Factors Affecting Cost and Management Accounting Students’ Performance at Polytechnics in Zimbabwe: The case of Harare Polytechnic

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ABSTRACT

There is restricted research on the variables that influence student’s ability to perform well in Cost and Management Accounting 1 (CMA1) in Zimbabwe's Polytechnics. This study aims to find out the reasons that affect Cost and Management Students’ performance at Harare Polytechnic in Zimbabwe. Using Pearson correlation and standard multiple regression analysis on a sample of 134 business studies students, this paper’s goal is to focus on the factors that influence achievement in CMA1 at Harare polytechnic in the 2014 academic period. Factors examined were prior academic achievement, prior accounting knowledge, student mathematical ability, student’s age and student’s gender. The results of the study revealed that student age and prior academic achievement had a negative significant contribution to the variation in student performance, student mathematical ability had a positive significant contribution on the change in performance of students in their examination. Uniquely, prior accounting knowledge and student gender could not significantly contribute to the variation in the ability of students to succeed in CMA1. The implication of this study is that it provides an opportunity to the college administration to check out students at danger of becoming unsuccessful in CMA1 so that it can create proper programmes to support such students.

Keywords: Cost and Management Accounting, determinants of academic performance, polytechnic students

1. INTRODUCTION

The growth of a country is enhanced by the skills or knowledge that its citizens holds (Olaniyan & Okemakinde, 2008). This is the reason why most governments pays out huge amounts of money towards educating its citizens in many countries around the world (Fagerlind & Saha, 1997). For example, the United Nations Educational, Scientific and Cultural Organization (UNESCO) institute of statistics (n.d) reported that Singapore, Thailand and South Africa’s total spending on education in relation to total government spending (all sectors) for 2012 was 20.56%, 31.33% and 20.61% respectively. Whereas in Zimbabwe expenditure on education as a proportion of total government spending (all sectors) last calculated in 2010 by UNESCO Institute for Statistics (n.d) was 8.26%. Thus, it becomes important for educators and governments to understand the factors which can affect student productivity in school, so that students at risk of being unproductive can be provided with supplementary programmes for their needs. This should consequently lead to proper utilization of these scarce educational funds. Besides the 2010 statistic calculated by UNESCO, the Zimbabwe National Budget Statement (2014) revealed the country in 2014 assigned 29% of the national budget to education which was 3% higher than 2013’s share. However, despite the efforts made, academic failure rate of polytechnic students for 2012 and 2013 was 22%, on average (“Hexco results out,” 2013). On a closer look on the failure rate reveals that the most failed subject is Cost and management 1 (CMA1). If this continues Zimbabwe may not achieve its human capital development objective of having a strong human
resource base. Strong human resource base has been one of the resources that give Zimbabwe a comparative advantage over regional and other international countries and by 2018 the country is projected to be a growth leader in Sub-Saharan Africa (Zim-Asset, 2013-2018).

Owing to huge amount of resources being consumed by the education sector and the failure rates of students in most countries, considerable research has been undertaken on the factors that affect student performance in different subjects of study. Studies which examined reasons that affect students in accounting subjects were biased on the introductory course as this is where the greatest impact might be expected. Nevertheless, it is also important to examine whether the effect extends beyond the first course (Byrne & Willis, 2014). Studies which focused on the first post-secondary accounting course were (e.g. Eskew & Faley, 1988; Lee, 1999; Tan & Laswad, 2008; Arquero, Byrne, Flood & Gonzalez, 2009; Steenkamp and Baard, 2009; Yu, 2011; Gungormus, 2011; Okafor & Egbon, 2011; Uyar and; Zandi & Shahabi, 2012; Nyikadzoi, Matamande, Taderera & Mandimika, 2013; Mudaa, 2013). A few studies concentrated on the reasons that may hinder the ability of students progress in the whole Accounting degree (e.g. Duff, 2004; Masasi 2012; Seow, Pan & Tay, 2014). However, studies which explores the reasons that militates against student success in CMA (e.g. Al-Twajjry, 2010; Fogarty & Goldwater; 2010; Kirk & Spector, 2006) is scant. It is difficult to find a study conducted at a polytechnic addressing this subject. A study by Al-Twajjry (2010) in Saud Arabia examined 312 university students. The purpose of his study was to discover reasons that can probably disrupt student’s ability to perform in three consecutive courses in Management Accounting. Al-Twajjry (2010) proved that to have accounting experience before entering university can have an impact on learning advanced management accounting, while possession of mathematical skills can affect students’ success in Managerial Accounting. This study did not consider other reasons which can influence performance of students e.g. gender and student age. Additionally Fogarty and Goldwater (2010) in USA revealed that female students are hard workers but they do not perform better than males. The researchers concentrated on gender and did not consider or control for the effect of mathematical ability and prior academic achievement and age. Similarly Kirk and Spector (2006)’s study did not also consider the effect of prior academic achievement.

1.1 PROBLEM STATEMENT

Education is an essential powerful tool that upgrades efficiency of people because it creates abilities that raise workers’ productivity, which means economic development (Bloom et al, 2006; Galiani, 2008). This has prompted studies investigating factors that affect the success of students, with the aim of promoting measures or changes in educational policies that increase performance of students in the accounting subjects. The Harare polytechnic administration had always been concerned with students who did not perform well in accounting subjects, but there is a lack of enough research at Harare Polytechnic about which reasons are obstructing students’ ability to succeed in CMA. This study seeks to provide empirical evidence about Zimbabwe polytechnics education by investigating factors that affect student performance or productivity in
cost and management accounting I taught in four diplomas namely; Accountancy, Human resources management, Purchasing and supply management and Marketing management at Harare polytechnic. The use of standard multiple regression analysis is going to be employed, the results of which will give information about the effect of prior academic achievement, prior accounting knowledge, mathematical ability, gender and age on performance in CMA1. Only one study by Ballester (2012) analyzed the learning process by an Education production function in the subject of financial accounting and there is no evidence of similar studies in management accounting. Also, no study we are aware of considered the effect of prior academic achievement, mathematical ability, student age, and gender on performance in CMA1 in a Zimbabwe polytechnic classroom context.

1.2 OBJECTIVES THE STUDY
- Investigate the correlation between prior academic achievement and student academic performance in CMA1
- Find out the relationship between prior accounting knowledge and student academic performance in CMA1.
- Identify the association between student age and student academic performance in CMA1
- Examine the relationship between student gender and student academic performance in CMA1

1.3 SIGNIFICANCE OF THE STUDY
Determining factors that impact on student performance is critical because institution and lecturers would have the basis for finding out ways to improve student performance. Improving student performance will lead to quality graduates who will drive the country to meet its economic and growth objectives. Government and educators should have a clear understanding of the reasons which influence students’ academic performance or student productivity. It enables them identify students at risk of failing so they (the government, as well as educators) can adopt more programs for their needs. This reduces the wasted funds within the sector.

2. REVIEW OF PRIOR RESEARCH
Education can be viewed as similar to a production process where educational inputs can be transformed into educational outputs (Archad, 2012). Mathematically this process is known as the education production function (Archad, 2012). According to Bowels (1970) educational output can be measured by students’ academic performance e.g. test scores while educational inputs can be classified into three classes namely: variables measuring school environment; variables measuring variables depicting environmental influences e.g., the parents’ educational attainment and explanatory factors like the student’s ability and the level of learning attained by the student before admission into higher level of learning. This study utilizes the education production function approach and the multiple regression analysis to study the effect on output (performance in CMA1) of the education process from the inputs (prior academic achievement, mathematical
ability, and student age and student gender) into the process. The term input output approach may be used instead of the production function approach (see Lamdin, 1996). This process is shown in figure 1

*Figure 1: The educational production process*

![Diagram of Educational Production Process](image)

Next, the various inputs into the above production process are critically examined. Literature reviewed include that from input output models since only one empirical study by Ballester (2012) used the education production function approach in the area of accounting.

### 2.1 PRIOR KNOWLEDGE

Prior studies on the effect of prior academic performance on the academic performance of students and then we present prior research on prior accounting knowledge and its effect on academic performance of students in CMA1.

#### 2.2 PRIOR ACADEMIC ACHIEVEMENT

Seow, *et al* (2014) examined 823 students who completed a degree in accountancy and found out that prior academic performance continue to be fundamentally connected with fruitful performance in the whole Accounting degree. Similarly Arquero, *et al* (2009) examined 330 students at the University of Serville in Spain doing financial accounting 1 in a business and management degree and they discovered that university access scores is significantly correlated with performance. Also another study was done in UK by Duff (2004) and found that the most important indicator of first-year scholarly achievement was former scholastic accomplishment (i.e. execution in school examinations). This outcome was in light of 61 out of 74 students enlisted in the first-year of Accounting and business studies at a UK University. On the contrary, different studies found former scholarly accomplishment not essentially connected with performance e.g. a study by Bartlett, Peel and Pendlebury (1993).

#### 2.3 PREVIOUS ACCOUNTING KNOWLEDGE

Previous accounting knowledge from high school has been widely investigated in the literature. Mudaa, Hussinb, Joharic, Saporid, and Jamile (2013) examined 142 non-accounting students who took introduction to accounting course at UniversitiTeknologi Mara (UiTM) NegeriSembilam. The students were doing a diploma
in agriculture and technology management and the results revealed a fundamental connection of prior knowledge to fruitful achievement in Introduction to Accounting course. Similarly Steenkamp and Baard (2009) also found out superb performance in post-secondary first accounting course for learners who have excelled well in secondary school accounting at Stellenbosch University. Eskew and Faley (1988) also found out that pre college bookkeeping background fundamentally determines the variance in examination performance more that aptitude and effort. The study by Yu (2011) examined 395 second year business students at Philippine university and found out that high school accounting performance contribute more to accounting achievement in colleges of tertiary learning. A study by Al-Twajry (2010) in Saud Arabia examined 312 university students. The purpose of his study was to ascertain factors that can probably disrupt student’s ability to perform three consecutive courses in Management Accounting. Al-Twajry (2010)’ results showed that to have accounting experience before entering university can have an impact on learning advanced management accounting, while possession of mathematical skills can affect students’ success in Managerial Accounting. Lee (1999) used the model which was utilized by Eskew and Faley (1988) where she considered the strength of school accounting qualification. The results showed that those students managed to do well in accounting at the end of either the fifth or seventh forms altogether outclassed those without Pre College accounting in the first introductory accounting course. This result does not persist in second, introductory accounting course.

Doran, Bouillon and Smith (1991) conclusions conflicts with results on the way in which previous accounting experience affect performance in accounting courses. Their study revealed that secondary school accounting may linked to success in Accounting Principles I. This connection turns to be negative in Accounting Principles II. Differences in results may be due to the different educational contexts these studies were conducted (e.g. Tickell & Smyrnios, 2005), little attention may have been directed to the content of the courses in the prior years (Byrne & Willis, 2014), and type of material covered in school (Keef and Hooper, 1991).

2.4 MATHEMATICAL ABILITY

Seow, et al. (2014) found out that mathematical aptitude significantly associate with academic performance in the new style of accountancy degree programme at a Singapore university. Uyar and Gungormus (2011) like Seow, et al. (2014) discovered that math grade links to performance in the financial accounting course. Aidoo-Buameh and Ayagre (2013) using bivariate correlation analysis found a weak connection between Pre College Mathematical skill and accounting in introductory courses in the Accounting degree course e.g Managerial Cost Accounting I and II. Similarly Zandi and Shahabi (2012) examined 334 students in four main universities located in Shiraz city, the capital of Fars province in Iran. Zandi and Shahabi (2012) study confirmed that, mathematic skills are influential over the accounting discipline outperformance, i.e., the higher the mathematic knowledge, the better the accounting performance. Surprisingly, Kirk and Spector
(2006) examined 129 students at the state university of New York and found that Mathematics achievement insignificantly affects student academic performance in cost accounting. Equally Maksy and Zheng (2008) found out that self-perceived writing and mathematical skills could not correlate with higher level accounting and auditing courses at a major metropolitan university in USA.

2.5 STUDENT AGE
Studies on student age and performance yielded inconclusive results. Eikner and Montondon (2001) examined students enrolled in Intermediate I and from all those potential explanatory variables they tested only grade point average, grade in principles 1 and student’s age were fundamentally connected to performance in the First Intermediate Accounting Course at Middle Tennessee State University, USA. Masasi (2012) sampled 122 students from a population of 1200 students and his findings showed that students’ personal attributes (gender, job, employment, marital status, children, relatives and age) were associated to students’ performance in an undergraduate accounting course at an open distance learning (ODL) in Tanzania. Nyikahadzoi, et al. (2013) examined 241 first year students at the University of Zimbabwe and noted that age is an essential variable that affects accounting students’ ability to succeed.

2.6 STUDENT GENDER
Wally-Dima and Mbekomize (2013) reported that females are more cooperative while males do not perform well in class due to lack of interest in their studies and they are playful. Similarly Fogarty and Goldwater (2010) confirmed that females work hard in their academic work though they do not outperform males. In contrast, Masasi (2012) found that males’ performance was better than female students in accounting course at a university in Tanzania. Another contradicting result from Okafor and Egbon(2011)revealed that performance of males and females is to a large extend the same in an accounting course. Similarly, Nyikahadzoi, et al. (2013) like Okafor and Egbon(2011) noted that male students’ performance is better than that of females in an introductory accounting subject at the University of Zimbabwe. Gender research differences could have been caused by student instructor gender interaction as reported by Lipe (1989) or it could be exposure to different teaching and assessment procedures (Buckless, 1992). Also other researchers argue that females have different study skills (Leornard & Jiary, 1999) and their level of hard work and class attendance is different to that of males.

From all studies reviewed, no study considered the effect of prior academic achievement, prior accounting knowledge, mathematical ability, age and gender on student performance in cost and management accounting in Zimbabwe polytechnics. Besides, only one study by Ballester (2012) used the education production function approach in accounting.
3. METHODOLOGY

This research seeks to establish factors that affect students’ performance in CMA1 at Harare Polytechnic. One hundred and thirty-seven students who wrote their final National diploma 3 (ND3) CMA1 for the academic year 2014 constituted the sample. CMA1 is taught to students studying towards national diploma 3 in accountancy, purchasing and supply, human resources and marketing management. This subject is done in their third year at the polytechnic. The data was obtained from the student records (age, gender and mathematical ability, prior academic achievement, prior accounting knowledge) while the student academic performance was obtained from the exams office (student academic performance in CMA1).

3.1 MEASUREMENT OF VARIABLES

The manipulated variable

The manipulated variable is the performance in CMA1 which is the overall final mark earned after considering the final HEXCO exam mark. Students wrote four assignments (two are field based assignments and the other two are theory assignments) and two tests during the year and then wrote their final examination in on the 22\textsuperscript{nd} of November 2014. Field based assignments, theory assignments and the two tests contribute 20%, 20% and 20% respectively to the final exam mark. Then the final examination is mark is converted to 40%. So the aggregated mark for each student are calculated, that is the figure which is study uses represent each students’ performance in CMA1.

Independent variables

- AGE variable will be introduced as a proxy, indicating the number of years that have passed since the birth date of the student
- To capture prior academic achievement (PAA), students’ polytechnic access score was used this is his/her secondary school grades. The lower the points the better the performance in school.
- Variable GENDER will be introduced having a value of 1 represent males while 0 represents female students.
- Mathematical ability (MA) will be introduced with a value of 1 representing that a student has mathematics at “O” level and 0 if otherwise
- Prior accounting knowledge (PAK) will be introduced having a value of 1 if a student has principles of accounts at “O” level and 0 if otherwise

4. RESULTS

Data for 137 students were obtained for this study. Table 1 show that 56% of the students were females while 44% were males. 12.7% of the students have no principles of accounts at ordinary level while 87% have principles of accounts at ordinary level. In addition 49.3% of the students have no mathematics at ordinary
level whereas 50.7% have mathematics at ordinary level. On the other hand, the continuous variable descriptive statistics table II show that the mean exam mark is 48.28(SD=14.52) while the mean age of the sample is 22.93(SD=2.245). The mean admission points is 13.80(1.273).

Table 1: Descriptive statistics for categorical variables

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
</tr>
<tr>
<td>Male</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
<tr>
<td>PRIOR ACCOUNTING KNOWLEDGE</td>
<td></td>
</tr>
<tr>
<td>Has no principles of accounts at ordinary level</td>
<td>12.7</td>
</tr>
<tr>
<td>Has ordinary level principles of accounts</td>
<td>87.3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
<tr>
<td>MATHEMATICAL ABILITY</td>
<td></td>
</tr>
<tr>
<td>Has no mathematics at ordinary level</td>
<td>49.3</td>
</tr>
<tr>
<td>Has mathematics at ordinary level</td>
<td>50.7</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Descriptive statistics for non-categorical variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>student academic performance</td>
<td>48.28</td>
<td>14.520</td>
<td>134</td>
</tr>
<tr>
<td>student age</td>
<td>22.92</td>
<td>2.245</td>
<td>134</td>
</tr>
<tr>
<td>prior academic achievement of the student</td>
<td>13.80</td>
<td>1.273</td>
<td>134</td>
</tr>
</tbody>
</table>

Correlation analysis between the explanatory factors and academic performance

The correlation coefficient analysis was performed so that the connection which exists between independent variables and the dependent variable can be ascertained. The results are presented in Table 3. The result shows that student age, prior academic achievement, student mathematical ability have a high correlation to students’ performance in CMA1. The results also show that there is negative significant relationship between student achievement in CMA1 and student age, $r = -0.635$, $p<0.01$. Furthermore the correlation between student academic performance in CMA1 and student prior academic achievement was also significant $r = -0.526$, $p<0.01$. A positive significant relationship is shown between success in CMA1 and student mathematical ability, $r = 0.577$, $p<0.01$. On the other hand It was found out that student gender insignificantly correlated student academic performance in CMA1 and student gender $r = 0.35$, $p = n.s$, as did student academic performance in CMA1 and prior accounting knowledge $r = 0.045$, $p = n.s$. 
Table 3: Pearson Correlation coefficient analysis among variables

<table>
<thead>
<tr>
<th></th>
<th>AGE</th>
<th>GENDER</th>
<th>APCMA1</th>
<th>PAK</th>
<th>PAA</th>
<th>MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>student age</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.062</td>
<td>-.635**</td>
<td>-.024</td>
<td>.441**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.480</td>
<td>.000</td>
<td>.783</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>student gender</td>
<td>Pearson Correlation</td>
<td>-0.62</td>
<td>1</td>
<td>.124</td>
<td>.067</td>
<td>.022</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.480</td>
<td></td>
<td>.153</td>
<td>.441</td>
<td>.797</td>
<td>.477</td>
</tr>
<tr>
<td>N</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>APCMA1</td>
<td>Pearson Correlation</td>
<td>-.635**</td>
<td>.124</td>
<td>1</td>
<td>.045</td>
<td>-.526**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.153</td>
<td></td>
<td>.045</td>
<td>.797</td>
<td>.477</td>
</tr>
<tr>
<td>N</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>PAK</td>
<td>Pearson Correlation</td>
<td>-.024</td>
<td>.067</td>
<td>.045</td>
<td>1</td>
<td>.063</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.783</td>
<td>.441</td>
<td>.609</td>
<td></td>
<td>.468</td>
<td>.402</td>
</tr>
<tr>
<td>N</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>PAA</td>
<td>Pearson Correlation</td>
<td>.441**</td>
<td>.022</td>
<td>-.526**</td>
<td>.063</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.797</td>
<td>.000</td>
<td>.468</td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>N</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>MA</td>
<td>Pearson Correlation</td>
<td>-.503**</td>
<td>.062</td>
<td>.577**</td>
<td>.073</td>
<td>-.274**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.477</td>
<td>.000</td>
<td>.402</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

4.1 REGRESSION ANALYSIS

Correlation analysis performed above can only determine the degree of connection between two variables. It cannot go beyond to explain the link between a dependent variable and a set of explanatory factors. This therefore requires the use of the multiple regression analysis.

The explanatory factors used in the model are prior academic achievement, prior accounting knowledge, student age, Mathematics’ ability and student gender.

These five determinants accounted for more than half of the variance in performance in CMA1 ($R^2 = .565$), which was highly significant, $F (5,128) = 33.307, p=.000$. Student age ($\beta = -0.339, p < .05$), prior academic achievement ($\beta = -0.292, p < .05$), and student mathematics ability ($\beta = .319, p < .05$) all meaningfully contributed to variation in student success in CMA1. However some independent variables were found to have no fundamental contribution to the variation in student success in CMA1 namely; prior accounting knowledge ($\beta = .026, p < .05$) and student gender ($\beta = .088, p < .05$). From Table 2 it can be seen that variance inflation factors (VIF) are less than two and also the Tolerance is above 0.2. It assures us that multicollinearity is not a serious problem in this study. Usually VIF which exceeds ten can be a sign multicollinearity problem in research (Neter, Wasserman and Kutner, 1989:409). Similarly Tolerance which
cannot exceed 0.2 may show a probable problem (Menard, 1995). Since the VIF is less than two and Tolerance is above 0.2, for the factors under consideration, this is an indication that there is no need to worry about multicollinearity in the current study.

Table 3: Multiple regression model results

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>95.0% Confidence Interval for B</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>(Constant)</td>
<td>137.769</td>
<td>12.445</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-2.196</td>
<td>.469</td>
<td>-.339</td>
<td>-4.679</td>
<td>.000</td>
<td>-3.124</td>
</tr>
<tr>
<td>GENDER</td>
<td>2.573</td>
<td>1.708</td>
<td>.088</td>
<td>1.506</td>
<td>.134</td>
<td>-.807</td>
</tr>
<tr>
<td>PAK</td>
<td>1.117</td>
<td>2.554</td>
<td>.026</td>
<td>.437</td>
<td>.663</td>
<td>-3.936</td>
</tr>
<tr>
<td>PAA</td>
<td>-3.331</td>
<td>.746</td>
<td>-.292</td>
<td>-4.464</td>
<td>.000</td>
<td>-4.807</td>
</tr>
</tbody>
</table>

Dependent Variable: student academic performance

APCMA1=α+β1PAK+β2GENDER+β3AGE+β4MATHABILITY+β5PRIORACHIVE+ε

Where, APCMA1; Academic performance in CMA1
PAK; prior Accounting knowledge
GENDER; Gender
AGE; Student age
MA; Mathematical ability
PAA; Prior academic achievement
ε; Random error term

5. DISCUSSION

The reason for this study was to determine factors that can have an influence on the productivity of students in CMA1. From the analysis carried above it appears that among independent variables which were being examined, not all of them have a positive relationship with the final examination performance in CMA1. Student age and PAA have a negative association with students’ final academic achievement in CMA1. The relationship between student mathematics ability however is a positive one. Interestingly like Nyikahadzoi. et al (2013) the study discovered a negative association between age and CMA1 success suggesting that young students are more productive than older students, alternatively an increase in student age by one year will lead to a decrease in the student performance by 2.2 marks. This finding supports the findings of Eikner and Montondon (2001), Gracia and Jenkins (2003) and Nyikahadzoi, et al. (2013). Furthermore a negative
The relationship between prior academic achievement and performance is comprehensible since it was due to the way the admission points were recorded. This has been explained under the measurement of variables section. The higher the admission points, the lower the student performance, alternatively, a decrease in students performance at o’ level by one point leads to an increase in student performance by 3.3 examination marks. This outcome confirms the findings of Seow, et al. (2014), Duff (2004), Arquero, et al. (2009), Koh and Koh’s (1999) but is not the same with the study of Bartlett, et al. (1993). These differences could be due to the context in which these studies were conducted.

The relationship between mathematical ability and performance is positive suggesting that students with higher grades in mathematics at ‘O’ level performed better than those who had not passed mathematics. The result is in concurrence with the findings of Maksy (2012) Seow, et al. (2014), Aidoo-Buameh and Ayagre (2013) but contradict with Kirk and Spector (2006). Contrary to the findings of Eskew and Faley (1988) and Lee (1999) that prior accounting knowledge is related to the students’ performance, this study discovers that students with ‘O’ level accounting and those without ‘O’ level accounting are indifferent in performance, meaning to say that students performance in CMA1 cannot be explained by prior accounting knowledge. This could be because the school accounting course content and type of material covered do not overlap managerial accounting concerts since as suggested by Keef and Hooper (1991). Potential research can be directed to the examination of the course content covered at secondary school accounting subjects in Zimbabwe because researchers have suggested the overlap between high school accounting subjects and tertiary subjects as one of the cause of differences in research outcomes. Gender also could not also explain the variation in student success. This is in common with the study of Gammie, et al. (2003).

6. CONCLUSIONS

There is a need to align entry qualifications of college students to the future needs of their courses especially if certain subjects such as mathematics will be a prerequisite. However, current study reveals that mathematical ability, prior academic achievement and student age may affect academic performance of students, hence, students without mathematics should not be given first preference in selecting students. Where students have been admitted without mathematics, supplementary programmes should be designed so that those without mathematics can catch up with those who have mathematics. Similarly students with the lowest points should be given places to study first. Furthermore, young productive students should also be given first preference. Accordingly the most appropriate student is the one who is the youngest, with the lowest points and with mathematics at o’ level. Cost and Management Accounting 1 should be done by students with a strong background in mathematics as well as by young students who can withstand the rigors of arithmetic ability. It is in this light more emphasis should not be placed on prior accounting knowledge and gender since it does not have an effect on the performance of students.
This study had the following limitations. First, it confined to students at Harare polytechnic only, further research can extend the research to cover all the polytechnics in Zimbabwe. Second, the sample size was also small therefore future studies can increase the sample size.

7. REFERENCES


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