THE EFFECT OF PRIOR KNOWLEDGE AND ACADEMIC PERFORMANCE ON SUCCESS IN FIRST-YEAR UNIVERSITY ACCOUNTING

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Abstract

It has become common practice in South African universities not to require students to have completed accounting at secondary school level as a pre-requisite to enrolment for a diploma or degree in accounting and/or business. The primary objective of this study is an analysis of the effect of a prior knowledge of accounting at secondary school level on the success rate of first-year accounting students. The study also analyses whether academic performance in accounting and mathematics at secondary school is a success factor in first-year accounting and the influence on having mathematical literacy as a subject at secondary school level on the success rate of first year accounting students.

Keywords: First year academic performance, Accounting education, Prior knowledge.

1.   INTRODUCTION

It has become common practice in South African universities not to require students to have completed accounting at secondary school level as a pre-requisite to enrolment for a diploma or degree in accounting and/or business. Although substantial academic research on the effect of prior knowledge of accounting on the success rate of first-year accounting students has been published, contradictory conclusions have been drawn from these studies. Some studies indicate no significant effect of prior knowledge of accounting at secondary school level on performance at university level (Baldwin and Howe, 1982; Bergin, 1983; Gracia and Jenkins, 2002). Other researchers indicate that there is a correlation between having taken accounting at secondary school level and success in first-year in accounting (Schroeder, 1986; Auyeng and Sands, 1996; Rohde and Kavanagh, 1996). The use of different analysis strategies is indicated as a possible cause for these differing research outcomes (Muller, Prinsloo and Du Plessis, 2007).

In addition to prior knowledge of accounting, published research also suggests other factors that could affect students' success rate in first-year accounting. The primary objective of this study is an analysis of the effect of a prior knowledge of accounting at secondary school level on the success rate of first-year accounting students at Tshwane University of Technology.

As an additional, secondary objective the study will analyse whether academic performance in accounting and mathematics at secondary school is a success factor in first-year accounting.

2.   BACKGROUND TO THE STUDY

The Tshwane University of Technology, located in Gauteng, South Africa, forms the broader context of this study. It is a strategic goal of the university to enhance the success rate institution-wide, and specifically at first year level. The university's 'Teaching and Learning with Technology' philosophy recognizes the importance of effectively supporting students in their first year of study. The university's Student Development and Support division (SDS) offers various support services to assist students, including:

•   Information on effective study methods
•   Improving reading skills
•   Life skills development
•   Student counseling
•   Mentor training to assist students with academic matters
•   Student tracking system to monitor poor performance
•   Risk profiling of all first time entry first year students

The Department of Accounting, which forms part of the Faculty of Economics and Finance, based at TUT's Ga-Rankuwa campus, offers Financial Accounting 1A (FAC11AT) and Financial Accounting 1B (FAC11BT) in first year. FAC11AT is offered in the first semester of the first year and FAC11BT is offered in the second semester. The course content of FAC11AT is similar to the content covered in accounting at secondary school level. Six lecturers present both subjects to groups of between 150 and 200 students per class, with English as the language of instruction.

Annually, approximately 2300 students register for each module at the Ga-Rankuwa and Pretoria campuses. (TUT's distance campuses of Polokwane and Nelspruit are not included in this study, as only a few students register for FAC11AT and FAC11BT at those campuses.) Of the 2300 students per semester, approximately 40% to 50 % have no prior knowledge of accounting, not having studied accounting as a subject at secondary school.

FAC11AT and FAC11BT are part of the core syllabus for eleven different qualifications. While prior knowledge of accounting is not a pre-requisite for admission to any of the eleven qualifications, five of the qualifications require Mathematics (mark: >40%) or Mathematical Literacy (mark: >50%) at grade twelve level as a pre-requisite for admission.

Students taking FAC11AT and FAC11BT can be grouped according to whether or not they have taken Accounting at secondary school up to grade twelve.

Although Rowlands (1988) and Van Rensburg et al. (1998) found no statistically significant relationship between prior knowledge of accounting and performance in first-year accounting, the perception of lecturers is that students who did Accounting up to grade twelve should find FAC11AT and FAC11BT much easier than students who did not.

The consistently unsatisfactory success rates of first year students in FAC11AT and FAC11BT prompted the authors to investigate the influence prior knowledge in Accounting, Mathematics, and Mathematical Literacy at secondary school level has on the success rate of FAC11AT and FAC11BT at the Tshwane University of Technology. This study focuses only on the influence of prior knowledge of Accounting, Mathematics and Mathematical Literacy, and ignores all other factors.

3.   REVIEW OF PRIOR RESEARCH

A literature review was conducted to obtain the results of prior research on the effect of accounting knowledge gained at secondary school level on the success rate of first-year accounting students. As indicated above, prior empirical research has led to mixed or even contradictory results. Schroeder (1986) used a sample of 476 students for statistical testing to determine the effect of prior knowledge on the success rate of a first-year accounting course. The results of Schroeder's study show that prior knowledge has a significant impact on the success rate. Studies in Australia and New Zealand found that prior knowledge of accounting improved the performance of students in a first-year accounting course (Farley and Ramsey, 1988; Keef and Hooper, 1991). These findings are contrary to those of Bergin (1983). Bergin found that prior knowledge of accounting assisted students in performing well in the early weeks of the course. However, when the total examination scores where analysed, the difference in performance between students with prior knowledge and those without was not enough to reject a null hypotheses at the 0.5 level (Bergin 1983). This conclusion was supported by the findings of Bartlett et al. (1993), which indicated that a prior study of accounting affected performance in initial tests, but that the advantage was no longer present at the end of the first year. In his criticism of the work of Baldwin and Howe (1982), and Bergin (1983), Schroeder (1986) suggests that their populations might have been too small and that they did not take the level of prior accounting knowledge into consideration.

The studies mentioned above took prior knowledge of accounting as a possible success factor. A number of researchers have considered various additional qualitative factors as possible influences on success rates. Tan and Laswat (2008) list gender, prior knowledge, academic ability, language, and motivation as possible success factors. In addition, Steenkamp, Baard and Frick (2009) also list class attendance and preparation (or their absence) as possible factors favouring failure.

Although in a different subject area, Thatcher et al. (2007) found that class attendance had a significantly positive influence on academic performance. Schroeder (1986) adds that whether a student intends majoring in accounting is another factor. A study by Eskew and Faley (1988) indicated a number of factors that were all significantly related to the performance of students, including completion of secondary school accounting. As with the contradictory studies on the effect of prior accounting knowledge, there is also no consensus on the validity of the roles of the other factors listed by Tan and Laswat (2008). Ward et al. (1993) found that no significant relationship existed between accounting performance and English language proficiency.

The differing conclusions arrived at in the literature are attributable to the variety of success factors considered in the various studies and to the different methods of analysis used to draw conclusions from the research. This study is limited to considering firstly, prior knowledge of accounting, and (as a secondary objective), considering performance in accounting and mathematics at school level as success factors.

The concept of prior knowledge is discussed in various education models as an important variable affecting academic performance. Tan and Laswad (2008) quote Dochy's (1992) research finding that at least 36 per cent of the variation in performance in various academic disciplines is explained by students' prior knowledge. In terms of the learning capacity of students, Schroeder (1986) accepted the final performance at secondary level in the prior knowledge subject as a surrogate measurement. This study follows Schroeder in considering the final performance at secondary level in accounting and mathematics and its possible effect on the success rate. Although Xiang and Gruber (2012) listed differing opinions from the literature whether prior knowledge of accounting at secondary level has an influence on the success rate of first year accounting students, they concluded after their research that "it seems reasonable to state that high school accounting may enhance a student's chances for success in their first financial accounting course at the postsecondary level". Xiang and Gruber (2012) indicated that most of the literature on the topic is dated. The aim is to, through the objectives of this study, to contribute to the current research available in the area of prior subject knowledge and success at first-year level.

4.   Objectives of the study

This study investigates whether a student's having taken Accounting as a subject at secondary school level, has an influence on the success of that student in accounting at first-year university level. The objectives of the study were:

•   to determine whether there is a relationship between students having taken Accounting at secondary school level and their performance in Financial Accounting at tertiary level;

- to determine whether there is a relationship between students' performance in Accounting at secondary school level and their performance in Financial Accounting at tertiary level, and;
- to determine whether there is a relationship between students having taken Mathematics or Mathematical Literacy at school level and their performance in Financial Accounting at tertiary level.

5.   BACKGROUND TO THE POPULATION

4592 students are included in the study. 1224 students that studied Financial Accounting 1A in the first semester of 2011, 1210 that studied Financial Accounting 1B in the second semester of 2011, 1165 students that studied Financial Accounting 1A in the first semester of 2012, and 993 that studied Financial Accounting 1B in the second semester of 2012. Each semester is analysed separately, due to the fact that the students can appear in both semesters of each year. It should be noted that no students repeating either of the courses were taken into consideration for either of the years. (Students who took Financial Accounting 1A and 1B in both 2011 and 2012 were only counted for 2011.)

6.   CHARACTERISTICS OF THE POPULATION

To understand the final results of this study it is important to consider the characteristics of the population.

Distribution between qualifications

Table 1 shows the distribution of students between the eleven qualifications that have Financial Accounting 1A and B as part of the course content. This distribution is also important when analysing the performance of students that have accounting as a major subject or as an additional subject.

Table 1: Descriptive statistics for all the category variables for current students

Variables	Categories	Frequency	Percentage of total
Total students in 2011 and 2012 for both semesters			
1. Qualification	N DIP Administrative Management: Finance	266	5.8%
	N DIP Commercial Practice	95	2.1%
	N DIP Credit Management	159	3.5%
	N DIP Economic Management Analysis	541	11.8%
	N DIP Finance and Accounting (Public)	416	9.1%
	N DIP Local Government Finance	507	11.0%
	N DIP Management (Extended)	16	0.4%
	N DIP Management	427	9.3%
	N DIP Office Management and Technology	67	1.5%
	N H CERT Accountancy	1515	33.0%
	N H CERT Financial Information Systems	583	12.7%
	TOTAL	**4592**	**100.2%**

Financial Accounting is a major subject for ND Finance and Accounting (Public) (taken by 9.1% of students surveyed); ND Local Government Finance (11.0%); NHC Accountancy (33.0%), and NHC Financial Information Systems (12.7%). The other qualifications (providing 34.2% of students surveyed) have Financial Accounting 1A and 1B as a one year compulsory subject in their first year.

Subjects at school level and performance

One of the objectives of the study was to determine the influence of having completed Accounting at secondary school level on the final mark in Financial Accounting 1A and 1 B at first year level.

The following graph indicates how many students took Accounting at school level, as well as their performance in the subject. The information provided is for the whole population.
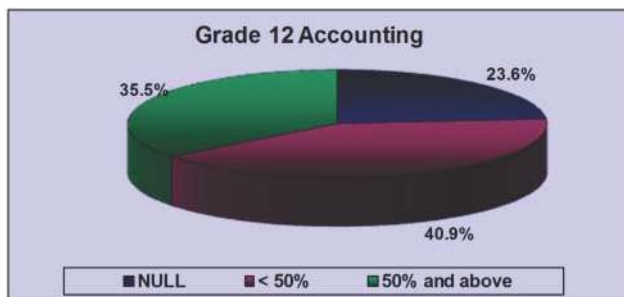

Figure: 1 23.6% of the population did not take Accounting as a subject at school (NULL); 40.9% took Accounting and achieved a mark of less than 50% in Grade 12, and 35.5% took Accounting and achieved a mark of 50% or above in Grade 12 .

A secondary objective of the study was to determine the influence of having taken Mathematics or Mathematical Literacy on the final mark in Financial Accounting at first year level.

The following graph indicates the distribution between Mathematics and Mathematical Literacy as a school subjects:
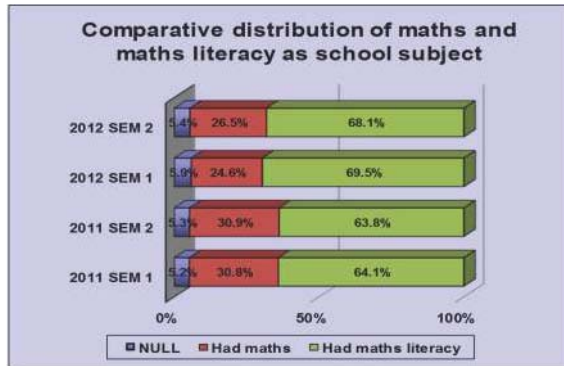
Figure 2: On average 6.5% of the population did not take Mathematics or Mathematical Literacy at secondary school level; 26.4% took Mathematics at secondary school level, and 67.1% took Mathematical Literacy at secondary school level. The decrease from 2011 to 2012 of students with Mathematics and the increase in the same period of students with Mathematical Literacy must be noted, as the role of Mathematics and Mathematical Literacy on the success in Financial Accounting 1A and 1B will be discussed.

7.   RESEARCH DESIGN

The data obtained from the population has been analysed using SAS software. The data consisted of: the marks achieved by students for Financial Accounting 1A and 1B; the subjects taken by students at secondary school level (Accounting, Mathematics, or Mathematical Literacy); and the marks achieved by students for those subjects at secondary school level. The actual data was then imported through an Excel format spreadsheet into SAS and recoding was done in order to provide comparison groups according to the objectives of the study. In a preliminary analysis descriptive statistics were performed on all variables, displaying means, standard deviations, frequencies, percentages, cumulative frequencies, and cumulative percentages. The data was cleaned, re-coded, and organized. Descriptive statistics, such as frequency tables, were prepared, showing the distributions of the statement responses. As a measure of central tendency and dispersion the means and standard deviations of the statements with an ordinal/ratio scale of measurement are presented.

Validity is concerned with whether the actual measure reflects the intended measure (Rose & Sullivan, 1996:19). For the purpose of this study, only content and construct validity will be elaborated upon. 'Content validity' is concerned with the representativeness or sampling adequacy of the content (e.g. topic or items) of a measuring instrument (De Vos, 2001:84), while 'construct validity' refers to the extent that a measuring instrument can be shown to measure a particular hypothetical construct.

The following inferential statistical operations were performed on the data:

- Pearson's correlation: Pearson's correlation is a measure of the linear relationship between two continuous random variables. It does not assume normality, although it does assume finite variances and finite covariance. When the variables are bivariate normal, Pearson's correlation provides a complete description of their association.
- Spearman's correlation: Spearman's correlation applies to ranks and so provides a measure of a monotonic relationship between two continuous random variables. It is also useful with ordinal data and is robust to outliers (unlike Pearson's correlation).
- ANOVA: ANOVA is a statistical technique for comparing means for multiple independent populations (usually ≥ 3). To compare the means in 2 groups, one can use the methods to conduct a hypothesis test for the equality of two population means.

A descriptive analysis of the survey results is presented below. The variables are indicated in table format for ease of reference. Each variable was tested to fall within the set boundaries.

8.   THE INFLUENCE OF HAVING ACCOUNTING AT SCHOOL LEVEL

The primary objective of this study was to determine whether having taken Accounting as a subject at secondary school increases the likelihood of a student successfully completing first year accounting at university.

1.   The student's Accounting (school subject) scores are categorised as follows: NULL = did not take Accounting as a subject at school.
Score of 1, 2 or 3 = Scored less than 50% for Accounting
Score of 4, 5, 6 or 7 = Scored 50% or above for Accounting.

2.   The student's final marks for Accounting were not modified, except for the NULL values which were changed to 0 (zero). This was done to determine whether students who didn't take Accounting at school, or who didn't pass Accounting at school, perform worse than those who did well in Accounting at school, with respect to their final mark for Financial Accounting 1A and 1B at first year level.

The analysis of variance was performed to determine whether students who had taken Accounting as a subject at school performed better at university for certain courses, as per descriptive statistics, than those who didn't take Accounting as a subject at school. Thus the mean final mark for the different periods is compared with respect to the following groups:

- Students who didn't take Accounting at school;
- Students who had a mark of less than 50% for Accounting at school; and

The ANOVA test was used to determine the influence of having taken accounting as a subject at school on the final mark for first year accounting at university level. The analyses were done for both semesters of 2011 and of 2012.

Table 2: Descriptive statistics for first and second semesters of 2011: final mark per accounting group

	First semester 2011			Second semester 2011			Total 2011		
	Did not take Accounting as a school subject	Scored less than 50% at school for Accounting	Scored 50% or more at school for Accounting	Did not take Accounting as a school subject	Scored less than 50% at school for Accounting	Scored 50% or more at school for Accounting	Did not take Accounting as a school subject	Scored less than 50% at school for Accounting	Scored 50% or more at school for Accounting
N	285	506	433	281	497	432	566	1003	865
Mean	15.12	23.44	51.83	16.61	25.37	53.17	15.86	24.40	52.50
SD	23.85	24.77	21.23	25.10	25.92	23.17	24.47	25.36	23.28
Mode	0	0	0	0	0	0	0	0	0
Median	0	0	55	0	33	58	0	27	57
Highest Mark	89	81	94	79	73	91	89	81	94
Lowest Mark	0	0	0	0	0	0	0	0	0

According to the ANOVA test there is a statistically significant difference between the mean final marks for the first semester 2011 for students who didn't take Accounting as a subject at school (mean=15.12), students who had less than 50% for Accounting in school (mean=23.44) and students who had 50% or more for Accounting at school (mean=51.83). The 'students who had 50% or higher for Accounting at school' group achieved a statistically significant higher final mark than the other two groups in the first semester 2011.

Even for the second semester the ANOVA test indicates that there is a statistically significant difference between the mean final marks for the second semester 2011 of students who didn't take Accounting as subject at school (mean=16.61), students who had less than 50% for Accounting in school (mean=25.37) and students who had 50% or more for Accounting at school (mean=53.17). The students who had 50% or higher for Accounting at school' group has a statistically significant higher final mark than the other groups for the second semester 2011.

It is important to note that there are no significant deviations between the means of the first and second semesters of 2011.

Table 3: Descriptive statistics for first and second semesters of 2012 final mark per accounting group

	First semester 2012			Second semester 2012			Total 2012		
	Did not take accounting as a school subject	Scored less than 50% at school for Accounting	Scored 50% or more at school for Accounting	Did not take accounting as a school subject	Scored less than 50% at school for Accounting	Scored 50% or more at school for Accounting	Did not take Accounting as a school subject	Scored less than 50% at school for Accounting	Scored 50% or more at school for Accounting
N	305	463	397	214	410	369	519	873	766
Mean	10.65	18.07	44.01	21.75	29.78	58.18	15.22	23.57	50.84
SD	20.93	23.77	25.63	28.13	27.36	24.98	24.75	26.16	26.28
Mode	0	0	0	0	0	0	0	0	0
Median	0	0	51	0	39.5	62	0	0	56
Highest Mark	78	71	84	94	83	97	94	83	97
Lowest Mark	0	0	0	0	0	0	0	0	0

According to the ANOVA, there is a statistically significant difference between the mean final marks for the first semester 2012 of students who didn't have Accounting as subject at school (mean=10.65), students who achieved less than 50% for Accounting in school (mean=18.07) and students who achieved 50% or more for Accounting at school (mean=44.01). The 'students who had 50% or higher for Accounting at school' group has a statistically significant higher final mark than the other two groups in the first semester 2012.

Even for the second semester, the ANOVA indicates that there is a statistically significant difference between the mean final marks for the second semester 2012 of students who didn't have Accounting as subject at school (mean=21.75), students who had less than 50% for Accounting in school (mean=29.78) and students who had 50% or more for Accounting at school (mean=58.18). The students who had 50% or higher for accounting at school' group has a statistically significant higher final mark than the other groups in the second semester 2012.

In order to determine whether there is a relationship between the final marks for Financial Accounting 1A and 1B at university and the marks for Accounting at school level, the following data manipulations were done: the final marks were categorised in the same way as the school marks for Accounting, Mathematics, and Mathematical Literacy.

Thus the new variable 'FM' is:

- 0 for students who didn't pass or had less than 20% as final mark;
- 1 for students who had 20-29% as final mark;
- 2 for students who had 30-39% as final mark;
- 3 for students who had 40-49% as final mark;
- 4 for students who had 50-59% as final mark;
- 5 for students who had 60-69% as final mark;
- 6 for students who had 70-79% as final mark;
- 7 for students who had 80-89% as final mark; and
- 8 for students who had more 90% as final mark.

The Spearman Rank Correlation Coefficients were calculated to determine whether there was a linear relationship between final marks, FM (new variable for final marks) and Accounting scores at school level, as the data types are of an ordinal nature.

Table 4: Spearman Rank Correlations coefficients for Final Mark vs. Accounting

Period	Sample Size	Spearman Rank Correlation	P-Value
1. Final mark 2011 semester 1	1224	0.5649	<0.0001∗∗∗
2. Final mark 2011 semester 2	1210	0.5566	<0.0001∗∗∗
3. Final mark 2012 semester 1	1165	0.5289	<0.0001∗∗∗
4. Final mark 2012 semester 2	993	0.5472	<0.0001∗∗∗

According to Table 4, there is a statistically significant correlation between marks for Accounting at school level and final marks for Financial Accounting 1A and 1B at university level.

9. THE INFLUENCE OF HAVING MATHEMATICS OR MATHE-MATICAL LITERACY AT SCHOOL LEVEL

The secondary objective of the study was to determine whether taking Mathematics or Mathematical Literacy as a subject at school influences the final mark for Financial Accounting 1A and 1B at university level.

An analysis of variance was performed to determine whether students who took Mathematics rather than Mathematical Literacy as a subject at school performed better in Financial Accounting 1A and 1B, as analysed using descriptive statistics. Further, an analysis was performed to determine whether students who had either of the two types of mathematics performed better than those who didn't have Mathematics or Mathematical Literacy as a school subject at all.

Thus the mean final mark for the different periods is compared with respect to the following groups:

Students who didn't take Mathematics or Mathematical Literacy at school;
Students who took Mathematics at school; and
Students who took Mathematical Literacy at school.

The analysis was done per semester for both 2011 and 2012.

Table 5: Descriptive statistics for first and second semesters of 2011 final mark per maths/ maths literacy/none groups

	First semester 2011			Second semester 2011			Total 2011		
	Did not take Maths or Maths Literacy as a subject at school	Took Maths as a subject at school	Took Maths Literacy as a subject at school	Did not take Maths or Maths Literacy as a subject at school	Took Maths as a subject at school	Took Maths Literacy as a subject at school	Did not take Maths or Maths Literacy as a subject at school	Took Maths as a subject at school	Took Maths Literacy as a subject at school
N	63	377	784	64	374	772	127	751	1556
Mean	26.60	41.66	27.08	25.95	42.19	29.54	26.28	41.92	28.30
SD	29.02	28.70	27.11	27.76	28.52	28.55	28.28	28.59	27.85
Mode	0	0	0	0	0	0	0	0	0
Median	0	50	34	0	53	38	0	51	35
Highest Mark	84	91	94	70	90	91	84	91	94
Lowest Mark	0	0	0	0	0	0	0	0	0

According to the ANOVA, there is a statistically significant difference between the mean final marks of the first semester 2011 for students who took neither Mathematics nor Mathematical Literacy as a subject at school (mean=26.60), students who took Mathematics as a subject at school (mean=41.66) and students who took Mathematical Literacy as a subject at school (mean=27.08). Students who took Mathematics at school scored statistically significantly higher than students who took Mathematical Literacy at school or the students who took neither Mathematics nor Mathematical Literacy at school. The mean for students who took neither Mathematics nor Mathematical Literacy at school (mean=26.60) and those who took Mathematical Literacy at school (mean=27.08) is almost the same.

Even in the second semester, the ANOVA indicates that there is a statistically significant difference between the mean final marks of the second semester 2011 for students who had neither Mathematics nor Mathematical Literacy as a subject at school (mean=25.95), students who took Mathematics as a subject at school (mean=42.19) and students who took Mathematical Literacy as a subject at school (mean=29.54). Students who took Mathematics at school scored statistically significantly higher than the students who took Mathematical Literacy at school or the students who took neither Mathematics nor Mathematical Literacy at school. The mean for students who took neither Mathematics nor Mathematical Literacy at school (mean=25.95) and those who had Mathematical Literacy at school (mean=29.54) remains almost the same. From the results for 2011 it is clear that there is thus almost no difference in the final marks for students who took Mathematical Literacy at school and those who took neither Mathematics nor Mathematical Literacy at school.

Table 6: Descriptive statistics for first and second semesters of 2012 final mark per maths/ maths literacy/none groups

	First semester 2012			Second semester 2012			Total 2012		
	Did not have Maths or Maths Literacy as a subject at school	Had Maths as a subject at school	Had Maths Literacy as a subject at school	Did not have Maths or Maths Literacy as a subject at school	Had Maths as a subject at school	Had Maths Literacy as a subject at school	Did not have Maths or Maths Literacy as a subject at school	Had Maths as a subject at school	Had Maths Literacy as a subject at school
N	69	286	810	54	263	676	123	549	1486
Mean	20.06	38.27	20.69	33.72	50.56	34.34	26.06	44.15	26.90
SD	26.69	27.47	26.13	30.31	29.04	30.25	29.03	28.87	28.88
Mode	0	0	0	0	0	0	0	0	0
Median	0	50	0	43	57	43	0	52	0
Highest Mark	77	84	82	88	97	95	88	97	95
Lowest Mark	0	0	0	0	0	0	0	0	0

In the first semester of 2012, the ANOVA indicates that there is a statistically significant difference between the mean final marks of the first semester 2012 for students who took neither Mathematics nor Mathematical Literacy as a subject at school (mean=20.06), students who took Mathematics as a subject at school (mean=38.27) and students who took Mathematical Literacy as a subject at school (mean=20.69).

There also remains a statistically significant difference between the mean final marks in 2012 semester 2 for students who took neither Mathematics nor Mathematical Literacy as a subject at school (mean=33.72), students who took Mathematics as a subject at school (mean=50.56) and students who took Mathematical Literacy as a subject at school (mean=34.34). In 2012, there was also almost no difference between the performance of students who took Mathematical Literacy and those who took neither Mathematics nor Mathematical Literacy at all.

10.   Conclusion

As indicated above, this study does not take any success factors other than prior knowledge of Accounting and completion of Mathematics or Mathematical Literacy into consideration. This study conducted a purely quantitative analysis of performance of first year accounting students in relation to the subjects they took at school Grade 12 level. As for the results obtained through this survey, with respect to the influence of subjects taken at school level on the final accounting marks at university level, the following conclusions can be drawn from this research:

- Whether or not a student took Accounting at school Grade 12 level has an influence on the student's final marks for an accounting course at university; the mark obtained for Accounting at school level also has an influence on the final marks for the university course.
- Taking Maths at school Grade 12 level has an influence on the final marks of a student who took an accounting course at university.
- Taking Maths Literacy at school Grade 12 level does not seem to have an influence on the final marks of a student who took an accounting course at university, as the performance of these students is very close to the students who did not take any form of mathematics at school.
- Having taken Accounting at school Grade 12 level is more strongly correlated with the final marks at university level than is having taken Mathematics or Mathematical Literacy at school level.
- A combination of Accounting and Mathematics scores at secondary school level are correlated with the final first year university mark, but note should be taken that the correlation is much higher when considering the students who took Accounting at school level on its own.
- Semester one and semester two final marks are highly correlated.
- Students fair slightly better in the second semester than in the first semester.

These findings were supported at high levels of significance over both years analysed and for both semesters within these years. This agrees closely with Farley and Ramsey's (1988) rejection of the hypothesis that performance in first year accounting is independent of accounting education at secondary school level.

The implication of the findings of the study for accounting educators is that accounting as a pre-requisite subject at Grade 12 level will improve the success rate of first year accounting students. The reality is, where a mixture of students with Accounting at Grade 12 level and students without is present in one first year accounting class group, teaching methodology will have to be adapted. Students, who did not have Accounting at Grade 12 level, will require more time and more fundamental explanation of topics. Because of the difference in the results of students with Accounting at Grade 12 level and those without, it can be assumed that a "bridging course" in Accounting, for students without Accounting at Grade 12 level, will have a positive effect on the success rate of the students. An important finding of the study, is that mathematical literacy at grade 12 level does not have a positive influence on the final marks of a student who took an accounting course at university

11.   Resources

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