

## CORRELATION BETWEEN MATHEMATICS ANXIETY AND ATTITUDE TOWARDS ACCOUNTING EDUCATION IN COLLEGES OF EDUCATION IN ENUGU STATE

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### **Abstract: -**

*The concept of mathematics anxiety has attracted overwhelming research attention in recent years. However, little is known about the association between math-related anxiousness and students' attitudes in the accounting domain. The present paper examined the relationship between mathematics anxiety and attitudes towards accounting among undergraduates in colleges of education in Enugu state. One hundred and forty-two (n=142) male and female undergraduates in the business education departments in two public colleges of education in Enugu state participated in the survey. The respondents completed a self-report measure of the mathematics anxiety and accounting attitudes scale. Pearson's product-moment correlation was performed to determine the correlation between mathematics anxiety and attitudes towards accounting. The result revealed a statistically significant, moderate positive correlation between mathematics anxiety and attitudes towards accounting,  $r(140) = .41, p < .001$ . Most importantly, observation of the  $R^2$  revealed that mathematics anxiety explained about 116% of the variation in students' attitudes towards accounting. The result offers valuable data for the development of accounting education in colleges of education in Nigeria.*

**Keywords:** *mathematics anxiety, accounting, attitude, undergraduates, college of education*

## INTRODUCTION

The growing phenomenon of globalization, technological innovations, and privatization has immensely influenced the increasing number of business developments in developing countries. In particular, the ever-increasing trend of small and medium-scale enterprises has strengthened business and commerce. Thus, leading to increased entrepreneurship, job creation, and economic growth. However, accountability has been a critical challenge confronting the business ecosystem over the years. The lack of systematic accounting practices is an essential factor against the growth and sustainability of business firms (Uddin et al., 2017). Indeed, inadequate accounting knowledge might exacerbate inaccurate and clumsy decisions relative to credit, investment plan, and overall growth. Notably, faulty business and poor strategic decision-making lead to capital loss, investments, and inefficient business operations (Chakraborty, 2015). For instance, research has found that MSMEs in Nigeria have poor accounting practices (Adeyinka et al., 2019). In other words, the purported decline in the growth and development in the small business environment might be partially attributed to a poor accounting system. Particularly, accounting skills are presumed to be rooted in early educational development. Therefore, understanding learners' attitude toward accounting is imperative in fostering effective and systematic accounting practices necessary to increase the operational efficiency, profitability, and growth of MSMEs in Nigeria.

Accounting is among the introductory courses in the Nigerian colleges of education curriculum and a recommended subject for aspiring entrepreneurs. The domain is intended to provide undergraduates with basic financial and business accounting literacy for functional entrepreneurial capabilities and essential accounting and auditing skills required in the present business ecosystem. Accounting is the foundation on which the whole modern business system rests (Ezeagba, 2014). Generally, business transactions in every domain cannot be done without an elementary form of accounting. The concept of accounting has been commonly described as the language of business (Bloomfield, 2008; Hellmann et al., 2010; Hernádi, 2012; Khanom, 2017; Uddin, 2013; AL-Shafeay et al., 2020; Pepe, 2011; Puaschunder et al., 2019; Tsunogaya & Chand, 2012; Wright, 2019).

Indeed, accounting is an indispensable aid to business and represents the foundations on which the whole structure of business rests. Moreso, accounting entails the process of identifying, recording, and interpreting economic events. It determines, analyzes, diagnoses, and communicates economic data. Longe (2011) defined accounting as the recording, classifying, creating, summarizing, and framing financial information to interested parties and interpreting it to help make specific business decisions (Rajput, 2014). Accounting records are primarily meant to evaluate the business organization's performance and profitability, prevent fraud, monitor the enterprise's progress, and make an economic comparison.

Colleges of education are higher institutions in Nigeria mandated to produce qualified teachers in various academic disciplines. Indeed, accounting is one of the option courses offered in business education in colleges of education intended to impart basic accounting literacy for a functional business mindset and acquire essential accounting skills and attitudes to foster the application of accounting in the business world. Thus, basic concepts and principles of accounting are indispensable in forming qualified instructors for business development in any society. Although accounting has been plagued by poor performance among learners (Alao & Ukpong, 2020; Omodero, 2020), there is growing concern about the low enrollment of prospectives in accounting at the colleges of education in Enugu State, Nigeria. Thus, signifying an unfavorable attitude towards accounting.

Attitude is a social psychological construct representing an individual's evaluation of attitude objects. Attitudes are essential determinants of human behavior. Thus, when acquired, attitudes could influence students' likes and dislikes of a particular subject. A student's positive attitude to the subject has been proven to lead to good performance in that subject. A negative attitude towards a specific topic makes learning difficult, while a positive attitude stimulates students to make an effort and leads to high achievement (Veloo et al., 2015). Importantly, disparate studies have linked attitudes with students' performance (Awang et al., 2013; Guido, 2018; Kabunga et al., 2016; Lumintac, 2014; Nagy, 2018; Ndifor & Ngeche, 2017; Ogembo et al., 2015). More so, findings have indicated a significant relationship between student's attitude and their corresponding academic performance in accounting. Thus, determining students' attitudes towards accounting is critical in improving students' performance relative to accounting.

### **Mathematics anxiety and attitude toward accounting**

There is a common connection between accounting and some basic mathematical principles (Mkhize, 2019). Indeed, there is a broad indication that mathematical ability significantly impacts student performance in accounting courses (Yunker et al., 2009). Accordingly, intimation suggests that undergraduates enrolled in accounting with previous mathematical skills perform better than those with fewer math capabilities (Zandi et al., 2012). In particular, most accounting concepts require numerical and analytical skills, which are also integral elements of mathematics. Consequently, there are growing insinuations linking mathematics to an increased emotional state of anxiousness among students (Fernández-Alonso et al., 2019; Hill et al., 2016; Kucian et al., 2018; Luttenberger et al., 2021; Ramirez et al., 2018; Rozgonjuk et al., 2020; Skagerlund et al., 2019). The concept of mathematics anxiety describes a psychological state of tension and apprehension, instigated mainly by mathematics awareness (Ashcraft, 2002; Bjälkebring, 2019). This occurrence has been linked to various severe psychological and psychosomatic symptoms, including hopelessness and total withdrawal. Furthermore, research has found that math-related anxiousness adversely affects students' scholastic performance, mastery of learning competencies, skills, and career choice and influences outcome (Estonanto & Dio, 2019; Szczygieł, 2019). The phenomenon can potentiate the experience of depressive conditions in mathematics (Ifdil et al., 2019). Past research

revealed that most students with mathematics uneasiness are more likely to be reluctant to open a math textbook or even participate in a math classroom (Maloney & Beilock, 2012) and, most importantly, avoid math-related activities, including accounting class and enrollment. The present paper examined mathematics anxiety as a scarcely explored variable that could correlate with attitude towards accounting in college education.

**Hypothesis:** Mathematic anxiety will positively correlate with students' attitudes towards accounting.

**Method**

Participants for the study included students enrolled in the department of business education in two public colleges of education in the Enugu State of Nigeria. Participants comprised males and females aged 16-20 with a mean age of ( $M = 13.04$ ) ( $SD = 0.98$ ). A total of 162 students were approached with the aid of research assistants between April and July 2022. The students were prepared and briefed on the research purpose before the commencement of the study. They were informed that the study was voluntary and that they could exit the study at any point. Importantly, other ethical standards were considered. Out of the 162 students approached, 155 consented to partake in the study and were given the study instrument to fill on the spot. Apart from 13 wrongly filled questionnaires, the correctly filled copies (142) were subjected to statistical analysis

**Measures**

Mathematic anxiety was measured using the Math Anxiety Scale (MAS) developed by Zakariya (2018). The 20-item scale comprised two subsections (learning mathematics anxiety and perception of difficulty and motivation). The scale is scored on a five-point Likert-type format with response options ranging from (5) Strongly agree to (1) Strongly disagree. The original reliability coefficient of the instrument was .91. However, in this study, a Cronbach alpha of  $r = .88$  was recorded. Course preference was determined by indication in the demographic section provided in the instrument.

Attitude towards accounting was measured using a modified version of the accounting attitude scale (AAS) designed to ascertain the respondents' perception of accounting education. The scale is an 18-items scale measured in a five-point Linkert type format. A higher score indicates a positive attitude, while lower scores represent negative attitudes. A Cronbach alpha .78 reliability coefficient was obtained in the study.

**Result**

The present paper employed the correlational research design. The data retrieved from the respondents were computed with the statistical package for social sciences (SPSS version 23) and analyzed in the table below.

**Table 1:**  
Table showing correlation between the main variables

Variables	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>
1, MA	3.17	0.37	.12**	
2, ATA	4.61	0.46	-.33	.41**
<i>R</i> <sup>2</sup>	116			

Note.  $N = 142$ , \*\* =  $p < .01$  (two-tailed). SA= Mathematics anxiety; ATA = Attitudes towards accounting.

A Pearson's product-moment correlation was performed to determine the correlation between mathematics anxiety and attitudes towards accounting. The result revealed that the relationship is linear, both variables were normally distributed as calculated by Shapiro-Wilk's test ( $p > .05$ ), and there were no outliers. There was a statistically significant, moderate positive correlation between mathematics anxiety and attitudes towards accounting,  $r(140) = .41$ ,  $p < .001$ . Most importantly, observation of the  $R^2$  revealed that mathematics anxiety explained about 11.6% of the variation in students' attitudes towards accounting.

**Discussion**

The study investigated the relationship between mathematics anxiety and attitudes towards accounting among undergraduates in the business education colleges of education in Enugu state. One hundred and forty-two senior students responded to a self-report measure. The simple linear regression model conducted on the data indicated that mathematics anxiety statistically significantly correlated with attitude towards accounting  $r(140) = .41$ ,  $p < .001$ . In particular, the result showed that mathematics anxiety explained about 11.6% of the variance in attitude towards accounting. Thus, the finding affirmed the study's assumption that mathematics anxiety would positively correlate with attitudes towards accounting among undergraduates in colleges of education. This means that students with a good background in mathematics and those with mathematical skills are more likely to demonstrate a favorable attitude towards accounting. In other words, this set of students easily approaches accounting-mathematics-related concepts and commit more significant effort to achieve a positive result in accounting. Conversely, the result entails that students who struggle with mathematical principles may develop an unfavorable attitude towards accounting. This assertion is aligned with previous findings (Yunker et al., 2009; Zandi et al., 2012). Indeed, mathematical skills are influential in the accounting domain, given that the higher the mathematic knowledge, the better the accounting interest.

**Strength, Limitations, and future direction**

The result of the study provided insight into the significant effect of mathematics anxiety on the differential attitudes of students towards accounting education in colleges of education. The current findings could provide relevant data to education stakeholders, parents, and the general public to strengthen learners' accounting performance and increase enrolment. Regardless of the importance of this finding, it is imperative at this point to caution about generalizing the study's result. First, the self-report measure utilized in the study may be problematic in generalizing the result. Also, the sampling method may affect the generalization of the result. However, the study recommends that future researchers use multiple data sourcing methods and expand the samples for a more comprehensive outcome.

**Conclusion**

The study examined the relationship between mathematics anxiety and attitudes towards accounting. The result found a positive correlation between mathematics anxiety and attitude towards accounting. Thus, it is concluded that mathematics anxiety is a significant determinant of attitude toward accounting education in colleges of education in Enugu state. Therefore, the study recommends that attention be given to students' mathematical backgrounds in accounting classes. This will provide the opportunity for inclusive teaching that could accommodate students with poor mathematical orientation. Also, this finding expands existing attitude research by showing that affective factors such as math anxiousness are reflected in classroom learning and can predict cognitive outcomes such as attitudinal change.

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