THE RELATIONSHIP BETWEEN MATHEMATICS AND PRINCIPLE OF FINANCIAL ACCOUNTING: A CASE STUDY OF BAMIDELE OLUMILUA UNIVERSITY OF EDUCATION, SCIENCE AND TECHNOLOGY, IKERE EKITI

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Abstract

This study specially set out to examine the relevance of Mathematics to Principle of Account in University of Education, Science and Technology, Ikere Ekiti Nigeria. Although most accounting educators readily acknowledge that mathematics ability has a significant impact on student performance in accounting courses to date no statistical research has commercially quantify the effect. Based on the problem investigation, some hypotheses were generated to guide the investigation. Relevant data were collected from the students' files. The total population of the student in 100 levels was 120 out of which 50 students were randomly sampled using proportional stratified sampling technique. The data collected were analyzed using Pearson's correlation coefficient and student's t-test analysis to show whether the hypotheses generated could be upheld or rejected. The result indicates that there is high correlation between performance in Mathematics at ordinary level examination and their performance in Financial Accounting at 100 levels. Similarity, the student's t-test analysis shows that there is no significant different between the mean of Mathematics scores and the mean of their scores in financial accounting at 100 levels examination scores.

Introduction

Since the introduction of financial accounting into the curriculum of Nigeria tertiary education system, it has virtually become a policy or requirement that all students seeking admission to study financial accounting in tertiary education level must have passed mathematics at credit level. The policy may not just be for fun but for the fact that financial accounting has a close relationship with mathematics. Take for instance the dual aspect concept, is expressed as mathematical equation. Similarly, accounting computation such as computation for depreciation, determination of loan installment, ascertaining of cash price in case of hire purchases and analysis of financial statement all these and many more require Mathematics skills. According to Yunker, Yunker and Krull (2009). "The discipline of accounting is concerned with accurate numerical measurement of

precisely defined operational concepts." Similarly, most accounting educators believe that arithmetic skills are important for students to understand accounting systems and financial statement analysis. All these are pointing to the fact that academic and professional success in mathematics will in no small measure lead to high level of accounting skill. Accounting is often said to be the language of business. It is used in the business world to describe the transactions entered into by all forms of organization. Most accounting educators believe that arithmetic skills are important for students to understand accounting systems and financial statement analysis. It seems obvious that academic and professional success in accounting will be facilitated by a high level of Mathematics skill.

Most business schools have implemented Mathematics requirements in basic calculus and matrix algebra, but the amount of application of these techniques tends to be limited in many business courses, with the result that some students may postpone taking required Mathematics courses until take in their college courses. A personal debate topic in faculty lounges concerns the usefulness of higher Mathematics in the applied business disciplines and the extent to which mathematics techniques could and should be utilized in course work. Professors of accounting finance and economics tend to be aligned in these debates against professors of marketing and management.

Although accounting educators tend to be more favourably disposed toward Mathematics than some other business educators, none of the contributions to the professional literature on determinants of success in accounting have singled out Mathematics ability for special emphasis. The most voluminous component of the determinants of success literature examines factors influencing performance of students in principles of accounting courses: Eskew and Faley (1988) Bouillon, Doran and Smith (1990), Doran, Bouilhen and Smith (1991), Bouillon and Doran (1992). These authors statistically document strong positive relationships between performance in principles of accounting and the following independent variables: Grade part Average (G.P.A), majoring in accounting, grade in principle I courses (relevant to principles II performance). Weaker and more problematic relationships have been found between performance and secondary school courses in accounting, sex (normally Female students to better than Male Students) personality characteristics effort measures and intervention variables such as supplementary instruction.

The principle of accounting involves commerce which simply means the study of production, distribution and exchange of goods and services aimed at satisfying human want and in order to earn a living. This cannot be done without the knowledge of mathematics. The relevance of Mathematics to Principle of Account as a subject in public secondary schools cannot be over-emphasized.

Hence, this research work is poised to investigate the relevance of Mathematics to principle of accounting among the students of one-hundred level of Bamidele University of Education, Science and Technology. There have been so many worries and crying from the educational stakeholders about the poor performance of the students in accounting. One of such factors as pointed out by Ojo (2006) has to do with idiosyncrasies of calculations of accounting which are in parts traceable to the poor knowledge of the concepts of mathematics that many students have.

It is expected of students to be oriented in mathematics in order to excel in accounting. But today the reverse is the case. International studies attested to the fact and obviously show that students that performed woefully in mathematics also performed woefully in accounting in public examinations such as West African Examination Council. The questions therefore are: What is the significant importance of mathematics knowledge to teaching and learning of accounting as a subject; what is general performance level of students that are good in accounting but poor in mathematics, what is general academic achievement level of students that are vast and good at mathematics and their performance in accounting?

Is there any relationship between mathematics as a subject and financial account as a subject might ready come to mind when brainstorming this research study? These and more questions of this nature prompt this study, to find out if there is any relationship between accounting and mathematics.

Purpose of the Study

The broad objective of this study is to find out whether there is any correlation between student scores in financial accounting of some selected students of accounting department of Bamidele University of Education, Science and Technology Nigeria, Ikere Ekiti and their corresponding scores in mathematics in West Africa Examination. To be able to accomplish the above stated objective, the following specific objective, were considered.

1. Identify the relevance of mathematics and principle of accounting
2. To identify the applicability of mathematics models in financial accounting
3. Finally, to find out how relevance of mathematics is to financial accounting.

Research Question

There are multi-faceted questions meriting attention on a global scale concerning relationship between mathematics and accounting. This face of study will address the following specific question with the hope that finding might become an eyes opener for the reasons why the credit on mathematics become essential before any student can get admission to read accounting in visually all tertiary institution in Nigeria.

Some of these questions are;

1. Does good performance in mathematics translated to good performance in accounting
2. Is there any relationship between mathematics and accounting?
3. Of what relevance is mathematics to financial accounting?

Research Hypothesis

To be able to answer the above research questions, the following hypothesis where generated and tested;

(HQ[1]). There is no significant relationship between good performance in mathematics and good performance in accounting.

(HQ^2) There is no significant different between the mean scores of student in mathematics and the mean scores of student in accounting.

Significance of the Study

This study justified because it will benefit to the following set of people; researcher in updating their information bank about the relevance of mathematics in financial accounting. Principals of public schools and their private counterpart in searching for mathematically oriented teacher that will help in laying good solid foundation for their student. It will also provide awareness about the relevance of mathematic on accounting for student who which to study financial accounting at tertiary level.

Methodology

Research design

The research design adopted in this study is the ex-post-facto research design. This design was employed because data collected for the study were not subjected to any direct manipulation by the researcher, for the independent variables had their influence prior to the commencement of the study.

Sample

The sample used in this study was made up of fifty (50) Accounting students that took part in 100 level course taught by one lecturer.

Validity of the instrument

The face and the content validity of the instrument were already established as the data analyzed are moderated by external moderators.

Reliability of the instrument

The split-half reliability was employed in computing the reliability of the 30 items in the instrument. This method yielded a reliability of 0.7830, which was considered to be very high and acceptable for the purpose of the study.

Data Collection and Analysis

The scores of the selected students in Financial Accounting at the end of semester and their respective grade level in mathematics at West Africa Examination were collected from the student's files. The grade level of the selected students were coded by using nine points Henry Licker scale, where (A1) =8, (B)=7, (B3)=6, (C4) =5, (C5) =4, (C6) =3, (D7) =2, (E8) =1, (F9)= 0. The data so collected were subjected to Pearson's correlation co-efficient (r) to find the measure of association between the two variables. Similarly, the means of the two variables were subjected to student t-test to find out if there is significance difference between the means of the two variables.

Results

Analysis was carried out on the data collected to determine the relationship between student scores in Mathematics on one hand and their corresponding scores in Financial Accounting at the end of semester examination on the other hand. Bivariate correlation procedures using statistical package for social sciences (SPSS) were employed in computing the Pearson's correlation coefficients. The correlation coefficient expresses the strength of the relationship on a scale, ranging from -1-to+1. A positive values close to +1 indicates a strong positive relationship, in which an increase in one variable implies an increase4 in the value of the second variable while a strong negative relationship (close to -1) indicates that an increase in one variable leads to decrease in other variable. The extent of correlation is considered at 0.01 level of significance.

Similarly, the data were subjected to students t-test to determine if there is a significant different in Financial Accounting at the end of semester examination. The result of the analysis are as shown in table 1 and 11 bellow.

Table 1: descriptive statistics of student scores in Mathematics and their corresponding scores in Financial Accounting at the end of semester examination.\

Variable	N	R-calculated	r-critical
Student scores in Mathematics	50	0.708	0.273
Student scores in Accounting	50		

The above table was derived using Pearson's correlation formula.

$$R= \frac{n \sum xy - \sum x \sum y}{[n\sum x^2 - (\sum x)^2 \cdot n \sum y^2 - (\sum y)^2}$$

The table above shown the r = calculated of 0.708 is greater than r-critical of 0.273 when p is 0.05. This indicates that there is a high significant correlation relationship between the overall scores in Mathematics and Financial Accounting scores at the end of semester Examination.

Hypothesis 1 is therefore rejected and the alternative uphold. When the student scores in Mathematics and their corresponding scores in Financial Accounting scores in the end of semester examination were subject to student's t-test to show whether there is a significant different between the means of the two variables. The table below shows the result of the analysis.

T-test for difference in the mean of Mathematics scores and scores in Financial Accounting at the end of semester examination

	N	X	Std. dev.	tc	t_t	NS
Mathematics scores	50	20.78	42.30	0.10	1.96	
Fin. Accounting scores	50	22.66	123.40			

P. at 0.05

The results presented in the table II above indicated that there is no significant difference in the students mean scores in Mathematics and the mean of their corresponding scores in Financial Accounting at the end of semester examination since t-calculated value of (0.10) at degree of freedom 49 has lower value than critical value of 1.96 leading to the acceptance of the hypothesis

that there is no significant different between the mean of their scores in Mathematics and the mean of the examination scores in Financial Accounting.

Discussion

From the result of the analysis made in the study, there is a strong relationship between the students' performance in mathematics in WAEC Examination and their performance in financial accounting at university level. This indicated that the student with high a proficiency in mathematic will have a high proficiency in accounting skills and vice versa. The finding therefore shows that performance of student in financial accounting. This assertion corroborates Zandi et al (2002), Yanker et al (2009) and Hartnelt et al (2004) respectively.

Similarly, from table with correlation co-efficient of 0.708 which translate to co-efficient of determinant 70% means that 70.8% of changes in variable (that is Financial Accounting) is as a result of changes in the other variable (that is mathematics) while the removing 30% is as a result of extraneous variable such as teaching methodology of the lecturer, maturity stage of the learners, self-efficacy of the learners and the general environment of the learners.

Conclusion

Based on the finding, it is advisable for the authorities and the lead of accounting departments of all tertiary institution in Nigeria to admit those undergraduate accounting applicant candidates to study accounting in their various institutions.

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