



Determinants of Students' Academic Performance in Financial Accounting in Colleges of Education in North-eastern Nigeria

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Abstract

The study seeks to investigate the determinants of students' academic performance in Financial Accounting in the Colleges of Education. Data was obtained from the exam's offices of the sampled colleges from 2013-2017 academic sessions. Ordinary Least Square (OLS) regression model was used in the analysis. Mathematics, Financial Accounting, gender was found to have a positive significant relationship on the students' academic performance in Financial Accounting course. Findings showed Economics has statistical insignificant relationship with Financial Accounting therefore, is contrary to the consideration of ECON as one of the determinants of performance in Financial Accounting. The study concludes that all courses offered at the secondary school level as a requirement for direct entry increases the performance of students of Financial Accounting positively and significantly. The study therefore, recommend among others that other scoring system in addition to the variables examined such as conceptual and meta-cognitive knowledge variables be used for admission in to NCE programmes in colleges of education sub-sector in Nigeria.

Keywords: Academic, Accounting, Determinant, Performance

JEL Classification: A20

Contribution to/Originality Knowledge

This study represents the few studies that investigate the determinants of students' Academic Performance in Financial Accounting in the Colleges of Education sub-sector. The paper is original in content and it brings to the fore the entry requirements that enhances students' academic performance. To the policy makers and College management for admission of students in to their colleges.

1.0 Introduction

Accounting Education and the ways to enhance its learning have been a great concern and a big challenge for the Colleges of education sub-sector (Hrpub et al., 2020). This is because accountants play an important role in society such that depositors and investors will have faith in the capacity of the accounting profession to perform credibly a unique function of assuring the integrity of the financial information on which society will depend (Datt & Mallik, 2018). Thus, it is imperative for colleges and accounting educators to enable a high level of accounting education among students to attain better academic performance and professional success (Hrpub et al., 2020).

In today's world, the demand for accounting education has been due to a paradigm shift from 19th-century production to 21st-century innovations, endless possibilities, new facilities, and productivity occasion by automation in terms of accounting and auditing as well as big data,



digital technologies and globalization of the business world (Berikol & Killi, 2021); Bogdanovich et al., 2020) This environmental change is also seen in the globalization of business and the contracting of tasks away from first-world countries to qualified accountants in countries with lower labor costs (MOSTEANU & Faccia, 2020) The falling in the standard of education becomes more worrisome as it greatly affects the public secondary schools which subsequently affect students' academic performance at the tertiary education such as universities and colleges of education (Umar, 2022). Additionally, outdated curricula content, inadequate staff, poor teaching methods, obsolete teaching facilities and underfunding have contributed to the failure in accounting practice (Abou-El-Sood & Ghoniem, 2021). Past studies have argued that the students' academic performance in accounting is related to facilities and structure, entry requirements and teaching methodology (Alyahyan & Düşteğör, 2020; Abu Saa, Al-Emran & Shaalan, 2019; Namoun, & Alshanqiti, 2020; Herodotou, Rienties, Boroowa, Zdrahal, & Hlosta, 2019). Though it is expected that these entry requirements would have an impact on the students' performance, however, this study has shown contradictory findings (Umar, 2022).

The Joint Admissions and Matriculation Board (JAMB) is an organization saddled with the responsibility of setting admission criteria for Nigerian tertiary institutions. It specifies the minimum entry requirements for eligible candidates for admission into any programs of the universities, polytechnics, and colleges of education. These requirements include the Unified Tertiary Matriculation Examination (UTME) cut-off point, Advanced Level (A'Level), direct entry, and Ordinary Level (O'level) grades. These entry requirements are classified under the programs of the Nigerian colleges of education. The use of O'level grades has been the dominant entry requirement for admission into programs of Nigerian tertiary institutions.

One of the programs offered in the colleges of education is the Nigeria Certificate in Education (Accounting). Hence, admission into the accounting education program of the Nigerian colleges of education requires the candidate to have a minimum of at least three credits in Economics, Financial Accounting, Commerce, and Mathematics. Similarly, the UTME subject combination requires candidates to write and pass English Language, Mathematics, Economics, and one other relevant subject. Economics is considered as one of the determinants of performance in Financial Accounting. For example, (Hung et al., 2019) argued that students with good grade in Economics could positively enhance performance in Financial Accounting. This is because Economics is an essential explanatory variable and could be use as surrogate measurement for students from the Arts-stream for pre-college performance. Further, the rapid change at which business is conducted all over the world and via e-commerce the performance and skills of the future accountant are likely to be demanding. Thus, commerce in itself is also considered a factor that could improve Financial Accounting performance (Salam and Kamrul, 2020). Beatson et al. (2020), envisage that academic performance is based on the self-efficacy belief of the students. The association between Mathematics and Accounting is attributed to the heavy dependence on numbers. consequently, students, and practitioners of accounting, should be comfortable with mathematics in general and numbers in particular (Villamar, Gayagoy, Matalang & Catacutan, 2020). Math grades are all significantly positively related to students' performance in the Financial Accounting course (Opstad, and Torbjørn, 2020). A

similar trend can be observed in English language courses. The English Language is a second language and a medium of communication in Nigerian colleges. It is, therefore, not astonishing to see it as one of the entry requirements for admission into Nigerian Colleges. Proficiency in the English Language is regarded as indispensable because it determines the literacy level of the students and may subsequently affect their understanding accounting education and increase academic performance (Umar, 2022). Further, the capability to read and write offers the opportunity to learn and thus, enhance the academic performance of accounting students (Sothan, 2019).

Results from previous research have showed that students' academic performance is reliant on prior knowledge, entry requirements, school and socio-demographic characteristics, gender and age (Beatson et al., 2020). Although the results are not consistent, most of the studies report the influence of entry requirements on the performance of accounting students (Aidoo, 2013). The objective of this present study is, therefore, to investigate determinants of students' academic performance in Financial Accounting at NCE level. To achieve this objective, this present paper utilized SSCE results obtained in Mathematics, Economics commerce, and Financial Accounting as the entry requirements. Further, it uses the result of the students obtained at the first year of the NCE program in the Colleges of Education.

2.0 Literature Review and Hypothesis Development

2.1 Students' academic performance

Studies on the determinants of students' academic performance in accounting were measured differently by different scholars. Most of these studies considered either first-year academic performance or a combination of two or more methods (Sam, 2020). Others considered grade point earned per course as a measure of student academic performance (Beatson et al., 2020). Consequently, the need to extend the boundary of knowledge and to assume a different measure that studies overall academic performance. This present study, therefore, adopts the use of individual subject scores as a measure of academic performance at the NCE level.

This present study adopts Ludwig Von Bertalanffy's (1956) system theory to guide the research especially in establishing the relationship between students' academic performance in accounting and the admission requirement at the point of entry. This is because the quality of students admitted will affect their final year graduating grade (Umar, 2022). This is further demonstrated in the Input-output model of system theory. The theory has become a better model used in underpinning researches in cognitive development and human perception, hence, relevant for this study. Consequently, this study hypothesized that there is a significant relationship between grades obtained in Mathematics, Economics, prior Financial Accounting knowledge, commerce, and student's overall academic performance score.

Mathematics and Performance in Accounting Education

Mathematics and its connection with accounting education have attracted great concerns in academia over recent years. Clark (2009) described that mathematics is the language of



business used for solving business problems, as also accounting education. Thus, the mathematics awareness level could be the main pointer to competence and better performance of accounting education students. It is also argued that numeric skill offers an advantage to students in quantitative programs such as Engineering, Finance, and Accounting (Akdemir, 2019). Past research efforts have investigated the effect of Mathematics on academic performance (Umar, 2022) (Hrpub et al, 2020; Umar, 2022), they concluded that the association between Mathematics and Accounting was attributed to the substantial reliance on numbers. Therefore, students of accounting education are comfortable with mathematics in general and numbers in particular.

Further, Mathematics grade is related significantly and positively to student performance in the Financial Accounting course (Opstad and Torbjørn, 2020). In the study of Musa & Ibrahim (2009), the results revealed that the two subjects are strongly interrelated. It was found that mathematics skills have about 55% of the variance in Principles of Accounting. Hence, mathematical skills are useful interpreters of students' interest and academic success in the principles of accounting. It was also demonstrated in the study of Chelladurai, et al, (2019) that there is a strong correlation between arithmetic reasoning skills and a student's final average in the introductory accounting course. Notwithstanding other studies such as Umar (2022) found no significant impact on performance, while, (Wong, et al. 2019), earlier reported that Mathematics background did not have an important effect on the academic performance of accounting students thus creating contradictory findings. These findings need to be supported by other studies in a different context such as Nigeria. Based on the above discussions the following hypothesis is developed:

H1: There is significant relationship between mathematics and students' academic performance in accounting education

Economics and Performance in Accounting Education

Early literature suggests that a positive association exists between Economics and the academic performance of accounting students in New Zealand Wong, et al. 2019; Umar 2022). They found that students with a background in Economics outperform those without a background in Economics to study accounting education. They further argued that Economics is a significant factor for the academic success of accounting students. Thus, scarcity of previous studies calls for additional research efforts to affirm or contradict the existing findings. Hence, the study hypothesized that;

H2: There is significant relationship between economics and students' academic performance in accounting education

Previous accounting knowledge and performance in accounting education

Previous studies on prior knowledge accounting knowledge and students' academic performance exists all over the world across several fields of studies. For example, Sam, 2020) studied the influence of prior accounting knowledge on the students' academic performance of

first year accounting students in Irish University. The results indicate a significant relationship among prior academic achievement, prior knowledge of accounting, and students' academic performance. In New Zealand, Bjornlund, and Andre (2020) studied entry criteria and age as a predictor of academic performance of undergraduate in nursing program, the result suggests a low performance. Martí-Ballester (2019) studied the performance of students in Financial Accounting at the Universitat Autònoma de Barcelona in Spain. Results show that the university access grade, classes taken by students, gender, previous studies, time spent by professors at the university and the hours when students attend the university have an impact on students' academic performance.

Additionally, Joynt and Charl (2019) conducted a similar study in Saudi Arabia; Agbo, et al (2020) studied business programs in Zimbabwe. In Nigeria, Adewale and Adhuze (2014) studied entry qualification and performance in architectural studies, Abisuga, and Riza (2019) conducted similar studies in building technology program. While prior studies examining the impact of prior knowledge on academic performance have produced mixed results, to the best of our knowledge, this study present the first attempt to examine the impact of prior accounting knowledge and students' academic performance of NCE accounting education course in Nigerian Colleges of education. Thus, the following hypothesis is developed;

H3: There is significant relationship between prior accounting knowledge and students' academic performance in accounting education

Age and students' academic performance

Student's age is another variable considered in this current study. Scholars argued that students with old age are more inspired to achieve their objectives than younger students (Neroni, Meijs, Gijsselaers, Kirschner, & de Groot. (2019). Although this argument whether or not explains better academic performance have produced mixed results. Zamasiya and Billy (2019) in their study of University of Zimbabwe found a contrary result that younger students outperformed the older student in accounting courses. While Bernabeo, Dev, & Webster (2020) found that age has no significant impact on the accounting students' performance. However, a study by Koh and Koh (1999) in Singapore found that age has significant performance on the academic performance of students in accountancy degree program. Consistent with a study conducted by Du, and Schalow, (2019). Therefore, the following hypothesis is formulated.

H4: There is a significant relationship between age and students' academic performance in accounting education

Gender and students' academic performance

Past studies have examined whether or not gender has influence on students' academic performance, most of the findings produced different outcomes. These Conflicting results could be as a result of student-instructor gender interaction Martí-Ballester, (2019). However, Gupta, & Maksy, (2019) in a study in the USA, found that gender has no significant effect on students' academic performance. Similar results were reported by Handrianto, Uçar, Saputra,



Nengsih, Kenedi, & Rahman, (2021). In contrast, ElShaabany, & Ahmad, (2022), reported that female accounting students performed better than male student. In a similar vein, Uribe, Reyes, Martínez, Mella, Salas, Tarifeño-Saldivia, & Schenk, (2020) also argued that gender has a significant impact on students' academic performance in accounting. The study hypothesized that

H5: There is a significant relationship between age and students' academic performance in accounting education

3.0 Methodology

Data for the study was obtained from the exam offices of the sampled colleges. The study covers all the Colleges of Education in North-Eastern Nigeria for the period of five years from 2013 to 2017. The study employed simple linear regression model using Ordinary Least Square (OLS). The OLS regression is an optimization strategy that allows you to find a straight line that's as close as possible to your data points in a linear regression model (Alto Valentino, n.d.) the model equation is depicted below:

$$y_i = a + \beta x_i + \varepsilon_i$$

Where, for each unit i , • Y_i is the dependent variable (response). • X_i is the independent variable (predictor). • ε_i is the error between the observed Y_i and what the model predicts. Consequently, the study run the following regression models;

$$BED111 = \beta_0 + \beta_1 MATH_{it} + \beta_2 ECONS_{it} + \beta_4 PAK_{it} + \beta_5 GEND_{it} + \beta_6 AGE + \beta_3 COMM_{it} + \varepsilon_{it}$$

BED111=Business Education Accounting, MATH=Mathematics, ECONS= Economics, PAK = Prior accounting knowledge, GEND =Gender, AGE = Age of student at entry, COMM = Commerce, ε =Error term, it =Entity over time. The table below shows the operationalization of variables and their measurement.

Table1: Operationalization of Variables and their Measurement.

Variables	Measurement	Expected sign
BEA111	Results of BEA111	+
MATHS	Credit score	+
ECONS	Credit score	+
COMM	Credit score	+
PAK	Credit score	+
AGE	Age of students at entry	+
GEND	'1' if female '0' otherwise	+

BED111=Business education Accounting; MATHS: Mathematics; ECONS: Economics; COMM: Commerce; PAK: Previous accounting Knowledge; AGE: Age of student at entry; GEND: Gender; Credit Score represents the type of credit score student earned in his/her WAEC or NECO (i.e., 1-9)

Research Framework

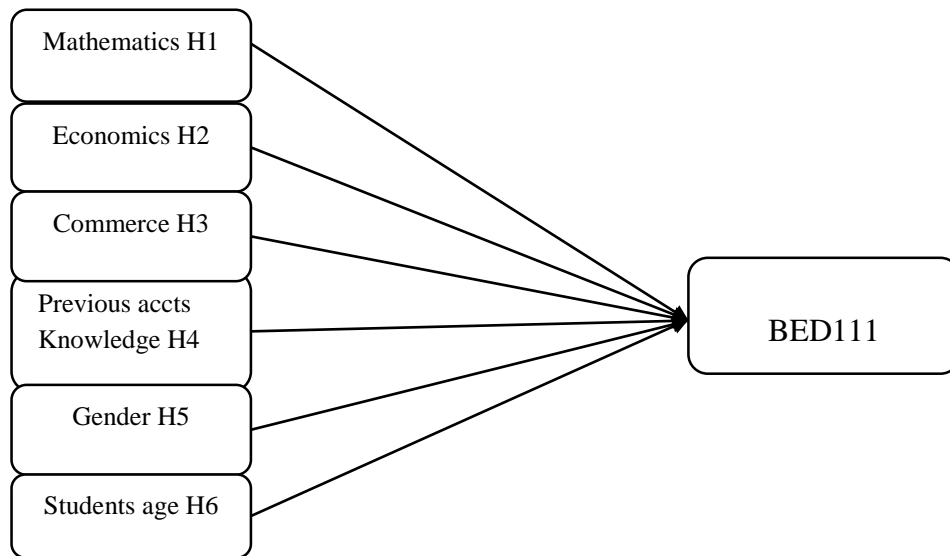


Figure 1: The Study's Framework

4.0 Results and discussions

Table 4.1 shows the result of the descriptive statistics of the continuous variables. The significance of the descriptive statistics is to determine the data status and how it behaves in terms of its deviation from the mean and variation which could subsequently lead to comparison between what the standard required is and what is obtainable on average (Lawless & Heymann, 2010). It is explained based on the minimum, maximum, standard deviation and mean values.

Table 2: Descriptive statistics of continuous variables

Variable	Min	Max	Mean	Sd	Skewness	Kurtosis
BED111	4	91	41.9035	18.9170	-0.1187	2.1191
AGE	16	28	20.7651	2.2232	0.6654	3.3920
FINACCT	1	9	7.2938	1.9170	-0.8291	2.8375
COM	1	9	6.9169	2.0299	-0.5577	2.4599
ECO	1	9	6.3605	1.5274	-0.1154	2.9633
MATH	1	9	6.3757	1.5124	-0.2230	2.9905

The results in Table 4.1 indicates that the result of BED 111 had a mean value of 41.9035 with a minimum and maximum value of 4 and 91, respectively. The mean of AGE was 20.7651 while the minimum and maximum values of 16 and 28 respectively. The result shows that mean of FINACCT was 7.2938 while the minimum and the maximum stood at 1 and 9 respectively. Moreover, the mean for the COM was 6.9169 while the minimum was 1 and the maximum was 9. The mean of ECO was 6.3605 while the minimum and maximum values of 1 and 9



respectively. And minimum and maximum values of the MATH was 1 and 9 with the mean of 6.3757 respectively.

Regarding the normality assumption, skewness and kurtosis were used, and the higher threshold of ± 3 was utilized as recommended by Hair, Black, Babin, and Anderson (2014), while a threshold of ± 10 was used for kurtosis as argued by Kline (2015), thus, the result indicates the normality of the data distribution.

Table 3: *Frequency distribution of the Dummy variable*

Variable	Frequency		%	
	1	0	1	0
GENDER	595	814	42.23	57.77

Table 4.2 indicates that 42.23% were females while 57.77% were male students with the frequency of 595 and 814 respectively. This conclusion is much closed to the current. The trend in most professional studies now where male students outnumbered their female counterparts for Business Education Accounting is clearly shown.

Table 4: *Correlation Matrix for BED111 Model*

	BED111	GENDER	AGE	FINACCT	COM	ECO	MATH
BED111	1.00						
GENDER	0.14***	1.00					
AGE	0.09***	-0.09***	1.00				
FINACCT	-0.03	-0.14***	0.04	1.00			
COM	0.02	-0.12***	0.01	0.47***	1.00		
ECO	-0.06**	-0.13***	0.03	0.13***	0.18***	1.00	
MATH	-0.10***	-0.17***	0.03	0.17***	0.19***	0.32***	1.00

Note: Sig., level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.3 depicts the result of the correlation matrix for the study variables. The correlation between BED 111 with GENDER, AGE, MATH, and ECO with a coefficient value of 0.14 and was statistically significant at 1% and 5% level of significance respectively with the exception of FINACCT and COM. the correlation matrix shows no problem of multicollinearity as the values of the coefficients are below the threshold of 0.80 as suggested by Field (2009), while Coakes and Ong (2011) and Hair et al. (2014) suggested a threshold of 0.70 respectively.

Table 5: *Multicollinearity Test for BED 111 Models*

Variable	VIF	1/VIF
COM	1.32	0.759002
FINACCT	1.30	0.770091
MATH	1.17	0.857058
ECO	1.14	0.875734
GENDER	1.06	0.944199

AGE	1.01	0.990199
Mean VIF	1.17	

More so, examining the correlation matrix for the exogenous latent variables using variance inflated factor (VIF), tolerance value, and condition index were looked at to discover if there was a multicollinearity problem. Multicollinearity is said to be a concern if values of the VIF are greater than 5, tolerance value, and less than .20 (Hair, Ringle & Sarstedt, 2011). Table 4.4 depicted the VIF values, tolerance values, and condition indices for the exogenous latent variables. Suggest the non-existence of multicollinearity among all the exogenous latent variables. Hence, multicollinearity is not an issue in the present study.

Table 4.5: Ordinary Least Square Regression Model for BED111 Model

Variables	Model	Robust Mode2
	β	B
GENDER	0.0866*** (0.0135)	0.0866*** (0.0131)
AGE	0.0148*** (0.00294)	0.0148*** (0.00271)
FINACCT	-0.00596 (0.00387)	0.00596* (0.00355)
COM	0.00848** (0.00368)	0.00848** (0.00344)
ECO	0.000164 (0.00455)	0.000164 (0.00442)
MATH	-0.0169*** (0.00464)	0.0169*** (0.00443)
Constant	1.310*** (0.0739)	1.310*** (0.0710)
Observations	1,407	1,407
R-squared	0.059	0.059

GENDER: Signifies whether a student is Male or Female, **AGE:** Age of student; **FINACCT:** Financial Accounting, **COM:** Commerce, **ECO:** Economics, **MATHS:** Mathematics

NOTE: Standard errors in parentheses, sig., level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.5 shows that model 1 is characterized by heteroskedasticity and therefore, not reported. However, the study reported model 2. The result of GENDER has a positive relationship with BED 111 with the coefficient value of (0.0866) and is significant at a 1% significant level. It shows that one increase in GENDER will lead to an increase in the performance of BED 111



with 0.09%. *ceteris paribus*. This result is consistent with the studies of gender on academic performance conducted mostly in the USA and the UK, motivated by the recent increase in the number of female accounting students (see Nouri, & Domingo (2019); Sheehan, (2020). Although, the findings of these studies were mixed. Hence, the hypothesis was accepted.

The result of AGE has a positive relationship with BED 111 with the coefficient value of (0.0148) and significant at 1% significant level. It shows that one increase in AGE will lead to an increase in the performance of BED 111 with 0.01%. *ceteris paribus*. This result is consistent with the studies of age as an academic performance determinant that have been found; these studies were conducted by Du & Schalow (2019) who reported that age plays a vital role in mature students, especially at the point of entry. hence, H₀₅ accepted.

The result of FINACCT has a positive relationship with BED 111 with the coefficient value of (0.00596) and is significant at a 5% significant level. It shows that one increase in FINACCT will lead to an increase in the performance of BED 111 with 0.006%. *ceteris paribus*. This result is with the empirical evidence provided by Sokolová and Viera (2019), Amir, & Shabri, (2022), and McCarthy & Grasso, (2019) find that students with prior knowledge of accounting are more likely to pass the subject of Financial Accounting in university than those students who do not have prior knowledge. hence, H₄ was accepted.

The result indicates MATH has a positive relationship with BED 111 with the coefficient value of (0.0169) and is significant at a 10% significant level. It shows that one increase in MATH will lead to an increase in the performance of BED 111 with 0.02%. *ceteris paribus*. This result is consistent with the study of Tho (1994) conducted a study at the University of Malaya, on an introductory accounting course. He proved that having studied high school accounting, mathematics, and grades in high-school economics are important predictors of performance.

The result of ECON shows a negative relationship with BED 111 the coefficient value of (0.000164) and is not significant. hence, H₂ was rejected. This result is contrary to the consideration of ECON as one of the determinants of performance in Financial Accounting. For example, Tho (1994) argued that students with good grades in Economics could positively enhance performance in Financial Accounting. This is because Economics is an essential explanatory variable and could be used as a surrogate measurement for students from the Arts-stream for pre-college performance but considering the outcome of the result analysis it has a negative impact on the performance of students in BED 111.

Commerce (COM) in this current study is regarded as the control variable, hence, no hypothesis has been developed for it. Although the result of COM has a positive relationship with BED 111 with the coefficient value of (0.00848) and significant at a 10% significant level. It shows that COM will have influence on the students' academic performance. This result is consistent with the study of Salam and Hassan, (2020) which indicates that commerce in itself is considered a factor that could improve Financial Accounting performance.

5.0 Conclusion

This paper has determined the students' academic performance in Financial Accounting among Colleges of Education in North-Eastern Nigeria. The study adopts a quantitative research method, using a static panel model to achieve the research objectives. Data for the study was obtained from exam offices of the sampled colleges. Furthermore, Students' prior knowledge is one of the most important factors influencing learning outcomes. It may be concluded from statistical findings that all the selected variables will determine the academic performance of BED 111 students in the Colleges of Education.

The study found that the requirement for direct entry into NCE I have a significant effect on the Financial Accounting as model 2 has shown. Each course offered at the secondary school level increases the performance of students of Financial Accounting positively and significantly for both variables. The study represents the first empirical analysis that determines the students' academic performance in Financial Accounting and in particular, Colleges of Education in North-Eastern Nigeria. Undoubtedly, this study could be of great value and can offer interesting insights for shaping the minds of those that will further their education at the Colleges of Education sub-sector in Nigeria. This study has its limitation like any other researches in this area. This research did not present a comparison between male and female students' academic performance in Financial Accounting. The study considers only NCE I instead of the entire NCE programme. The study is equally limited in scope as it considered North-East only and as well as Federal Colleges leaving out state own colleges. Future research should investigate the above limitations.

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