

Correlational Analysis Between Emotional Intelligence and Academic Achievement of Economics/Mathematics Students in Colleges of Education in North Central Nigeria

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Abstract: The investigation correlated academic achievement of Economics/Mathematics Students in Colleges of Education in North Central Nigeria with their emotional intelligence. It addressed two objectives, research questions, and hypotheses respectively using a correlational survey design. From a population of 26,344 Students, a sample of 379 was selected through multi-stage sampling procedure and the Krejcie and Morgan table of sample size determination. A questionnaire (EIQ) of 15 items and “a “Profoma” were utilised for data collection. The two instruments were validated by five (5) experts for content and logical validities. Cronbach Alpha method was used to determine the mean reliability coefficient of 0.76 for the instruments. Data were analyzed with the use of Pearson Product Moment Correlation Statistics. Relationships were interpreted as follows: 0.01-0.39 (low), 0.40-0.69 (moderate), and 0.70-1.00 (high); significance was based on p-values ($p \geq 0.05$ = not significant, $p < 0.05$ = significant). The results showed a high positive and significant relationship between emotional intelligence and academic achievement, and positive relationships between emotional intelligence with academic achievement base on both male and female students in Economics/Mathematics in Colleges of Education in North Central Nigeria. Conclusion was drawn that emotional intelligence has positive relationship with Economics/Mathematics students’ academic achievement in Colleges of Education in North Central Nigeria. The study recommended that teachers/lecturers should apply different methods to encourage emotional intelligence among students to facilitate and improve their academic achievement and in the administration of tests and during students’ orientations, teachers/lecturers should lay more emphasis on female genders’ needs to be emotional intelligent as this will enhance their academic grades.

Keywords: Economics, Mathematics, Emotional Intelligence and Academic Achievement.

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I. INTRODUCTION

Mathematics and Economics are taught in schools all over the world. At colleges of Education, they are offered as a programme (Economics/Mathematics). Mathematics is among the compulsory subjects offered in schools in Nigeria, especially at the primary and secondary school levels. It is also one of the core courses required by JAMB for the entry into tertiary institutions in Nigeria. While Economics is a core subject offered by social science students in both secondary and tertiary levels of Nigerian education. The importance of Mathematics as a field of study is enormous; it is responsible for the advancement of science and technology (Otukpa, Obinne & Adikwu, 2024). Mathematics as the queen of science subjects cannot be completely separated from sciences because of its application to physical sciences. A good knowledge of Mathematics further helps adequate grasp of other subjects.

Mathematics shapes and influences nearly every object around us, no facet of man's endeavor will be without Mathematics and mathematics cannot be separated from other subjects. Mathematics is very important to human life. Students who ignore Mathematics do that at their own risk to forfeit many future career opportunities that they could have. Most of degree courses in the universities require Mathematics as one of the prerequisite subjects for their admission and entry requirement. Wilbur, Craig and Menso (2024) regard Mathematics as a science of structure and a major component for the creation and utilization of modern science and technology that basically distinguishes developing nations from the developed nations of the world. That is to say the standard of living of a nation depends greatly on the level of science and technology of that nation.

Economics is social science field of study that deals with the production, distribution and consumption of goods and services (www.investopedia.com). It is a core subject for students offering social science courses in tertiary level of education in Nigeria, it is important to students studying Economics, Accounting, Banking and Finance, Marketing, Taxation among other social science courses. Students with sound knowledge in Economics have better chances of performing very well in their respective disciplines. Economics is a crucial field that enables individuals, households, firms and business organizations to carryout budgeting and financial decision about investments, it helps in public policies, international trade among others. The importance of Economics can never be overemphasized as we know that is the engine room for economic growth and sustainable development. Therefore, the inclusion of Mathematics and Economics as core subjects in secondary school as well as the inclusion of Economics/Mathematics as a department in Colleges of Education is a wise decision and an attempt by the policy makers to solve certain quantitative and economic problems.

Emotions are good sources of information that help us in taking care of our social environment. It implies understanding,

managing, understanding of other people's emotions to improve personal image. We have four types of emotional intelligence: perception of emotions, using emotions, comprehending emotions and managing or handling emotions (Bar-On, 2015).

Ramana and Anitha (2018) carried out a research titled 'the Relationship between Emotional Intelligence and Academic Achievement among Intermediate Students of Krishna district, Andhra Pradesh, with sample population of 300, three research questions, and adopted correlational research design. The researchers employed Mangal and Shubra EI Inventory (2004) scale to measure emotional intelligence and academic achievement for the past 3 years and current year aggregated pass percentages. A random sampling technique was adopted. Data were analyzed statistically to obtain mean, standard deviation, ANOVA, Coefficient of variation, and Correlation. The result depicted that Academic Achievement of students has positive relationship with Emotional Intelligence. This reviewed study is relevant to the present study because it explored the relationship between emotional intelligence and students' academic achievement which is also a focus of this present study. The study is related to the present research but the present study is wider in scope than the reviewed study.

Similarly, Asiyambi and Yusuf (2021) studied "Effects of Emotional Intelligence and Peer Acceptance on Test-wise-ness of Undergraduate in Southwest Universities". The study employed a descriptive research designed and three hundred participants were chosen from the selected tertiary institutions through stratified random sampling. Three research questions were answered using multiple regression analysis and Pearson Product Moment Correlation. A structured questionnaire was used to collect data. The result indicated a significant positive correlation between emotional intelligence and test-wise-ness. Both variables jointly accounted for 83.1% variance in predicting test-wise-ness of universities students. The two studies are related in the sense that they both focus on the emotional intelligence. However, the present research examined the correlation between emotional intelligence and academic achievement of Economics/Mathematics students in Colleges of Education in North Central, Nigeria while the reviewed study was carried out in Southwest Universities.

Julia, Jorge and Margarita (2022), conducted a study on emotional intelligence and academic motivation in primary school students. Three objectives were used for the study. Quasi-experimental design and accidental sample of 541 students from public centres in Spain were utilized for the study. The study employed school motivation scale and emotional intelligence questionnaire as instruments for the research data collection. Female students have a higher emotional intelligence index and there is no difference in academic motivation on gender basis. The study is important to the present research for the fact that emotional intelligence is a variable of interest to the present research and the findings of the reviewed study revealed results on gender which is also one

of the moderator variables of the present study. However, the present study has more variables than the reviewed study.

➤ *Statement of the Problem*

The relevance of Economics/Mathematics in promoting economic literacy, scientific thinking and solving quantitative and economic problems cannot be overemphasized. For the fact of their impact on national development, students' academic achievement in these subjects that are offered as a combined programme in Colleges of Education in Nigeria has continued to attract interests of educators, policymakers, and other stakeholders, specially, in North Central Nigeria. Despite the importance of Economics/Mathematics on the national development and efforts made by government, educational administrators, and lecturers to upgrade the status of teaching in the Colleges of Education, observations suggest that the academic achievement of students appears to be below the expectations of educators and stakeholders in the education sector (Iorsugh, Christopher, Godfrey & Peter, 2021).

Previous studies blamed students' poor academic achievement on several factors such as ineffective teaching methods, teachers' behaviour, gender differences, peer influence, unfavourable school climate, and negative attitudes toward academic work (Olufemi, 2022; Mahrukh, 2022; Lukman, 2023). While these factors are important, but limited attention has been given to emotional intelligence as a variable that may influence students' academic achievements. However, the extent to which this student-related factor (emotional intelligence) influences academic achievement among Economics/Mathematics students in Colleges of Education, particularly in North Central Nigeria, remains unchecked.

Therefore, this study investigated the relationship between emotional intelligence and academic achievement of Economics/Mathematics students in Colleges of Education in North Central Nigeria.

➤ *Objectives of the Study*

This study assessed the relationship between emotional intelligence and academic achievement in Economics/Mathematics students in Colleges of Education in North Central Nigeria. Specifically, the study focused on the relationship between students:

- emotional intelligence and academic achievement in Economics/Mathematics in Colleges of Education in North Central Nigeria.
- emotional intelligence and academic achievement in Economics/Mathematics based on gender in Colleges of Education in North Central Nigeria.

➤ *Research Questions*

The following research questions guided the investigation. What is the:

- Level of association between students' emotional intelligence and their academic achievement in

Economics/Mathematics in Colleges of Education in North Central Nigeria?

- emotional intelligence and academic achievement in Economics/Mathematics segregated based on gender in Colleges of Education in North Central Nigeria?

➤ *Hypotheses*

Two null hypotheses (Ho) were formulated and tested at 0.05 level of significance.

- There is no significant association between academic achievement in Economics/Mathematics students and their emotional intelligence in Colleges of Education in North Central Nigeria.
- There is no significant correlation between students' academic achievement in Economics/Mathematics and their emotional intelligence based on gender in Colleges of Education in North Central Nigeria.

II. METHODOLOGY

This study employed correlational survey research design and carried out investigation using N.C.E. 2 students of Economics/Mathematics in Colleges of Education in the North Central, Nigeria.

The sample size for the study was 379 NCE 2 students of Economics/Mathematics in Colleges of Education in the North Central Zone of Nigeria was drawn out of 26,344 (NCCE, 2024 Research and Statistics). The sample size comprised of 238 male students and 141 female students from six selected colleges of education in North Central, Nigeria. The sample size was determined using Krejcie and Morgan table for sample size determination. The study adopted a multi-stage sampling process. Emotional intelligence Questionnaire which comprised of 15 items (EIQ) of; Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with values of 4, 3, 2 and 1 for positively worded items and a "Profoma was designed on four-point rating scale for collection of academic achievement scores were utilised to collect data. The validation of two instruments were carried out by five (5) experts for logical and content validities. The instruments were trial-tested on fifty (50) students, results collected and analysed using the Cronbach Alpha method and yielded a reliability index of 0.75. Data collected for the research were analysed to obtain the correlation coefficients. The correlation coefficients of r ; 0.00 signified No Relationship (NR), 0.01 to 0.39 signified Low Relationship (LR), 0.40 to 0.69 represented Moderate Relationship (MR) and 0.70 to 1.00 implied High Relationship (HR). Also, the correlation coefficients -0.01 to -0.39 signified Low Negative relationship (LNR), - 0.40 to- 0.69 represented Moderate Negative Relationship (MNR) and -0.70 to -1.00 implied High-Negative Relationship (HNR) (Anikweze et al, 2016).

- Research Question1: What is the Level of association between students' emotional intelligence and their

academic achievement in Economics/Mathematics in Colleges of Education in North Central Nigeria?

Table 1: Correlation Coefficient on Students Emotional Intelligence and Academic Achievement

Variables	N	R	R ²	Relationship
Emotional Intelligence Academic Achievement	379	.713	.508	High Relationship (Positive)

Table 1 reveals that $r = .713$, $R^2 = .508$ (50.8%) of the change that occurred at 0.05 level of significance. This indicates that there is high positive relationship between students' emotional intelligence and their academic achievement in Economics/Mathematics in the Colleges of Education in North Central Nigeria.

- Research Question 2: What is the relationship between students' emotional intelligence and academic achievement in Economics/Mathematics segregated based on gender in Colleges of Education in North Central Nigeria?

Table 2: Correlation Coefficient on Students emotional intelligence and Academic Achievement on Gender Basis

Variables	Gender	N	R	R ²	Relationship
Academic Achievement Emotional Intelligence	Male	238	.543	.295	Moderate Positive Relationship
	Female	141	.343	.136	Low Positive Relationship

The result from Table 2 reveals that $r = .543$, $R^2 = .295$ (29.5%) and $r = .343$, $R^2 = .136$ of the change that occurred at 0.05 level of significance for male and female students respectively. This shows a positive moderate relationship between the male and a low positive relationship for female students' emotional intelligence and their academic achievement in Economics/Mathematics in the Colleges of Education in North Central Nigeria.

- Hypothesis 1: There Is No Significant Association Between Students' Emotional Intelligence and Their Academic Achievement in Economics/Mathematics in Colleges of Education in North Central Nigeria.

Table 3: Correlation Analysis for Relationship between Students' Emotional Intelligence and their Academic Achievement

Variables	N	DF	Probability Value (Sig)	Decision
Emotional Intelligence Academic Achievement	379	377	.023	Significant

N = Number of Students, $p < 0.05$

The result in table 3 reveals Correlation Analysis between students' emotional intelligence and their academic achievement with a probability value (sig) of .023 in Colleges of Education in North Central Nigeria. This result shows that there is significant Level of association between Colleges of Education students' emotional intelligence and their academic achievement. This is due to the fact that the value of .023 is less than the 0.05 level of significance. Therefore, the null hypothesis stands rejected and the alternative hypothesis of

significant association of students' emotional intelligence and academic achievement is upheld.

- Hypothesis 2: There Is No Significant Correlation Between Students' Emotional Intelligence And Academic Achievement In Economics/Mathematics Based On Gender In Colleges Of Education In North Central Nigeria.

Table 4: Correlation Analysis for Students' Emotional Intelligence and their Academic Achievement on Gender Basis

Variables	Gender	N	DF	Prob. Value (Sig)	Decision
Academic Achievement Emotional Intelligence	Male	238	236	.000	Significant
	Female	141	139	.000	Significant

The result in table 4 shows the Correlation Analysis for relationship between students' emotional intelligence and their academic achievement based on male or female students in Colleges of Education in North Central, Nigeria. This result depicts that there is existence of significant relationships between Colleges of Education students' emotional intelligence and their academic achievement based on their gender. This is due to the fact that the sig value of .000 is less than 0.05 level of significance for both male and female students, the null hypothesis is rejected and the alternative hypothesis based on gender is sustained.

III. DISCUSSION OF FINDINGS

The first finding revealed that there is high positive correlation between emotional intelligence and academic achievement of Economics/Mathematics students in Colleges of Education in North Central Nigeria. This is reflected on table 1 which revealed that $r = .713$, $R^2 = .508$ (50.8%) of the change that occurred at 0.05 level of significance and also supported by the tested hypothesis on table 3 with sig value of .023 that is less than 0.05 level of significance. Therefore, the hypothesis which states that there is no significant correlation between students' academic achievement in Economics/Mathematics students and their emotional intelligence in Colleges of Education in North Central Nigeria stands rejected and the alternative hypothesis of significant relationship of students' emotional intelligence and academic achievement is upheld. A student with high emotional intelligence, tends to perform well in the test due to high intelligent clue and quotient. The present study is in consonance with the study by Asiyani & Yusuf (2021) whose finding indicated a significant positive correlation between emotional intelligence and test-wisness. Ramana and Anitha (2018) also supported the present finding with the study finding that indicated a positive correlation between Emotional Intelligence and Academic Achievement of students.

The second from table 2 reveals that $r = .543$, $R^2 = .295$ (29.5%) and $r = .343$, $R^2 = .136$ of the change that occurred at 0.05 level of significance for male and female students respectively. This shows a positive moderate relationship between the male and a low positive relationship for female students' emotional intelligence and their academic achievement in Economics/Mathematics in the Colleges of Education in North Central Nigeria. The tested hypothesis on table 4 also affirms that there is existence of significant relationships between Colleges of Education students' emotional intelligence and their academic achievement based on male and female with the sig values of .000 is less than 0.05 level of significance for both male and female students, the null hypothesis stands rejected while the alternative hypothesis based on gender is sustained. The finding is in tandem with the finding of a study conducted by Julia, Jorge and Margarita (2022) who found that girls have a higher emotional intelligence index and there is no difference in academic motivation in terms of gender. However, the present study

shows that emotional intelligence of male students has higher positive correlation than their female counterparts in Economics/Mathematics students' academic achievement in Colleges of Education in North Central Nigeria.

IV. CONCLUSION

Conclusion was drawn base on finding that emotional intelligence has positive relationship with Economics/Mathematics students' academic achievement in Colleges of Education in North Central Nigeria.

RECOMMENDATIONS

- Teachers/lecturers should employ different methods to encourage students to be emotionally intelligent to facilitate and improve their academic achievement.
- School administrators should organise orientations for students and lay more emphasis on female students' needs to be emotionally intelligent as this will enhance their academic achievement.

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