

## MAF011 Student Endogenous Factors that Impact on Performance in Advanced Management Accounting: an Exploratory Study

*Pullen, E<sup>a</sup>, Toerien, F<sup>b</sup> & Anthony, J<sup>b</sup>*  
*University of the Western Cape<sup>a</sup> & University of Cape Town<sup>b</sup>*

### Abstract

This study investigates the relationship between student endogenous factors and academic performance in advanced management accounting, offered as part of a post graduate diploma in accounting (PGDA) accredited by the South African Institute of Chartered Accountants (SAICA). A sample consisting of all students who were registered for advanced management accounting at the University of the Western Cape between 2009 and 2013 is used in this study, which is largely based on regression methodologies. It is found that English as first or subsequent language has no statistically significant impact on performance in management accounting at undergraduate level. However, at PGDA level, where application of concepts to unfamiliar situations is required, students whose first language is English outperformed their counterparts. In addition, grades in the prerequisite final year undergraduate management accounting module were found to be statistically significant in predicting performance in PGDA advanced management accounting. Finally, students who attempted the PGDA advanced management accounting for the first time, as well as students who obtained a higher overall final high school grade, were found to outperform their counterparts. The above findings could be used to inform the selection process, as well as to identify students possibly at risk of underperforming, with a view to proactive interventions.

**Keywords:** Student Endogenous factors, Performance, Advanced Management Accounting, the South African Institute of Chartered Accountants (SAICA), Post Graduate Diploma in Accounting (PGDA)

### 1. Introduction

The consistently low average of marks in the post-graduate module, Advanced Management Accounting 751 (MAC 751), offered at the University of the Western Cape (UWC) as part of the post-graduate accounting programme (PGDA) accredited by the South African Institute of Chartered Accountants (SAICA) indicated an area worthy of further investigation. Specifically, for the academic years from 2009 including 2013 inclusive, the average mark<sup>18</sup> for MAC 751 was 48.8% (MAS, 2014), and the average pass rate<sup>19</sup> 49.9%. The benchmark of

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<sup>18</sup> For the purposes of this study, the average mark for MAC 751 is calculated as the final marks obtained by all students registered for the specific module divided by the number of students registered for that module. The average mark per year for the period 2009 to 2013 is then used to calculate the average mark over this 5 year period. This data was obtained from the UWC Marks Administration System (MAS).

<sup>19</sup> For the purposes of this study, the average pass rate for MAC 751 is calculated as the number of students who passed the module at the end of each academic year divided by the number of students registered for that module for that year. The average pass rate per year for the period 2009 to 2013 is then used to calculate

UWC is a 70% pass rate for all modules, and thus over the academic period referred to, this requirement was not met (University of Western Cape, 2010).

However, low average Management Accounting marks do not seem to be limited to UWC. The January and June 2014 SAICA Initial Test of Competence (ITC) exam, indicated that the national average mark<sup>20</sup> for Management Accounting and Finance was 46% and 41%, respectively (SAICA, 2014). This is significant because the ITC is written immediately after a student has completed their PGDA qualification and hence, in the case of UWC, after completing MAC 751. The ITC is the first of two exams students are required to pass to qualify as a member of the South African Institute of Chartered Accountants (SAICA). The ITC exam tests candidates' competencies in the following six core areas, namely:

- Accounting and External Reporting
- Management Decision Making and Control
- Financial Management
- Strategy, Risk management and Governance (SRMG)
- Taxation
- Auditing

SAICA accredited universities incorporate the above six core areas into four subjects, namely: Management Accounting and Financial Management (MAF); Financial Accounting (Fin Acc); Taxation (TAX) and Auditing (AUDIT). At UWC the competencies in Management Accounting and Financial Management, as well as a significant portion of the SRMG competencies, are incorporated into the subject MAC 751. Table 1 below shows that the national average for MAF has been the lowest of the four subject areas during the recent January 2014 and June 2014 ITC examinations.

**Table 1 - SAICA ITC Exams - National Average per subject<sup>21</sup>**

	Average per Subject				Overall
	<u>TAX</u>	<u>MAF</u>	<u>AUDIT</u>	<u>FIN ACC</u>	
<b>January 2014 ITC exam</b>	52.88%	<b>45.65%</b>	56.22%	60.80%	53.26%
<b>June 2014 ITC exam</b>	54.75%	<b>40.91%</b>	54.65%	47.41%	49.81%

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the average pass rate over this 5 year period. This data was obtained from the UWC Marks Administration System (MAS).

<sup>20</sup> The SAICA ITC examination is the first of two professional examinations attempted by candidates qualifying as Chartered Accountants of South Africa. For the purposes of this study, the average mark obtained in the ITC exams per subject is calculated as the cumulative marks obtained by all candidates writing the ITC exam for the questions related to Management Accounting and Finance, divided by the total number of candidates who wrote the ITC exam.

<sup>21</sup> These averages were obtained from the SAICA ITC examination stats for the January 2014 and June 2014 ITC exams respectively.

Therefore, the low average marks observed for MAC 751 at UWC, as well as the poor performance by students in Management Accounting and Financial Management during the recent ITC exams, indicate that Management Accounting at SAICA-accredited post graduate level is generally found by students to be a challenging subject, and thus there is a need to investigate the factors that may have contributed to the performance of students on this module.

The National Development Plan (NDP) introduced by the National Planning Commission (NPC) in 2011, stipulated that one of the main functions of universities is to overcome past inequities within South African society (Higher Education Quality Committee, 2011). UWC, which was established in 1959 as a separate university for non-white students, still bears many of the scars of South Africa's past racial policies, and therefore makes for a highly relevant case study with regards to the predictors of academic performance for students – in this study applied specifically to the MAC751 course.

Available statistics reveal that 92% of the total student population of UWC consist of students from people groups classified as previously disadvantaged (Pillay & Hoffman, 2009). UWC, as a previously disadvantaged<sup>22</sup> university, therefore has a responsibility to address the goals of the NDP insofar as it relates to higher education.

It is for the above reasons that the Department of Accounting at UWC, aimed to identify the factors that could impact on performance in MAC 751 at the university.

The remainder of this article is structured as follows. Section 2 briefly considers some prior research in the field, followed by Section 3 which summarises the hypotheses developed for this research. Section 4 discusses the methodology employed, and Section 5 described the findings. Lastly, Chapter 6 concludes and suggests some future research possibilities.

## **2. Prior research**

Previous research on student performance in accounting degree studies mostly explored the impact of academic ability obtained through high school study on undergraduate degree studies (see, for example, Tho, 1994; Evans & Fancy, 1998; Mckenzie & Schweitzer, 2001; Birch & Miller, 2005; and Tickell & Smyrnois, 2005). These research studies indicate that mathematics at high school, overall high school results and high school attended are the most significant factors determining a student's performance in first year undergraduate accounting degree studies. A limited number of studies investigate performance in advanced accounting courses. Auyeung and Sands (1991; 1992) found that students' results in introductory financial accounting courses have a positive and significant impact on their performance in advanced financial accounting courses. This relationship was also found in a more recent

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<sup>22</sup> In 1959, Parliament adopted legislation which established UWC as separate university for coloured people. Coloured people are part of designated groups classified as previously disadvantaged along with Black and Indian people. It can therefore be inferred that UWC is a previously disadvantaged university

study by Jansen (2012), who observed that result in first and second year financial accounting had a positive and significant impact in final year undergraduate financial accounting.

There is particularly scant research, however, on the performance of students in advanced management accounting. Rohde and Kavanagh (1996b) found that the best determinant of students' performance in introductory management accounting was their performance in the prerequisite financial accounting module, while Drennan and Rohde (2002) found that in advanced undergraduate management accounting, students whose first language is English and those who have not been exempted from the pre-requisite module, are likely to perform better.

General research on success factors for SAICA-accredited PGDA courses found that the longer it took students to obtain their PGDA, the worse their performance was in the SAICA ITC exams, which immediately succeeds the PGDA year (Van Wyk, 2011; Roos, 2009). To the authors' knowledge, however, no published research exists relating to the factors that could impact on students' performance in advanced management accounting, including when offered as part of a SAICA-accredited PGDA course.

According to Biggs' 3P model of learning, student endogenous factors both directly and indirectly affect learning outcomes (Biggs, 1987a, 1993a, 1993b). These student factors include students' prior knowledge and ability, which students actively need to build on in order to be successful in completing management accounting at PGDA level. This ability of students to actively construct their own knowledge is known as constructivism (Kruckerberg 2006). Using these concepts and the prior research described above, this study sets out to investigate the student endogenous factors which could impact on the performance of students in advanced management accounting within a SAICA-accredited PGDA programme.

### **3. Developing the hypotheses**

This section will introduce the hypotheses for this study with reference to prior literature.

The first hypothesis is that a student's grade in MAC 751 is a function of their final year overall high school grade. Our aim is to test, within an advanced management accounting context, the findings of previous studies at introductory accounting level (Evans & Fancy, 1998; Mackenzie & Schweitzer, 2001; Birch & Miller, 2005; Tickell & Smyrnois, 2005) that a student's overall high school results are significant in predicting accounting course performance. It is acknowledged that the focus of this study is a PGDA module, but given that there is no documented evidence for performance in management accounting at PGDA level, we assess whether these findings hold true for MAC 751 given that a student's overall high school results is an important prerequisite at UWC.

*H1: Students with a higher overall average grade at high school are likely to do better at MAC 751*

The second hypothesis is that a student's grade in MAC 751 is a function of their high school mathematics grade as found in previous studies (Tho, 1994; Koh & Koh, 1999) which concluded that a student's high school mathematics results are significant in predicting their

performance in introductory accounting degree modules. Once again it is acknowledged that the focus of this study is a PGDA module, but given that a student's high school mathematics results is an important prerequisite at UWC, we assess whether these findings hold true for MAC 751.

*H2: Students with a higher high school mathematics grade are likely to do better at MAC 751*

The third hypothesis is that students from private or ex-Model C <sup>23</sup> schools are likely to do better in MAC 751. Prior studies found that tertiary academic performance was significantly correlated to the type of secondary school a student attended (Evans & Fancy, 1998; Birch & Miller, 2005). According to the South African Institute of Race Relations (2011) private schools, along with ex-Model C schools are likely to offer a higher standard of learning than government schools. We will therefore assess whether the above findings hold true for MAC 751.

*H3: Students from private or ex-Model C schools are likely to do better at MAC 751*

The fourth, fifth and sixth hypotheses are that a student's grades in MAC 751 are a function of the grades in the pre-requisite modules for MAC 751. The aim is to replicate previous studies that tested this particular relationship (Rohde & Kavanagh, 1996b; Drennan & Rohde, 2002; Jansen, 2012). At UWC, management accounting is taught for the first time at the second year of the accounting undergraduate degree programme. In order to attempt Introductory Management Accounting (MAC 234), a student has to pass Financial Accounting 1 (FIA 132) and subsequently pass MAC 234 in order to attempt final year undergraduate management accounting (MAC 314). In order to ultimately attempt MAC 751, a student therefore has to pass MAC 314 (University of the Western Cape, 2010). This gives rise to the following hypotheses:

*H4: Students with a higher FIA 132 grade are likely to do better at MAC 751*

*H5: Students with a higher MAC 234 grade are likely to do better at MAC 751*

*H6: Students with a higher MAC 314 grade are likely to do better at MAC 751*

The next hypothesis is that students, who are attempting MAC 751 for their first time, are likely to outperform their counterparts, as found in prior studies (De Lange, Waldmann & Wyatt, 1997; Roos, 2009; Van Wyk, 2011). It is widely accepted that academically stronger students are generally those students who pass their examinations at the first attempt. We will therefore assess whether the above holds true for MAC 751.

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<sup>23</sup> The term "Model C" is not officially used by the Department of Basic Education, but is widely used to refer to former whites-only schools (South African Institute of Race Relations, 2011)

*H7: Students who attempting MAC 751 for the first time are likely to do better at MAC 751*

Prior research of results in introductory undergraduate management accounting found no difference in the performance of students who has English as first language, and those who are not (Jackling & Anderson, 1994). We will replicate this study done by Jackling *et al.* for students who have completed the introductory management accounting modules at UWC and for whom first language information was available. Therefore this hypothesis will be stated in the null as follows:

*H8: There is no difference in the performance of students in undergraduate management accounting between those who have English as first language and those who do not have English as their first language.*

Jackling *et al.* (1994) observed that the introductory management accounting module observed was primarily of a quantitative nature, and thus negligible shortfalls in English language skills would not excessively affect students' academic performance. The undergraduate management accounting modules at UWC, namely MAC 234 and MAC 314 under hypotheses 5 and 6 respectively, have a similar quantitative focus. Therefore given that that the focus of this study is at PGDA level, we aim to expand on the findings by Drennan and Rohde (2002) who examined the impact of language in advanced undergraduate management accounting. Their findings were that where application of concepts to unfamiliar situations is required, students whose first language is English outperformed their counterparts. This therefore gives rise to the final hypothesis for this study:

*H9: Students who have English as their first language are likely to do better at MAC 751 than those who do not have English as their first language.*

#### **4. Methodology**

##### *4.1. Population and data collection*

The sample population consisted of data for all students enrolled for the module MAC 751 at UWC during the academic years 2009 to 2013. For each student the following details were extracted from student records: information relating to first language, high school attended as well as high school results, and tertiary academic record which provided final grades achieved in MAC 751, performance in pre-requisite modules to the latter, and number of attempts at MAC 751. The original sample included 155 students over this 5 year period. However, for 23 students who had transferred from other institutions the full data set was not available, resulting in these students being excluded from the analyses in order to prevent distortion of the results. The final sample therefore consisted of 132 students.

##### *4.2. Variables*

The dependent variable in this study is a student's final grade in MAC 751. Students performance were ranked<sup>24</sup> one through seven (with seven being the best) based on their final

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<sup>24</sup> Rankings

7 - Pass	6 - Pass	5 - Pass	4 - Pass	3 - Fail	2 - Fail	1 - Fail
75% or above	70% to 74%	60 to 69%	50 to 59 %	40 – 49%	30 – 39%	Below 30%



results in the module. For the purpose of testing Hypothesis 8 (only in selected models 1A and 1B as shown in Table 3), a student's grades in MAC 234 and MAC 314 were also classified as dependent variables, and ranked one through seven based on their final results in these modules. This was specifically done to distinguish between the impact of language in undergraduate management accounting (MAC234 and MAC 314) and the impact of language in PGDA management accounting (MAC751).

Descriptive statistics of all variables used in the statistical empirical tests are shown in Tables 2A and 2B. Students' final overall high school results, mathematics results and results in prerequisite modules for MAC 751 are expressed as a ranking of four<sup>25</sup> through seven. The other independent variables which related to the hypotheses include *Type School*, *Number Attempts* and *Language*. These independent variables consisted of continuous, ordinal and indicator variables. The continuous variable included *Num Att MAC 314* and *Num Att MAC 751* (number of attempts), represents the number of attempts a student took at attempting MAC 314 and MAC 751 respectively. Indicator variables included *Language* which was coded 1 if English was identified as the student's mother-tongue and 0 otherwise. The variable relating to *Type School* was coded 1 if the student attended a school previously classified as either a Model C or private school, and 0 if not.

**Table 2A – Descriptive statistics for variables**

	Home language *	Type School *	Matric Agg	HS Maths Grade	FIA 132
N	132	132	132	132	132
Mean	NA	NA	5.644	4.500	5.000
Median	1.000	0.000	6.000	5.000	5.000
Mode	1.0	0.0	5.0	5.0	5.0
Std. Deviation	NA	NA	.8572	1.6738	.9410
Skewness	NA	NA	.096	-.759	.056
Kurtosis	NA	NA	-.750	.599	1.904
Minimum	0.0	0.0	4.0	0.0	1.0
Maximum	1.0	1.0	7.0	7.0	7.0

<sup>25</sup> No student who fails (i.e. receives a 1, 2, or 3) for the introductory management accounting course (MAC234) and final year undergraduate management accounting course (MAC 314) can proceed to advanced management accounting.

**Table 2B – Descriptive statistics for variables (continued)**

	MAC 234	MAC 314	MAC 751	Num Att (MAC314) *	Num Att (MAC751) *
N	132	132	132	132	132
Mean	5.523	4.705	3.568	NA	NA
Median	5.500	5.000	4.000	1.000	1.000
Mode	5.0	5.0	4.0	1.0	1.0
Std. Deviation	.9367	.7283	.8398	NA	NA
Skewness	.018	1.003	-.533	NA	NA
Kurtosis	-.861	1.211	.381	NA	NA
Minimum	4.0	4.0	1.0	1.0	1.0
Maximum	7.0	7.0	6.0	2.0	2.0

\* These variables are ordinal data, thus certain descriptive statistics are not applicable

Matric Agg - overall final grade achieved in high school (1 through 7)

HS Maths - mathematics grade achieved in high school (1 through 7)

FIA 121 - grade achieved in financial accounting 1 (1 through 7)

MAC 234- grade achieved in introductory management accounting 1 (1 through 7)

MAC 314- grade achieved in final year undergraduate management accounting 1 (1 through 7)

Num Att (MAC 314) - number of attempts at MAC 314 (1 or more)

Num Att (MAC 751) - number of attempts at MAC 751 (1 or more)

Descriptive statistics and linear regressions were used to analyse the data using a software package called SPSS<sup>26</sup>, and the following regression models were constructed:

***Primary linear regression model for study***

*Model 2 – At the time a student has completed advanced management accounting (MAC 751) at UWC:*

*MAC 751 Performance* =  $\beta_0 + \beta_1 \text{Matric Agg} + \beta_2 \text{HS Maths Grade} + \beta_3 \text{Type School} + \beta_4 \text{Language} + \beta_5 \text{FIA 132} + \beta_6 \text{MAC 234} + \beta_7 \text{MAC 314} + \beta_8 \text{Num Att MAC 314} + \beta_9 \text{Num Att MAC 751}$

<sup>26</sup> SPSS Statistics is a software package used for statistical analysis. SPSS stands for Statistical Package for the Social Sciences and was originally produced by SPSS Inc., but acquired by IBM in 2009.



### ***Linear regression models for the purposes of hypothesis 8 only***

*Model 1A – At the time a student has completed introductory management accounting (MAC 234) at UWC:*

$$\text{MAC 234 Performance} = \beta_0 + \beta_1 \text{Matric Agg Grade} + \beta_2 \text{HS Maths Grade} + \beta_3 \text{Type School} + \beta_4 \text{Language} + \beta_5 \text{FIA 132}$$

*Model 1B – At the time a student has completed final year undergraduate management accounting (MAC 314) at UWC:*

$$\text{MAC 314 Performance} = \beta_0 + \beta_1 \text{Matric Agg Grade} + \beta_2 \text{HS Maths Grade} + \beta_3 \text{Type School} + \beta_4 \text{Language} + \beta_5 \text{FIA 132} + \beta_6 \text{MAC 234} + \beta_7 \text{Num Att MAC 314}$$

## **5. Findings**

The correlation matrices resulting from the linear regression models (Models 1A, 1B and 2) are presented in Table 3 below. The matrices presented for students in Model 1A, for the purpose of testing hypothesis 8, shows the correlation between their performance in introductory management accounting (MAC234) and the following variables: high school attended, high school overall grade, high school mathematics grade, language status, performance in financial accounting 1, and the number of attempts at MAC 234.

Model 1B also includes the correlation between performance in final year undergraduate management accounting (MAC 314) for the purpose of testing hypothesis 8, and includes similar variables as per Model 1A, including grades in MAC 234 and number of attempts at MAC 314.

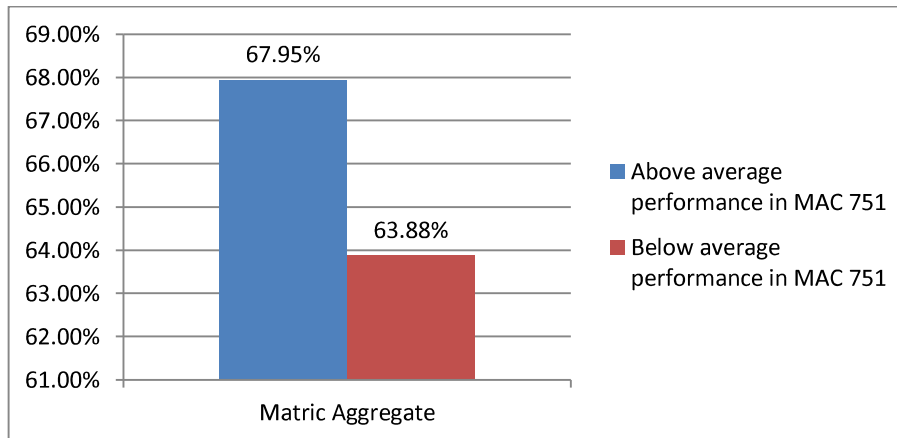
Finally, Model 2 provides the correlation between students' performance in advanced management accounting offered in PGDA (MAC 751) and similar variables as per Model 1B, including a students' grade in MAC 314 as well as the number of attempts at MAC 751.

### ***5.1. Predicting performance in advanced management accounting offered in PGDA (MAC751).***

For the 132 students for whom a full data set was available, the correlation matrix (Model 2, Table 3) reveals that a significant positive correlation ( $\beta = 0.178$ ,  $p = .039$ ) exists between a student's final overall high school grade and performance in MAC 751. This result indicates that a student's performance in PGDA advanced management accounting is significantly associated with their overall performance at high school. Although there is no documented evidence for performance in PGDA advanced management accounting, this finding is consistent with prior research exploring the impact of final year high school grades in first year tertiary accounting studies (Evans and Fancy, 1998; Mackenzie and Schweitzer, 2001; Birch and Miller, 2005; Tickell and Smyrnois, 2005), and indicates that students' overall high school results are a significant indicator of their performance in MAC 751.

Figure 1 shows the average overall high school grade obtained by students in the sampled population who have performed above the average final mark<sup>27</sup> for MAC 751, versus those who have performed below the average mark for MAC 751. This provides a graphical presentation as to why there is support for Hypothesis 1.

**Figure 1 – Impact of performance in MAC 751 based on overall high school results**



**This figure depicts the average of overall high school results obtained by students who have performed above the average MAC 751 mark, versus those who have performed below average.**

<sup>27</sup> The average final mark for MAC 751 was calculated based on the results obtained by the 132 students included in the final population. An average mark of 49% was calculated and thus a mark below 49% is regarded below average and vice versa where a student has gotten above 49%

**Table 3: Linear Regression Models**

Variable	Model 1A MAC 234 (Dependent variable)		Model 1B MAC 314 (Dependent variable)		Model 2 MAC 751 (Dependent variable)	
	Beta	P-val.	Beta	P-val.	Beta	P-val.
<b>Language</b>						
School	-.015	.851	-.024	.727	.157	<b>** .049</b>
	.099	.220	.065	.365	.131	.106
<b>Matric Agg</b>						
	.040	.640	.055	.465	.178	<b>** .039</b>
HS Maths Grade	.106	.184	.127	<b>* .071</b>	.064	.442
FIA 132	.420	<b>*** .000</b>	.326	<b>*** .000</b>	.004	.967
MAC 234			.191	<b>** .015</b>	.107	.234
<b>MAC 314</b>					.244	<b>*** .008</b>
Num Att (MAC 234)	N/A	N/A	N/A	N/A	N/A	N/A
Num Att (MAC 314)			-.362	<b>*** .000</b>	.019	.812
<b>Num Att (MAC 751)</b>					-.231	<b>*** .008</b>
Adjusted R <sup>2</sup>	0.195		0.379		0.272	
N	132		132		132	
Model Sig	0.000		0.000		0.000	

**\*. Correlation is significant at the 10% level (2-tailed).**

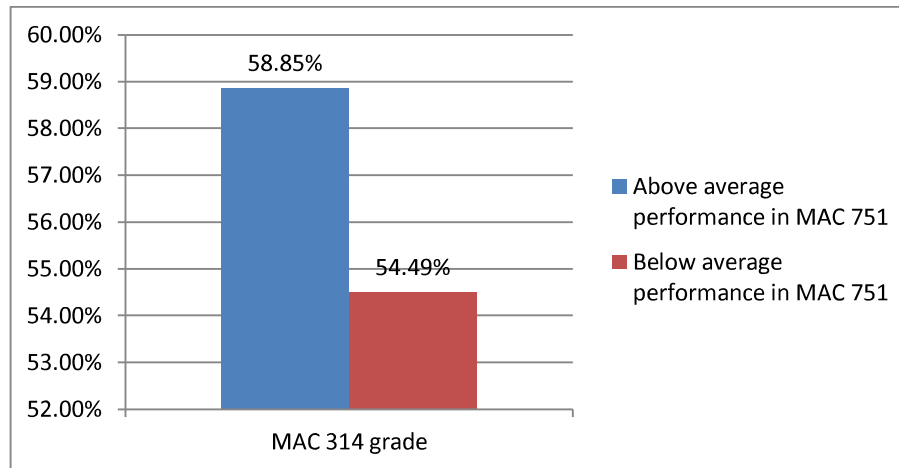
**\*\* . Correlation is significant at the 5% level (2-tailed).**

**\*\*\*. Correlation is significant at the 1% level (2-tailed).**

*Note: The statistics for the Num Att (MAC234) is regarded as not applicable, as all students in the sample have attempted the module only once*

Table 3 (Model 2) also reveals a significant positive correlation ( $\beta = 0.244$ ,  $p = .008$ ) between a student's performance in MAC 314 and performance in MAC 751. This finding is consistent with Rohde & Kavanagh (1996b), Drennan & Rohde (2002) and Jansen (2012), and indicates that students' results in pre-requisite module (MAC 314) are a significant indicator of their performance in MAC 751 and therefore provides support for Hypothesis 6. This hypothesis is clearly illustrated Figure 2 below which provides a graphical view of the average performance of students in MAC 314 who have performed above average in MAC 751, against those who have performed below average.

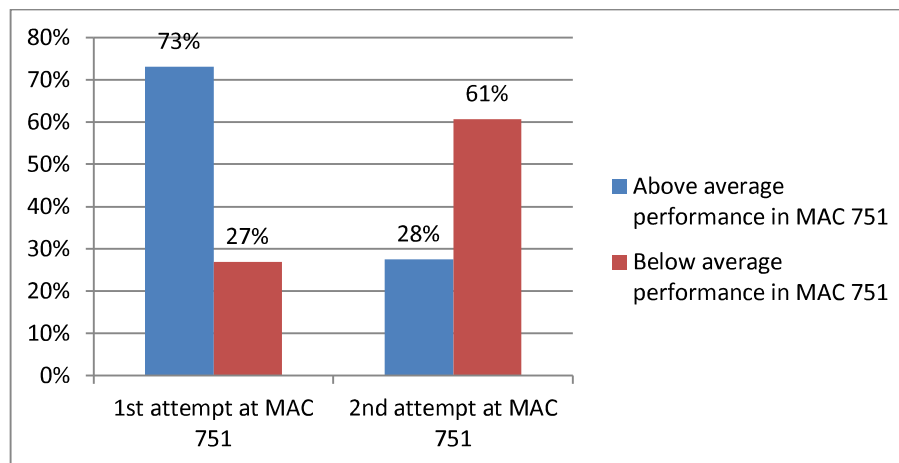
**Figure 2 – Impact of performance in MAC 751 based on MAC 314 results**



**This figure depicts the average MAC 314 results obtained by students who have performed above the average MAC 751 mark versus those who have performed below average.**

Finally a significant negative correlation ( $\beta = -0.244$ ,  $p = .008$ ) was found between the number of attempts at MAC 751 and performance in this module. This finding is consistent with De Lange, Waldmann & Wyatt (1997) and Van Wyk (2011), albeit in a different context. The maximum number of attempts a student is allowed in MAC 751 at UWC is two attempts. Therefore, this result indicates that students in their second attempt at MAC 751 are likely to exhibit lower performance in PGDA management accounting. This therefore provides support for Hypothesis 7, and is clearly depicted in Figure 3 below.

**Figure 3 – Impact of performance in MAC 751 based on number or attempts**



**This figure provides a graphical view of students who attempted MAC 751 for the first time and their related performance categorised as either above or below the average performance in MAC 751. This categorised performance by first-time students are then contrasted to those by second-time students.**

The correlation matrix (Model 2, Table 3) indicates that although a positive correlation exists between a student's performance in MAC 751 and the variables *Type School*, *HS Maths*, *FIA 132* and *MAC 234*, these correlations were not found to be statistically significant ( $p > .10$ ), and thus there is insufficient support for the hypotheses stated as Hypotheses 2, 3, 4 and 5.

## 5.2. *The effect of English language on performance in management accounting*

### 5.2.1. *The effect of English first language on performance in undergraduate management accounting*

The correlation matrices (Model 1A and 1B of Table 3) indicate that English as students' home language is not associated with variant performance in the undergraduate management accounting modules, MAC 234 ( $\beta = -0.015$ ,  $p = .851$ ) and MAC 314 ( $\beta = -0.024$ ,  $p = .727$ ). It is acknowledged that as no difference was hypothesised which is supported by this finding, we cannot conclude that there is no difference<sup>28</sup>. However the findings are consistent with Jackling *et al.*, (1994), where no correlation was also found between language and performance in introductory accounting degree modules.

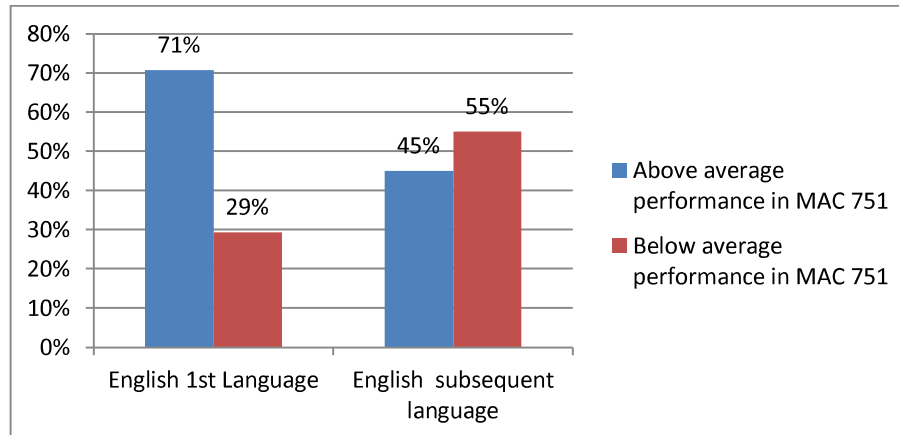
### 5.2.2. *The effect of English first language on performance in advanced management accounting offered as part of a PGDA course accredited by SAICA*

The correlation matrix (Model 2 of Table 3) indicate that English as a student's home language is significantly and positively associated with differential performance in MAC 751 ( $\beta = 0.157$ ,  $p = .049$ ). This finding is consistent with Drennan & Rohde (2002), and indicates that students whose first language was English outperformed their counterparts whose first

<sup>28</sup> This is due to problems with testing a no effect hypothesis (Tressoldi, Giofre', Sella & Cumming 2013).

language was not English, thus providing support Hypothesis 9 as clearly depicted in Figure 4 below.

**Figure 4 – Impact of performance in MAC 751 based on language**



**This figure provides a graphical view of students who attempted MAC 751 that are English first language and their related performance categorised as either above or below the average performance in MAC 751. This categorised performance by English first language students are then contrasted to those who are not English first language.**

## **6. Conclusion and ideas for future research**

This exploratory study identified and explored student endogenous factors associated with variant performance in advanced management accounting offered as part of a PGDA course, accredited by SAICA. Specifically the study examines the impact of English first language as well as other student endogenous factors namely: a students' overall high school grade; overall high school mathematics grade; results in the pre-requisite modules for PGDA advanced management accounting (MAC 751 at UWC); as well as the number of attempts on performance in MAC 751.

Consistent with prior research, English as a first language was found not be related to differential performance in introductory and final year undergraduate management accounting studies. PGDA advanced management accounting is a subject which places emphasis on unstructured interpretation and application of constructs in unfamiliar contexts (Drennan & Rohde 2002). Therefore, where assessments focus on interpretation and application of key principles in unfamiliar scenarios, such as in PGDA advanced management accounting, there is evidence of higher performance by students whose first language is English.

It is also evident from the results reported in this study that there is a positive and significant correlation with a students' performance in final year undergraduate management accounting (MAC314), which is the pre-requisite module immediately precedes PGDA advanced management accounting (MAC 751). This finding indicates that a high level of alignment exists between the topics covered and level of assessment in MAC 314 and MAC 751. In

addition these results also support the concept of constructivism, which is being able to build new knowledge or add new skills and abilities onto existing knowledge or existing skills sets. As a pre-requisite for MAC 751, MAC 314 is assumed to be one of the existing skill sets or knowledge that a student has to build on in order to be successful in MAC 751.

Also apparent from the findings reported in this study are that students' overall high school grade has a positive and significant correlation with performance in MAC 751. We surmise that a possible reason for this is that MAC 751 as explained requires interpretation and application in unfamiliar contexts, which requires a wide range of competencies such as numerical and analytical skills, as well as logical reasoning. As the overall high school grade incorporates a student's average over at least seven<sup>29</sup> grade twelve subjects, it could be argued that students with higher overall high school grades possess a greater range of competencies, which aid them to adapt efficiently to these unfamiliar contexts. It therefore also appears reasonable for UWC to have a student's year final high school grade as an input into the decision relating to their acceptance in the undergraduate programme.

Finally, the results reported in this study reveal that students who have attempted MAC 751 for the first time are likely to perform better than their counterparts. MAC 751 is one of subjects which incorporate some of the key competencies required to be displayed in the SAICA ITC exam. Van Wyk (2011) examined the performance of candidates writing the 2009 SAICA ITC exam, and found that first-time candidates have a greater chance of passing the SAICA ITC exam. In addition, the likelihood of a candidate's success in the ITC exam decreases as the number of attempts increase. Given that MAC 751 is one of the subjects a student has to successfully complete before sitting for the ITC exam, the same benefit of attempting the ITC exam for the first time is expected with MAC 751.

The current study was limited to explaining only 27% of the variation in student performance using the adjusted  $R^2$  of Model 2 of Table 3, which contained all the variables hypothesized to have impact on performance in MAC 751. This is due to the research focusing only on student endogenous factors which could impact on performance in MAC 751.

Student endogenous factors are a sub category of the presage factors which affect learning outcomes as described by Biggs' 3P model. In order to allow more insight to be gained into the performance and success of students in PGDA advanced management accounting, future research could be conducted on the process factors as depicted by Biggs' 3P model, such as students' approaches to learning. In addition, the impact of the teaching context on performance in PGDA advanced management accounting can also be explored. These factors could include, amongst others, the quality and style of assessments, and the experience and aptitude of academic staff.

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<sup>29</sup> According to the Department of Basic Education 2010, South African grade 12 learners study at least 7 subjects.



A significant area for further research is the fact that PGDA-level management accounting is only taught and assessed in English and/or Afrikaans at all SAICA accredited universities in South Africa. The impact of potential mother tongue interventions which aim to address the limitation of a student not being taught and assessed in their home language could be explored.

Lastly it is acknowledged that a sample size of 132 students is small given the number of variables, and although the findings in this study have potential importance it has limited generalizability by virtue of the population being students from one university. This study could therefore be replicated using data from other universities offering advanced management accounting as part of a PGDA programme accredited by SAICA. This could also lend itself to a comparative study between different institutions. It should however be noted that the results per institution when conducting a study of this nature, may not be directly comparable due to a difference in teaching contexts across institutions.

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