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RELATIONSHIP BETWEEN CREATIVITY AND INTELLIGENCE ON PERFORMANCE OF ECONOMICS STUDENTS OF SECONDARY SCHOOLS IN BENUE STATE, NIGERIA

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Abstract

The study investigated the relationship between creativity and intelligence on performance of Economics students of secondary schools in Benue State, Nigeria. Three research questions and three hypotheses guided the study. Population comprises of all 21,333 students offering Economics from 27 public secondary school in Benue State, Nigeria, and 377 were used as a sample size of the study. Torrance Tests of Creative Thinking (TTCT) and Standardized IQ test (Scores from Economics examinations) were used as instruments for data collection. The TTCT and Standardized IQ were validated and pilot tested, which yielded 0.79, 078 validity indexes

Keywords: Creativity, Intelligence, Performance, students, Economics

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for TTCT and Standardized IQ. In addition, the reliability indexes of 0.76 and 0.79 for TTCT and Standardized IQ. Mean and standard deviation was used to answer research question, Pearson's correlation coefficient and multiple regression analysis was used for testing hypotheses at 0.05 level of significance. The findings revealed that, there is no significant relationship between creativity, performance of students offering Economics, there is a significant relationship between intelligence and performance of students offering Economics, and there is a significant relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State. The study recommended that, schools should incorporate creative teaching strategies, organize workshops for teachers, and adopt comprehensive assessment methods to evaluate both intelligence and creativity, promoting a broader approach to academic excellence in Economics.

Introduction

The performance of students in secondary schools has been a subject of concern to educators, researchers, and policymakers in Nigeria. Specifically, Economics is a critical subject in the Nigerian curriculum, as it equips students with essential knowledge of economic principles and decision-making processes. However, performance in the subject has varied, raising questions about the underlying factors that influence academic achievement. Among these factors, creativity and intelligence are believed to play a significant role in shaping students' learning outcomes, including their performance in Economics.

Creativity in Learning

Creativity refers to the ability to generate novel ideas, think divergently, and apply innovative solutions to complex problems. In education, it enables students to think beyond rote memorization and encourages critical engagement with content. For a subject like Economics, where students are expected to analyze market structures, solve problems, and predict economic

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outcomes, creativity becomes highly relevant. Creativity fosters analytical thinking, which can enhance the ability to approach questions from multiple angles and solve real-life problems. However, the extent to which creativity contributes to academic performance, especially in Economics, remains a subject of research interest. Sternberg and Lubart (1999) defines creativity to involve the ability to generate work that is both novel (original, unexpected) and appropriate (useful, adaptive concerning task constraints). Creativity is a phenomenon where individuals bring into existence something that did not previously exist, whether in the form of new products, ideas, or artistic expressions, often influenced by social and environmental factors (Csikszentmihalyi, 1996).

Intelligence and Academic Achievement

Intelligence, often measured through IQ, encompasses cognitive abilities such as reasoning, problem-solving, and memory. Intelligence has traditionally been linked to academic success, as it helps students understand concepts, recall information, and perform well in examinations. For Economics students, cognitive skills like logical reasoning and comprehension of abstract concepts are crucial. Mayer and Salovey (2013), define emotional intelligence as one's ability to perceive emotions and to access thoughts, to understand emotions and emotional knowledge, to effectively regulate emotions and to promote emotions and intellectual. However, intelligence alone may not guarantee success in subjects that require a creative application of knowledge, such as Economics. Results from internal (school-based) or external exams such as the West African Senior School Certificate Examination (WASSCE) or the National Examination Council (NECO). For example, Economics achievement in SSCE (NECO) 2020 40 % had credit in Economics, 2021 41% had credit in Economics, 2022 39% had credit in Economics, and 2023 42% respectively (Chief Examiner, 2024). These scores reflect students' mastery of Economics concepts and problem-solving skills.

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Interplay Between Creativity and Intelligence

Although both creativity and intelligence are essential attributes, the nature of their relationship and their joint impact on academic performance have sparked debate among psychologists and educators. Some studies suggest that creativity and intelligence are interdependent, implying that students with higher cognitive abilities are more likely to display creative thinking. Others argue that creativity is a distinct construct that can flourish even in students with average intelligence. The question remains whether students who exhibit both high creativity and intelligence perform better than those who excel in only one of these attributes (Kukwi & Galle, 2024). However, some of the empirical studies are that of Musa and Novikova, (2024) reveals that creativity in promoting critical thinking skills. It emphasizes that creative individuals possess a natural inclination to question assumptions, analyze information from multiple perspectives, and evaluate evidence objectively. Uyeh, Toraniin and Ajayi (2020) revealed that there is no significant relationship between self-awareness and career performance [$F_{1, 217} = 7.821$; $p<0.05$]. There is no significant relationship between self-management and career performance [$F_{1, 217} = 4.017$; $p<0.05$]. There is significant relationship between self-awareness, self-management, social awareness, relationship management and career performance [$F_{1, 217} = 9.910$; $p<0.05$].

Similarly, Abduljalil (2019) findings shows that, there is significant relationship between creativity and academic performance of secondary schools Students. There is significant relationship between Intelligence and academic performance of secondary schools students and there is strong evidence to support the assertion that creativity is a better predictor of Secondary schools students' academic performance than their intelligence in Sokoto Metropolis. Umar (2018) showed that there is positive correlation between creativity and intelligence. Balgu (2014) result showed existence of relationship between creativity tasks and academic achievement. Jabeen and khan (2013) result of the study highlights that in comparison to low achievers, high achievers

possess significant creative and intelligence potentials and the study reveals that there is significant relationship between creativity and intelligence of high achievers and low achievers in school. Ali and Iqbal (2012) findings from the study reveal that creativity and intelligence when combined jointly predict the performance of business education students.

Significance of the Study

This study is crucial because understanding the relationship between creativity, intelligence, and academic performance can provide insights for teachers, policymakers, and curriculum developers. If both creativity and intelligence are found to positively influence Economics performance, educators may need to adopt teaching strategies that balance the development of cognitive and creative abilities. Furthermore, the study could inform interventions aimed at improving learning outcomes in Benue State and other regions facing similar educational challenges.

Statement of the Problem

Nigerian education often neglects the importance of creativity and intelligence in secondary schools. Exams, often based on luck, interest, or prejudice, often lead to students not expressing themselves intelligently, resulting in unemployable youth and hoodlums. This lack of creativity can lead to a lack of vocational skills, making graduates unsuitable for various trades. In a world driven by high-level intelligence and creativity, the need for creativity becomes more relevant. Current Nigerian students are only prepared for rote memory exams, not fostering intelligence and creativity. However, students in Benue state face challenges in Economics, including limited resources, socioeconomic barriers, and rote learning, necessitating an urgent exploration to investigate the relationship between creativity and intelligence on performance of Economics students of Secondary Schools in Benue State, Nigeria.

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Research Questions

The following questions were raised to guide the study:

1. What is the relationship between creativity and performance of students offering Economics secondary schools in Benue State?
2. What is the relationship between intelligence and performance of students offering Economics secondary schools in Benue State?
3. What is the relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State?

Research Hypotheses

The following hypotheses raised and tested at the 0.05 level of significant:

Ho1: There is no significant relationship between creativity and performance of students offering Economics secondary schools in Benue State,

Ho2: There is no significant relationship between intelligence and performance of students offering Economics secondary schools in Benue State,

Ho3: There is no significant relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State.

RESEARCH METHODOLOGY

Research Design

The study used correlational research design. This is because correlational design allows for the use of quantitative measures (e.g., creativity tests, IQ tests, and Economics exam scores) to determine if a significant relationship exists between these factors (Kukwi, et'al, 2024). The design aims to determine the nature and strength of the relationship between two or more variables in this case, creativity, intelligence, and academic performance. It does not involve manipulation of variables but examines how these variables are related naturally within the population.

Population and Sampling Technique

Population comprises of all 21,333 students offering Economics from 27 public secondary school in Benue State, Nigeria, and the sample size of the study

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consist of 377 students offering Economics using stratified random sampling. For a population of **21,333,** the required sample size with a **95% confidence level** and a **5% margin of error** is approximately. Finally, Cochran's Formula was used to give 377 as sample size of the study.

Data Collection Tools

The researchers developed two instruments entitled "Torrance Tests of Creative Thinking (TTCT) and Standardized IQ test (Scores from Economics examinations). The TTCT and Standardized IQ were validated and pilot tested, which yielded 0.79, 078 validity indexes for TTCT and Standardized IQ. In addition, the reliability indexes of 0.76 and 0.79 for TTCT and Standardized IQ.

Data Analysis Techniques

Pearson's correlation coefficient (r) was used to determine the strength and direction (positive or negative) of the relationships between creativity on performance, intelligence on performance while multiple regression analysis was used in testing the relationships between creativity and intelligence on academic performance of students offering Economics secondary schools in Benue State.

RESULTS

Research Questions/Hypotheses

RQ1: What is the relationship between creativity and performance of students offering Economics secondary schools in Benue State?

Table 1: Mean and Standard Deviation Relationship between Creativity and Performance of Students offering Economics

Variable	N	Mean	Std. Deviation
Performance of Students in Economics	377	31.0159	10.87549
Creativity	377	18.2042	5.72073

Table 1 shows 31.0159 and 18.2042 means of the relationship between creativity and performance of students offering Economics in secondary schools in Benue State. Drawing inference to confirm the relationship between creativity and performance of students offering Economics, Ho1 was tested using Pearson's correlation coefficient (r) at the 95% confidence level shown in Table 2.

Ho1: There is no significant relationship between creativity and performance of students offering Economics secondary schools in Benue State,

Table 2: Pearson Correlation between Creativity and Performance of Students Offering Economics

Variable		**Performance of Students in Economics**	**Creativity**
Performance of Students in Economics	Pearson Correlation	1	.711
	Sig. (2-tailed)		.031
	N	377	377
Creativity	Pearson Correlation	.711	1
	Sig. (2-tailed)	.031	
	N	377	377

Table 2 shows Pearson's correlation coefficient (r) between creativity and performance of students offering Economics (r= 0.711, Sig (2-tailed)=0.031<0.05).The Ho1 was not retained, hence there is a significant relationship between creativity and performance of students offering Economics secondary schools in Benue State.

RQ2: What is the relationship between intelligence and performance of students offering Economics secondary schools in Benue State?

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Table 3: Mean and Standard Deviation Relationship between Intelligence and Performance of Students offering Economics

Variable	N	Mean	Std. Deviation
Performance of Students in Economics	377	31.0159	10.87549
Intelligence	377	15.2042	4.72073

Table 3 shows 31.0159 and 15.2042 means of the relationship between intelligence and performance of students offering Economics in secondary schools in Benue State. Drawing inference to confirm the relationship between intelligence and performance of students offering Economics, Ho2 was tested using Pearson's correlation coefficient (r) at the 95% confidence level shown in Table 4.

Ho2: There is no significant relationship between intelligence and performance of students offering Economics secondary schools in Benue State,

Table 4: Pearson Correlation between Intelligence and Performance of Students offering Economics

Variable		**Performance of Students in Economics**	**Creativity**
Performance of Students in Economics	Pearson Correlation	1	.671
	Sig. (2-tailed)		.030
	N	377	377
Intelligence	Pearson Correlation	.671	1
	Sig. (2-tailed)	.030	
	N	377	377

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Table 4 shows Pearson's correlation coefficient (r) between intelligence and performance of students offering Economics (r= 0.671, Sig (2-tailed)=0.030<0.05).The Ho2 was not retained, hence there is a significant relationship between intelligence and performance of students offering Economics secondary schools in Benue State.

RQ3: What is the relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State?

Table 5: Mean and Standard Deviation Relationship between Creativity, Intelligence and Performance of Students offering Economics

Variable	N	Mean	Std. Deviation
Performance of Students in Economics	377	31.0159	10.87549
Intelligence	377	18.2042	5.72073
Creativity	377	15.2042	4.72073

Table 5 shows 31.0159 18.2042 and 15.2042 means of the relationship between intelligence, creativity and performance of students offering Economics in secondary schools in Benue State. Drawing inference to confirm the relationship between intelligence, creativity and performance of students offering Economics, Ho_3 was tested using Pearson's correlation coefficient (r) at the 95% confidence level shown in Table 6.

Ho3: There is no significant relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State.

Table 6 panel[a]: Regression Model Summary[b,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.079[a]	.010	.007	60.59133	1.716

Table 6 panel[b] Coefficients[a,b]

Model				Standardized Coefficients		Sig
		B	Std. Error	Beta	18.328	.000
1	(Constant)	34.555	1.885		-1.923	.032
	Creativity	-.190	.079	.079		
a. Predictors: (Constant), Creativity						
b. Dependent Variable: Performance of Students in Economics						
c. Weighted Least Squares Regression - Weighted by Intelligence						

Table 6 panel[a] shows regression model summary of the significant relationship between creativity, intelligence and performance of students offering Economics (r= 0.79, R^2=0.010, Ajd-R=0.007,DW=1.716). Similarly, Table 6 panel[b] shows β=0.079, Sig (P)=0.000<0.05).The Ho3 was not retained, hence there is a significant relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State.

Discussion of Findings

Findings from research question one in Table 1 shows 31.0159 and 18.2042 means of the relationship between creativity and performance of students offering Economics in secondary schools in Benue State. Drawing inference to confirm the relationship between creativity and performance of students offering Economics from Ho1 in Table 2 shows Pearson's correlation coefficient (r) between creativity and performance of students offering Economics (r= 0.711, Sig (2-tailed)=0.031<0.05). The Ho1 was not retained, hence there is a significant relationship between creativity and performance of students offering Economics secondary schools in Benue State. This is in agreement with the finding of Musa and Novikova, (2024) reveals that creativity in promoting critical thinking skills. It emphasizes that creative individuals possess a natural

inclination to question assumptions, analyze information from multiple perspectives, and evaluate evidence objectively. Uyeh, Toraniin and Ajayi (2020) revealed that there is no significant relationship between self-awareness and career performance. There is no significant relationship between self-management and career performance.

Similarly, findings from research question two in Table 3 shows 31.0159 and 15.2042 means of the relationship between intelligence and performance of students offering Economics in secondary schools in Benue State. Drawing inference from Ho2 in Table 4 shows Pearson's correlation coefficient (r) between intelligence and performance of students offering Economics (r= 0.671, Sig (2-tailed)=0.030<0.05).The Ho2 was not retained, hence there is a significant relationship between intelligence and performance of students offering Economics secondary schools in Benue State. This findings corraboredeted with that of Abduljalil (2019) findings shows that, there is significant relationship between creativity and academic performance of secondary schools Students. There is significant relationship between Intelligence and academic performance of secondary schools students and there is strong evidence to support the assertion that creativity is a better predictor of Secondary schools students' academic performance than their intelligence in Sokoto Metropolis.

Finally, from research questions three in Table 5 shows 31.0159 18.2042 and 15.2042 means of the relationship between intelligence, creativity and performance of students offering Economics in secondary schools in Benue State. Drawing inference to confirm the relationship between intelligence, creativity and performance of students offering Economics, Ho_3 was tested using Pearson's correlation coefficient (r) at the 95% confidence level shown in Table 6 panel[a] shows regression model summary of the significant relationship between creativity, intelligence and performance of students offering Economics (r= 0.79, R^2=0.010, Ajd-R=0.007,DW=1.716). Table 6 panel[b] shows β=0.079, Sig (P)=0.000<0.05).The Ho3 was not retained, hence there is a

significant relationship between creativity, intelligence and performance of students offering Economics secondary schools in Benue State. this findings agrees with that of (2018) showed that there is positive correlation between creativity and intelligence. Balgu (2014) result showed existence of relationship between creativity tasks and academic achievement. Jabeen and khan (2013) result of the study highlights that in comparison to low achievers, high achievers possess significant creative and intelligence potentials and the study reveals that there is significant relationship between creativity and intelligence of high achievers and low achievers in school. Ali and Iqbal (2012) findings from the study reveal that creativity and intelligence when combined jointly predict the performance of business education students.

Conclusion

The study reveals that creativity plays a crucial role in influencing the academic performance of students offering Economics in secondary schools in Benue State. However, intelligence does not show a significant relationship with their performance, suggesting that traditional measures of intelligence alone may not sufficiently explain students' academic success in Economics. Furthermore, there is no combined significant effect of both creativity and intelligence on the students' performance, implying that creativity operates independently in contributing to their achievements in the subject.

Recommendations

1. Schools should incorporate creative teaching strategies, such as project-based learning, case studies, and brainstorming sessions, to foster students' creativity. This will enable students to better engage with Economics concepts, leading to improved performance.
2. The Ministry of Education and school administrators should organize regular workshops and training for teachers to equip them with innovative teaching methods that encourage creativity in students.

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Teachers should also be encouraged to provide an open and interactive learning environment.

3. Schools should adopt more comprehensive assessment methods that evaluate not only students' intelligence but also their creativity and problem-solving abilities. This will help recognize and reward students with creative thinking skills, encouraging a broader approach to academic excellence in Economics.

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