 per cent were female and 43.2 per cent male; in 2011 a decrease was noted in the number of females (51.2%) and an increase in males (48.8%); in 2012 a further decrease in female students to 47.3 per cent and a further increase in male students to 52.7 per cent was noted; while, in 2013, the ratio between female and male was similar to that of 2010, with 55.6 per cent female and 44.4 per cent male students and in 2014 54.2 per cent females, a small decrease from the previous year and 45.8 per cent males, a slight increase from 2013. The overall ratio for the period under review was 53.2 per cent female and 46.8 per cent male students.

Table 2: First-year Accounting students 2010 to 2014: gender profile

Year		Gender		Total
		Female	Male	
2010	Count	267	203	470
	% within 2010 Year	56.8	43.2	100.0
	% of Total	8.6	6.5	15.1
2011	Count	249	240	489
	% within 2011 Year	50.9	49.1	100.0
	% of Total	8.1	7.7	15.8
2012	Count	241	268	509
	% within 2012 Year	47.3	52.7	100.0
	% of Total	7.8	8.6	16.4
2013	Count	365	291	656
	% within 2013 Year	55.6	44.4	100.0
	% of Total	11.7	9.4	21.1
2014	Count	515	436	951
	% within 2014 Year	53.8	46.2	100.0
	% of Total	17.0	14.6	31.6
Total		1637	1438	3075
% within Year		53.2	46.8	100.0
% of Total		53.2	46.8	100.0

A *t*-test was conducted to compare the first-year Accounting students' Accounting I mark for female and male students over the period 2010 to 2014. The findings confirmed that there was no significant difference in the marks between females (M = 57.73, SD = 13.094) and males (M = 57.47, SD = 13.483; *t* (3073) = .555, *p* = .579). In contrast with this study, the results of the study by Wally-Dima and Mbekomiza (2013, 23) revealed that females outperform males in terms of their academic performance.

Race

Table 3 illustrates the different race groups of the 3075 first-year Accounting I students for the period 2010 to 2014. Black students comprised the largest group at 56.8 per cent, followed by Indian students at 23.6 per cent and white students at 15.3 per cent in 2010. While in 2011, a slight decrease in the percentage of black students (55.2%) was noted and a slight increase in Indian (24.5%) and white students (15.7%) compared to the previous year. However, in 2012, black students increased further to 60.9 per cent, while Indian (20.6%) and white (15.7%) students decreased in comparison with the preceding year. By 2013, black (66.2%) students had increased dramatically from 2010, while in contrast the proportion of Indian (16.8%) and white (13.6%) students had decreased further. In 2014, the black group increased further to 67.3 per cent while the white group decreased to 9.1 per cent. The overall race group ratio for the period under review was as follows: black 62.5 per cent, Indian 20.4 per cent, white 13.2 per cent, with other race groups, that is, coloured and Chinese, comprising 2.7 per cent and 1.3 per cent respectively.

Table 3: First-year Accounting students 2010 to 2014: Race profile

Year		Race					Total
		Black	Chinese	Coloured	Indian	White	
2010	Count	267	9	11	111	72	470
	% within 2010 Year	56.8	1.9	2.3	23.6	15.3	100.0
	% of Total	8.6	0.3	0.4	3.6	2.3	15.1
2011	Count	270	5	17	120	77	489
	% within Year 2011	55.2	1.0	3.5	24.5	15.7	100.0
	% of Total	8.8	0.2	0.5	3.9	2.5	15.9
2012	Count	310	6	8	105	80	509
	% within Year 2012	60.9	1.2	1.6	20.6	15.7	100.0
	% of Total	10.0	0.2	0.3	3.4	2.6	16.4
2013	Count	434	9	14	110	89	656
	% within Year 2013	66.2	1.4	2.1	16.7	13.5	100.0
	% of Total	14.1	0.3	0.5	3.5	2.9	21.3
2014	Count	640	10	32	182	87	98\51
	% within Year 2014	67.3	1.0	3.3	19.1	9.1	100.0
	% of Total	20.8	0.3	1.0	5.9	2.8	30.9
Count		1921	39	82	628	405	3075
% within Year		62.5	1.3	2.7	20.4	13.2	100.0
% of Total		62.5	1.3	2.7	20.4	13.2	100.0

An ANOVA between race groups was conducted to explore the impact of the different race groups on the Accounting I marks of first-year students. The ANOVA results indicate a statistically significant different at the $p < .01$ level in the Accounting marks of the five race groups: $F (4, 3070) = 8.785$, $p = .000$. Post hoc comparisons, using the Tukey HSD test (as per Table 4), indicated a significant difference between the black (M = 56.71, SD = 12.641) and Indian (M = 58.68, SD = 13.731) students' Accounting I marks, also between the black (M = 56.71, SD = 12.641) and white students' (M = 60.59, SD = 15.103) Accounting I marks and between the white (M = 60.59, SD = 15.103) and coloured (M = 55.82, SD = 12.074) students' Accounting I marks. None of the other race groups showed any significance difference relating to Accounting I marks.

Table 4: Post hoc comparisons of race groups of first-year Accounting students 2010 to 2014

(I) Race Group	(J) Race Group	Mean Difference (I-J)	Std. Error	Sig.
1 Black	2 Indian	-1.969*	.607	.010
	3 White	-3.879*	.722	.000
	4 Coloured	.892	1.490	.975
	5 Chinese	-.804	2.137	.996
2 Indian	1 Black	1.969*	.607	.010
	3 White	-1.909	.842	.156
	4 Coloured	2.861	1.551	.348
	5 Chinese	1.166	2.180	.984
3 White	1 Black	3.879*	.722	.000
	2 Indian	1.909	.842	.156
	4 Coloured	4.771*	1.600	.024
	5 Chinese	3.075	2.215	.635
4 Coloured	1 Black	-.892	1.490	.975
	2 Indian	-2.861	1.551	.348
	3 White	-4.771*	1.600	.024
	5 Chinese	-1.696	2.569	.965
5 Chinese	1 Black	.804	2.137	.996
	2 Indian	-1.166	2.180	.984
	3 White	-3.075	2.215	.635
	4 Coloured	1.696	2.569	.965

Language

Table 5 illustrates the various languages recorded as Grade 12 subjects of the 3075 first-year accounting students. A total of 22 different languages were recorded including the eleven official South African languages and eleven languages other than the official South African languages. English as first language obtained a mean score of MD = 72.89 and was the most representative at 72.55 per cent, followed by Afrikaans as a first additional language (MD =

69.19) and thereafter English as first additional language (MD = 73.84). Eleven other languages were also noted, French (MD = 71.95) being the most represented (1.33%) of the total Accounting students followed by Hebrew (MD = 78.26) 1.01 per cent. The mean scores reflected in Table 5 are the students' marks obtained in the NSC exam. The highest mean for the official South African languages was IsiZulu First Language (MD = 80.79) and the lowest was Afrikaans Second Additional Language (MD = 68.80). The majority of students obtained high marks for languages in Grade 12.

Table 5: First-year Accounting students: language profile

Language	N	Mean	%
Official South African Language			
English First Language	2231	72.98	72.55
Afrikaans First Additional	1885	69.19	61.30
English First Additional Language	844	73.84	27.45
IsiZulu First Additional Language	237	75.77	7.71
IsiZulu First Language	254	80.79	8.26
Sepedi First Language	195	75.89	6.34
Setswana First Language	118	72.22	3.84
Tshivenda First Language	85	78.42	2.76
IsiXhosa First Language	66	73.89	2.15
Xitsonga First Language	61	80.36	1.98
Sesotho First Language	55	76.16	1.79
Afrikaans Second Additional Language	25	68.80	0.81
Sepedi First Additional Language	17	75.29	0.55
IsiXhosa First Additional Language	16	76.50	0.52
SiSwati First Additional Language	13	80.46	0.42
SiSwati First Language	14	79.21	0.46
Afrikaans First Language	10	77.00	0.33
Setswana First Additional Language	8	69.38	0.26
English Advanced	8	72.13	0.26
Sesotho First Additional Language	7	73.86	0.23
IsiNdebele First Language	5	79.00	0.16
Tshivenda First Additional Language	2	73.00	0.07
Other Languages			
French	41	71.95	1.33
Hebrew	31	78.26	1.01
Greek	10	76.10	0.33
German	9	76.67	0.29
Portuguese	6	69.00	0.20
Chinese	5	84.40	0.16
Arabic	3	66.67	0.10
Italian	4	70.25	0.13
Gujarati Second Additional Language	3	85.00	0.10
Latin	1	80.00	0.03
Spanish	1	83.00	0.03

Choice of Grade 12 Subjects

Table 6 illustrates the various Grade 12 subjects for the 3075 first-year Accounting students for 2010 to 2014, a total of 29 subjects excluding the languages mentioned in Table 5. Three compulsory NSC subjects, Mathematics (not Mathematical Literacy), Life Orientation and English, are required to be considered for admission to the BCom (General) and BCom (Accounting) degrees. Moreover, an average of 60 per cent or higher, for both Mathematics and English (English as first or first additional language) was required to qualify to register for these degrees.

The findings of Oosthuizen and Eiselen (2012) emphasise the importance of a minimum of 60 per cent in NSC Mathematics as an admission requirement for the Accounting programme (Smith and Naylor 2001). The requirements for these degrees do not, however, stipulate whether Grade 12 English has to be English as first or a first additional language. According to Table 4, 72.55 per cent of students had English as a first language and 27.45 per cent of students had English as a first additional language. In English (both first and first additional), students obtained an average of 73.41 per cent in the NSC exam. It should also be noted here that, according to Table 5, one of the six students who obtained 81.0 per cent for Mathematical Literacy was accepted into the Accounting I course as the other five students had both Mathematics and Mathematical Literacy as Grade 12 subjects subsequently the student that had Mathematical Literacy failed Accounting I. Apart from the languages and the requisite Grade 12 subjects, the following subjects were most popular among the BCom (General and Accounting) degree students: Accounting (84.49%), Physical Science (62.89%), Life Sciences (44.98%), Business Studies (39.61%), Mathematics Paper 3 (33.40%) and Economics (23.28%). Students' marks varied among these subjects from 60 per cent and upwards.

Table 6: First-year Accounting students: Grade 12 subjects

Grade 12 Subjects	N	Mean	%
Life Orientation	3075	82.11	100.00
Mathematics	3073	75.26	99.93
Accounting	2598	80.36	84.49
Physical Science	1934	69.93	62.89
Life Sciences	1383	76.34	44.98
Business Studies	1218	78.75	39.61
Mathematics Paper 3	1027	62.40	33.40
Economics	716	79.25	23.28
Geography	441	76.41	14.34
History	298	77.41	9.69
Computer Applications Techniques	196	74.45	6.37
Information Technology	189	71.06	6.15

Grade 12 Subjects	N	Mean	%
Mathematics Advanced Programming	121	63.95	3.93
Engineering Graphics & Design	61	73.49	1.98
Consumer Studies	51	72.18	1.66
Tourism	44	79.07	1.43
Art Dramatic	41	82.02	1.33
Art Visual	30	72.30	0.98
Religious Study	28	87.79	0.91
Agricultural Management Practice	23	70.30	0.75
Agricultural Sciences	15	73.40	0.49
Music	11	70.82	0.36
Hospitality Study	10	74.30	0.33
Design	8	75.25	0.26
Mathematical Literacy	6	85.83	0.20
Electrical Technology	5	77.40	0.16
Civil Technology	4	64.50	0.13
Mechanical Technology	2	64.00	0.07
Maritime Economics	2	67.00	0.07

Impact of choice of Grade 12 subjects on the marks obtained in Accounting 1

Table 7 illustrates a cross tabulation of each of the 62 Grade 12 subjects (in alpha order) and the marks obtained in Accounting I. Table 7 contains the frequency of each subject together with the associated correlation coefficient significance. A very high significant correlation was found between the following subjects and Accounting I marks: Accounting (.512), Physical Science (.462), Afrikaans First Additional language (.459), Mathematics Advanced Programming (.459), Mathematics (.455), Life Sciences (.451), History (.412), Information Technology (.411), Economics (.399), Mathematics Paper 3 (.392), Business Studies (.349), Geography (.348), English First Language (.299), English First Additional Language (.230), Computer Applications Techniques (.231) and Life Orientation (.210). These highly significant correlations demonstrate that students who obtained high Grade 12 subject marks obtained higher Accounting I marks than students with lower Grade 12 subject marks. Oosthuizen and Eiselen's (2012) findings confirm that NSC Mathematics marks are strongly associated with success in first-year Accounting. However, it was surprising to note that Life Orientation, as a compulsory Grade 12 subject, also correlates with a higher Accounting I mark. Moreover, the results of the study by Addow et al. (2013) confirm that English language proficiency correlates positively with academic success. Tailab (2013) confirmed that one of the major obstacles identified was students' lack of English language proficiency. Further, Aidoo-Buameh and Ayagre (2013) concluded a relationship was found between Mathematics at pre-university level and academic performance but found no correlation between pre-university English and

academic performance. In addition, a significant correlation was found between the following subjects and Accounting I marks: Dramatic Art (.349), Visual Art (.622), Sepedi First Language (.164) and Sesotho First Language (.325). Interestingly, for the period 2010 to 2013, no correlations was found between Accounting I students' academic performance and languages other than English and Afrikaans but in 2014 significant correlations were found between Accounting I students' academic performance and two first languages; Sepedi and Sesotho. It is of interest to note that students who had Dramatic Art and Visual Art as Grade 12 subjects, that are practically orientated subjects, that need creative thinking and application had an impact on the Accounting I marks.

Table 7: Cross tabulation between Grade 12 subjects and Accounting 1 marks

Grade 12 Subject	Correlation Coefficient	Sig. (2-tailed)	N
Accounting	.512**	.000	2598
Afrikaans First Additional language	.459**	.000	1885
Afrikaans First Language	.411	.272	10
Afrikaans Second Additional Language	-.278	.179	25
Agricultural Management Practice	.177	.419	23
Agricultural Sciences	-.095	.737	15
Arabic	.500	.667	3
Art Dramatic	.349*	.025	41
Art Visual	.622*	.000	30
Business Studies	.349**	.000	1218
Chinese	-.213	.731	5
Civil Technology	.621	.379	4
Computer Applications Techniques	.231**	.001	196
Consumer Studies	.266	.059	51
Design	.232	.581	8
Economics	.399**	.000	716
Electrical Technology	.233	.707	5
Engineering Graphics & Design	.211	.102	61
English Advanced	.198	.638	8
English First Additional Language	.230**	.000	844
English First Language	.299**	.000	2231
French	.199	.212	41
Geography	.348**	.000	441
German	-.297	.437	9
Greek	-.021	.954	10
Gujarati Second Additional Language	.381	.751	3
Hebrew	.225	.223	31
History	.412**	.000	298
Hospitality Study	.503	.138	10
Information Technology	.411**	.000	189
IsiNdebele First Language	-.029	.963	5

Grade 12 Subject	Correlation Coefficient	Sig. (2-tailed)	N
IsiXhosa First Additional Language	.355	.093	16
IsiXhosa First Language	.093	.458	66
IsiZulu First Additional Language	-.028	.657	254
IsiZulu First Language	.011	.092	237
Italian	.517	.483	4
Latin		c	1
Life Orientation	.210**	.000	3075
Life Sciences	.451**	.000	1383
Maritime Economics	1.000**		2
Mathematical Literacy	.185	.691	7
Mathematics	.455**	.000	3073
Mathematics Advanced Programming	.459**	.303	121
Mathematics Paper 3	.392**	.000	1027
Mechanical Technology		c	2
Music	.042	.901	11
Physical Science	.462**	.000	1934
Portuguese	-.488	.326	6
Religious Study	.162	.410	28
Sepedi First Additional Language	.357	.160	17
Sepedi First Language	.164*	.022	195
Sesotho First Additional Language	-.575	.177	7
Sesotho First Language	.325*	.016	55
Setswana First Additional Language	.192	.648	8
Setswana First Language	.027	.772	118
SiSwati First Additional Language	-.267	.377	13
SiSwati First Language	.270	.351	14
Spanish		c	1
Tourism	.236	.123	44
Tshivenda First Additional Language	1.000**		2
Tshivenda First Language	.179	.100	85
Xitsonga First Language	.046	.723	61

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
c. Cannot be computed because at least one of the variables is constant.

Accounting as a Grade 12 subject

As shown in Table 6, 84.49 per cent of the first-year Accounting students had Accounting as a Grade 12 subject obtained a mean of 80.36. Table 8 illustrates that of the 2598 students who had Accounting as a Grade 12 subject 82.10 per cent passed and 17.90 per cent failed Accounting I. The findings further illustrate that of the 477 students who had not had Accounting as a Grade 12 subject 60.16 per cent passed and 39.84 per cent failed Accounting I. In Figure 2, the trend from 2010 to 2014 indicates that more students failed Accounting I with no Accounting in Grade 12 than students who passed Accounting I. Furthermore, Figure 3

shows that more students with Accounting as a Grade 12 subject passed Accounting I, indicating an increasing trend from 2010 to 2014.

Table 8: First-year Accounting students that passed or failed Accounting who had Accounting or no Accounting as a Grade 12 subject

Accounting I Pass or Fail				Accounting 2 Groups		Total
				No Accounting	Accounting	
1 Fail	Year	2010	Count	21	93	114
			% within Year	18.4	81.6	100.0
			% of Total	3.2	14.2	17.4
		2011	Count	14	56	70
			% within Year	20.0	80.0	100.0
			% of Total	2.1	8.5	10.7
		2012	Count	31	59	90
			% within Year	34.4	65.6	100.0
			% of Total	4.7	9.0	13.7
		2013	Count	61	130	191
			% within Year	31.9	68.1	100.0
			% of Total	9.3	19.8	29.2
		2014	Count	63	127	190
			% within Year	33.2	66.8	100.0
			% of Total	9.6	19.4	29.0
	Total		Count	190	465	655
			% of Total	29.0	71.0	100.0
2 Pass	Year	2010	Count	47	309	356
			% within Year	13.2	86.8	100.0
			% of Total	1.9	12.8	14.7
		2011	Count	50	369	419
			% within Year	11.9	88.1	100.0
			% of Total	2.1	15.2	17.3
		2012	Count	69	350	419
			% within Year	16.5	83.5	100.0
			% of Total	2.9	14.5	17.3
		2013	Count	35	430	465
			% within Year	7.5	92.5	100.0
			% of Total	1.4	17.8	19.2
		2014	Count	86	675	761
			% within Year	11.3	88.7	100.0
			% of Total	3.6	27.9	31.4
	Total		Count	287	2133	2420
			% of Total	11.9	88.1	100.0
Total	Year	2010	Count	68	402	470
			% within Year	14.5	85.5	100.0
			% of Total	2.2	13.1	15.3
		2011	Count	64	425	489
			% within Year	13.1	86.9	100.0
			% of Total	2.1	13.8	15.9
		2012	Count	100	409	509
			% within Year	19.6	80.4	100.0
			% of Total	3.3	13.3	16.6
		2013	Count	96	560	656
			% within Year	14.6	85.4	100.0
			% of Total	3.1	18.2	21.3
		2014	Count	149	802	951
			% within Year	15.7	84.3	100.0
			% of Total	4.8	26.1	30.9
	Total		Count	477	2598	3075
			% of Total	15.5	84.5	100.0

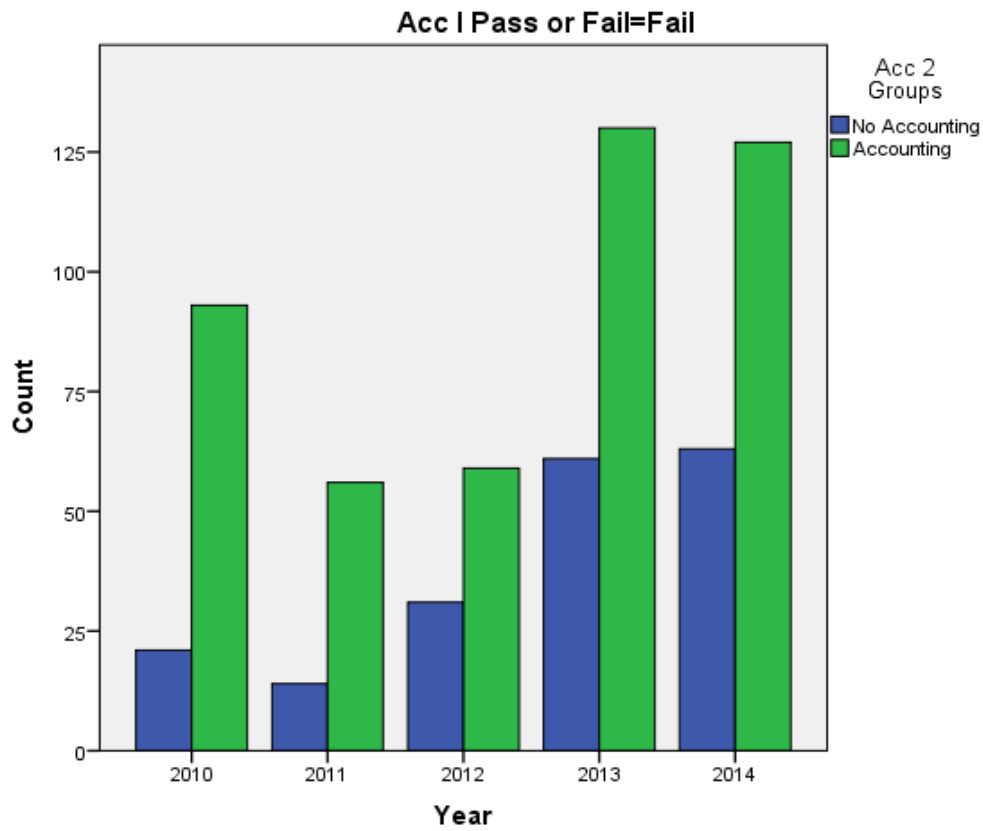**Figure 2:** Students failed Accounting I in 2013–2014: First-year Accounting I students that had Accounting or no Accounting as a Grade 12 subject
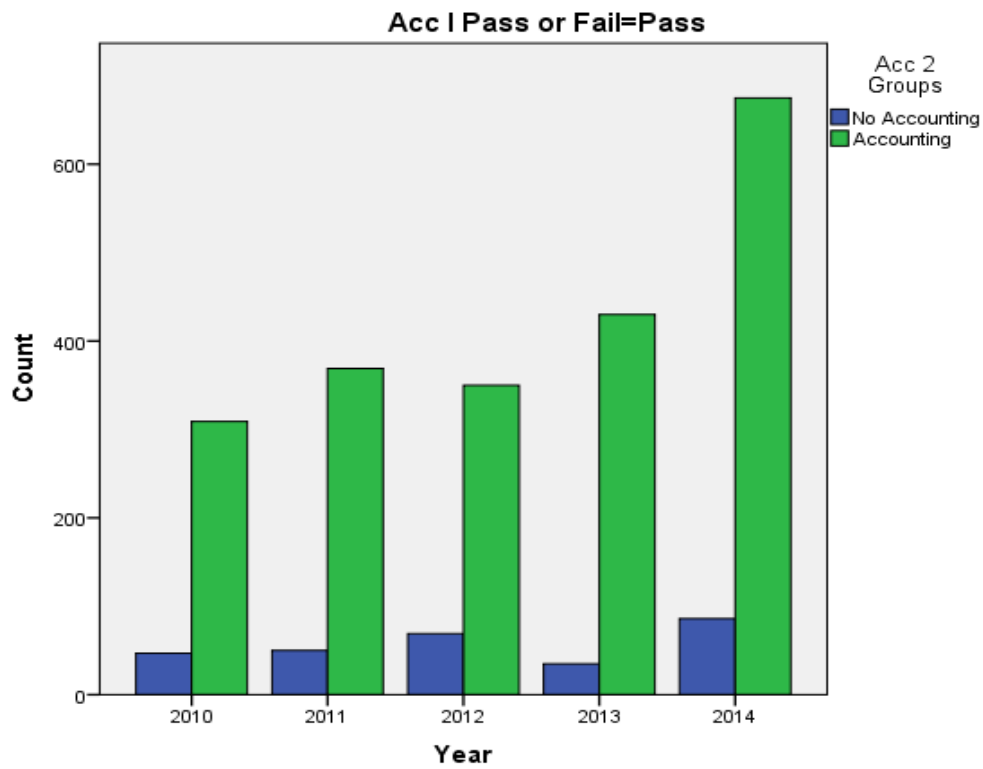

Figure 3: Students passed Accounting I in 2010–2014: First-year Accounting students that had Accounting or no Accounting as a Grade 12 subject

A *t*-test was conducted to compare the first-year Accounting students' Accounting I marks in terms of whether or not students had Accounting in Grade 12. The results confirmed a very high significant difference in the marks of students who had Accounting in Grade 12 (M = 59.04, SD = 12.385) and students who did not have Accounting in Grade 12 (M = 49.79, SD = 15.127; t (3073) = -14.458, p = .000). This finding confirms with the finding of Aidoo-Buameh and Ayagre (2013) of a statistically significant relationship between prior Accounting knowledge and academic performance. Furthermore, one of the recommendations by Akenbor (2014) was that pre-university Accounting with a minimum pass of 60%, as a key success factor to achieve in Accounting, should be part of the requirements for admitting students to the Accounting programme.

CONCLUSION

This study explored the first-year Accounting students' demographics and pre-university knowledge versus academic performance in Accounting I over a period of five years at a South African university. The objectives of this study were to determine whether students' profile and pre-university knowledge consisting of age, gender, race, language, choice of Grade 12 subjects and whether students had Accounting as a Grade 12 subject, had an effect on first-year accounting students' academic performance.

Six research statements were addressed in determining whether age, gender, race, language, choice of Grade 12 subjects and whether students had Accounting as a Grade 12 subject influenced students' academic performance (measured in terms of marks obtained in Accounting I). The first variable was addressed, that is, the age of students, and the findings confirmed that the students' age, which in this study varied from 19 and 21 years, had no impact on the students' marks obtained in Accounting 1. Students studying part time were excluded from the study since Grade 12 subjects prior to 2010 (which included higher and standard grades) were not aligned with the current Grade 12 subjects (Kraak and Press 2008).

The second variable that was addressed was the students' gender, and the findings confirmed no significant difference were found between students' Accounting I marks of females and males. The third variable that was addressed was the race of students, and the findings confirmed a significant difference between black Accounting I students' marks and both Indian and white students, and also between Accounting I students' marks of white and coloured students. No significance difference in Accounting I marks was apparent for any of the other

race groups indicated.

The fourth variable that was investigated was the language of students. In this regard, a very strong correlation was found between the following languages as a Grade 12 subject and Accounting I marks: English First Language, English First Additional Language, Afrikaans First Additional language. Furthermore, a significant correlation was found between the following two languages, Sepedi First Language and Sesotho First Language, with Accounting I marks.

The fifth variable that was addressed was the choice of Grade 12 subjects. In this regard, the statistical data confirmed that the higher the Grade 12 marks obtained in the NSC exam the higher the Accounting I marks. It was necessary to test this cross tabulation between the choice of Grade 12 subjects and the impact on Accounting I marks, not only to confirm that the choice of Grade 12 subject does matter but also to create awareness among students and career guidance teachers of which Grade 12 subjects could assist students to obtain higher marks in Accounting I and/or to pass Accounting I. The evidence confirmed that students at risk could be identified in order to enable the university to inform those students who fit the profile not to enrol for Accounting I or to make arrangements to fill the gap by passing or obtaining good Accounting I marks.

The final variable was then addressed, namely, whether students had Accounting as a Grade 12 subject. The findings in this regard confirmed students with Accounting as a Grade 12 subject tend to display high academic performance in Accounting I. Moreover, statistical tests confirmed that there was a very high significant difference in the students' Accounting I marks who had Accounting in Grade 12 and students with no Accounting in Grade 12. Students who are at risk because they did not have Accounting as a Grade 12 subject have the option to register for the pre-accounting school, which is offered at the beginning of the academic year. Furthermore, students at risk are identified at the beginning of the academic year and additional tutorials are made available to accommodate them. At these tutorials, attendance registers are kept so as to track at-risk students who do not attend the tutorials and/or to investigate reasons why students do not attend the tutorials.

THE LIMITATIONS, RECOMMENDATIONS AND VALUE OF THE STUDY

The study's limitations include, firstly, the use of only one university and, secondly, a sample

size of only include first-year Accounting students. We recommend that further studies should investigate the impact of personal, financial and socioeconomic factors on the academic performance of Accounting students, as this will assist in providing a holistic view of the impact of other factors on students' academic performance in Accounting. This study is deemed to be valuable in that it should enable the university to identify students who fit the profile in terms of being able to pass Accounting I and to identify at-risk students to therefore offer additional support to enable these students to pass Accounting I.

NOTE

1. 'The National Senior Certificate or NSC is a high school diploma and is the school-leaving certificate in South Africa. This certificate is commonly known as the matriculation (matric) certificate, as grade 12 is the matriculation grade' (DoE 2015).

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