International Journal of Intellectual Discourse (IJID)
ISSN: 2636-4832 Volume 9, Issue 2. June, 2026

Effects of entrepreneurial creativity on entrepreneurial intention. Mediating role of entrepreneurial mindset

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Abstract

This study explores the effect of entrepreneurial creativity (EC) on entrepreneurial intention (EI), focusing on the mediating role of entrepreneurial mindset (EM) among final-year students at selected tertiary institutions in Bauchi State, Nigeria. A quantitative research design was employed, utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze survey data collected from a sample of 316 valid respondents. The measurement model established acceptable convergent and discriminant validity. The structural model results revealed that entrepreneurial creativity has a positive and statistically significant direct relationship with entrepreneurial intention ($\beta = 0.505$, $t = 11.415$, $p < 0.05$). Furthermore, the entrepreneurial mindset significantly mediates the relationship between entrepreneurial creativity and entrepreneurial intention ($\beta = 0.679$, $t = 16.649$, $p < 0.05$). The Importance-Performance Map Analysis (IPMA) further highlights entrepreneurial creativity as a high-importance and high-performance construct. These findings offer valuable insights for policymakers and university management in designing target intervention frameworks to foster undergraduate entrepreneurial drive.

Keywords: Entrepreneurial Creativity, Entrepreneurial Intention, Entrepreneurial Mindset

1. Introduction

Entrepreneurial intention is defined as an individual's preparedness to manage a firm, particularly from a social-psychological perspective (Al Halbusi et al., 2023). Business education students' entrepreneurial ambition is shaped by factors such as Entrepreneurship Education (EE), Entrepreneurial Mindset (EM), Entrepreneurial Creativity (EC), and related influences (Khalil et al., 2024). Globally, and particularly in developing countries, entrepreneurship is promoted as a response to unemployment, poverty, and sluggish economic development. It contributes to job creation, wealth generation, social stability, and increased competition. Thus, governments and policymakers seek ways to motivate undergraduates to engage in entrepreneurship to mitigate economic challenges. Entrepreneurship also requires self-confidence alongside intention, education, mindset, and creativity (Xanthopoulou et al., 2024). In Nigeria, the government has expanded higher-education initiatives to build students' entrepreneurial skills and practical exposure (National Economic Development Report, 2020; Entrepreneurial Education Initiatives, 2021). Nonetheless, youth unemployment remains high, driven by inadequate education, limited training, skills mismatches, weak infrastructure, and scarce job opportunities.

The problem is that despite the rising emphasis on entrepreneurship, the mechanisms by which education translates into entrepreneurial intention

among Nigerian students, particularly in Bauchi State, remain unclear (Ibrahim et al., 2023; Li et al., 2023). Empirical evidence shows uneven and often weak effects of entrepreneurship education, with studies rarely integrating entrepreneurial alertness and creativity into a single model or rigorously testing entrepreneurial mindset as a central mediator (Ashraf et al., 2024; Otache et al., 2024). Existing research is limited by narrow, single-institution designs, cross-sectional self-report data, and inadequate mediation analysis, especially in African tertiary contexts (Li et al., 2023; Iwu, 2025). Consequently, there remains insufficient theory-driven, context-specific understanding of how entrepreneurial education, alertness, creativity, and mindset jointly shape entrepreneurial intention in Bauchi's resource-constrained, policy-active higher education environment (Odeyemi et al., 2024).

1. To determine the relationship between entrepreneurial creativity and entrepreneurial intention.
2. To evaluate the mediating role of entrepreneurial mindset on the relationship between entrepreneurial creativity and entrepreneurial intention

This study is significant because it integrates entrepreneurial creativity and the mediating role of entrepreneurial mindset to explain how these variables shape entrepreneurial intention, thereby extending existing theory. It offers practical value by guiding the design of entrepreneurship education across all levels, helping institutions identify and correct gaps in creativity and mindset development, especially in Bauchi State. The findings will support policymakers and university managers in crafting strategies to boost entrepreneurial intention. Methodologically, the use of PLS-SEM strengthens causal inference and provides robust empirical evidence on how these variables interact.

2. Literature Review

2.1.1 Entrepreneurial Intention

According to Ukil and Jenkins (2023), the admitted desire to launch a new career is known as entrepreneurial intention. Research has claimed that the identification, assessment, and exploitation of new opportunities, aided by planning, organizing, processes, and raw materials, are linked to entrepreneurial intention (Lim et al., 2023). This speaks to an individual's desire and drive to launch and grow their business. It includes the motivational, emotional, and cognitive processes that propel people to start their own businesses. Intention refers to the degree to which a person develops an opinion on a particular behavior; thus, the more positive one feels about the outcomes of starting a business, the more favorable it is to carry out the action (Anwar et al., 2024).

2.1.2 Entrepreneurial Mindset

A collection of attitudes and traits that motivate people to think and behave like entrepreneurs is known as an entrepreneurial mentality (Pidduck et al., 2023). Daspit et al. (2023) defined the ability to react and decide amid opportunity ambiguity as an entrepreneurial mindset. Although there are various definitions of entrepreneurial mentality in the literature, they all agree that it is a mode of thinking or the capacity to seize opportunities in the face of uncertainty (Daspit et al., 2023). It includes a distinct perspective on the world, the ability to spot opportunities, and the ability to overcome obstacles to add value and spur innovation. Professionals working for established companies can also foster this mindset; it is not just for individuals who want to launch their own companies (Kemp et al.,

2023). Strong initiative and a proactive approach to problem-solving are fundamental traits of an entrepreneurial mindset (Ali, 2024).

2.2.3 Entrepreneurial Creativity

Entrepreneurial creativity is a key component of entrepreneurial education, which aims to develop creative problem-solving and innovative thinking in aspiring business owners (Ahmad et al., 2023). It pushes people to think creatively, spot opportunities, and create original solutions to meet market demands (Atrup et al., 2023). We should all learn to be more creative and utilize our innate talents, because most entrepreneurs are naturally creative thinkers; otherwise, they will not be motivated to launch their own company (Hamdan, 2023; Alam & Mohanty, 2023). One of the qualities that any leader and business owner requires is creativity. In actuality, entrepreneurs are rarely commended for their innovative approaches to problem-solving (Azzaakiyyah, 2023).

2.3 Theoretical Review

This study is anchored on the Theory of Planned Behavior (TPB) (Ajzen, 1991) and Social Cognitive Theory (SCT) (Bandura, 1986). According to Ajzen's (1991) Theory of Planned Behavior, an individual's intention to perform a behavior is driven by behavioral attitudes, subjective norms, and perceived behavioral control. Entrepreneurial creativity enhances an individual's cognitive ability to generate opportunities, thereby improving self-efficacy and driving the cognitive framework required to establish a firm enterprise.

2.4 Empirical Review and Hypotheses Development

2.4.1 Entrepreneurial Creativity and Entrepreneurial Intention

With the right information and knowledge, creativity can generate fresh and practical ideas, a crucial aspect of individual cognitive processing (Amabile & Mueller, 2024). Diawati et al. (2023) describe creativity as the aptitude and talent that individuals possess. According to earlier studies, entrepreneurship is a creative activity in and of itself, and creativity is especially important for entrepreneurial endeavors. According to Alsafadi and Aljuhmani (2024), entrepreneurial creativity is the capacity to generate original and valuable ideas, identify opportunities, and think creatively. It is what propels creativity and catalyzes the transformation of concepts into deeds. The desire and readiness of people to start their own businesses is referred to as entrepreneurial intention (Taib et al., 2023).

H_1: There is a significant positive relationship between entrepreneurial creativity and entrepreneurial intention.

2.4.2 Mediating Role of Entrepreneurial Mindset

Advanced structural equation modeling utilizes indirect effect assessments via bootstrapping rather than outdated causal steps approaches (Baron & Kenny, 1986). Modern structural modeling directly quantifies the indirect impact parameters to rule out type-I statistical errors.

Green et al. (2024) define creativity as the aptitude and talent that individuals possess. According to prior academics, entrepreneurship itself is a creative activity, and creativity is especially important for entrepreneurial endeavors (Wach & Bilan, 2023). Similar findings were reported by Otache et al. (2024), who examined creativity and entrepreneurial alertness among Nigerian university students. Using undergraduate business students, Nguyen and Do (2023) investigated the relationship between creativity and entrepreneurial ambition and found that those with higher levels of creativity are more likely to start their

own firms. An entrepreneurial mindset shifts individual baseline cognitive processing, ensuring that creative capabilities translate directly into structured career intentions.

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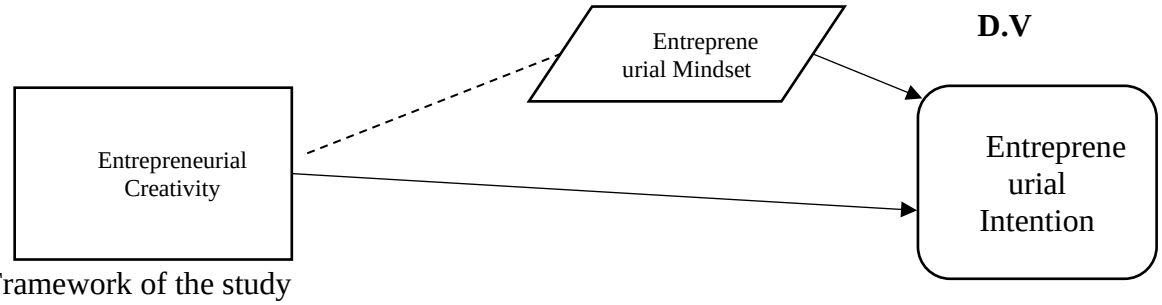

Framework of the study

3. Methodology

The study adopts a quantitative research approach utilizing an explanatory survey-based design to systematically analyze data. The target population consists of final-year undergraduate students across four tertiary institutions within the Bauchi metropolis (N = 3,179). According to Krejcie and Morgan's (1970) sample determination framework, a population size of approximately 3,179 requires a baseline minimum sample size of 344 respondents. Following recommendations by Giner-Sorolla et al. (2024), an extra 10% buffering allowance (+34 questionnaires) was applied to hedge against missing values or incomplete profiles, establishing a total target sampling size of 378 respondents.

3.2 Sampling and Analytical Technique

A stratified random sampling technique was utilized across the institutional subpopulations to ensure balanced

H_2: There is a significant mediating effect of entrepreneurial mindset on the relationship between entrepreneurial creativity and entrepreneurial intention.

2.5 Conceptual Frame Work Mediator

structural representation. Structured survey questionnaires served as the primary collection instrument (Panda & Mohapatra, 2024; Al Humdan & Behnia, 2024). Data cleaning and initial entry procedures were administered via IBM SPSS Statistics (v.25). Path structural mapping and variance equations were evaluated via SmartPLS 4 (Salmona & Kaczynski, 2024). Evaluation was executed through a two-phased protocol: Assessment of the Measurement Model followed by structural path modeling computations.

4. Results and Discussion

4.1 Descriptive Statistics of Respondents

Out of the 378 administered instruments, a total of 316 fully completed questionnaires were returned and validated for analysis, yielding an effective response rate of 83.6%.

Table 3 Descriptive Statistics of Respondents

Variables	Category	Frequency	Percentage %
Gender	Male	207	65
	Female	109	35
	Total	316	100
Age	18-30 Yrs	162	51
	31-40 Yrs	85	27
	41Yrs & Above	69	22
	Total	316	100
Educational Qualification	Bsc	211	67
	HND	105	33
	Total	316	100

Source: **Field Survey, 2024**

Table 3 shows gender, age, educational qualification, the statistics show that from the 316 participants, 207 (65%) are male, while the female figure stands at 109 (35%). In terms of age, the Highers respondents 162 (51%) are between the age of 18 to 30. 85 respondents (27%) are within the age range of 31 -40, while 69 respondents (22%) fall within the age range of 41- and above. Regarding to educational qualification, it was found that 211 (67%) of the respondents fall within the category of (Bsc), 105 (38%) /HND respectively.

4.2 Assessment of Measurement Model

In this study SmartPLS4 software by Mhlongo et al., (2025) was used to analyze the Mediating Role of entrepreneurial mindset on entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity on Entrepreneurial Intention. The software was used to estimate the measurement model and the structural model in this study. The measurement models are outer models that describe the relationships between the constructs and their indicators (Anggraeni et al., (2023). Measurement models could be reflective or formative, whereby reflective measurement models are widely used in social science research (Lambert et al., (2023); Hair et al. 2019). The measurement models are outer models that describe the relationships between the constructs and their indicators (Anggraeni et al., 2023). The measurement model in Table 4 was used to test the reliability and validity of the measurement items by testing the factor loadings, composite reliabilities, and average variances extracted (AVE) of the measurement items. While the structural model was used to test the relationships between the latent variables by estimating the path coefficients, which indicate the strength and direction of the relationships between the latent variables in Table 4

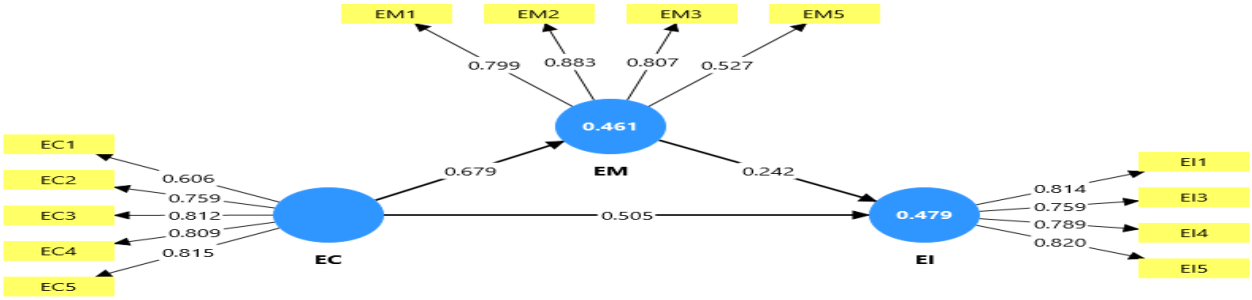

Figure 2: Measurement Model

The acceptable value for outer loading must be above 0.50 (Subhaktiyasa 2024). Therefore, the factor loading less than 0.50 should be considered deleted. According to Shela et al., (2023) stated that Reflective indicator reliability Indicator loadings Loading >0.708 is recommended, but loading >0.70, 0.6, 0.5 or 0.4 is adequate if other items have high scores of loadings to complement AVE and CR. Researchers frequently observe weaker outer loadings in social science studies, especially when newly developed scales are used (Burt 2024). Rather than automatically eliminating indicators when their outer loading is below 0. 70, researchers should carefully examine the effects of item removal on the composite reliability, as well as on the construct's content validity. Generally, indicators with outer loadings between 0.40 and 0. 70 should be considered for removal from the scale only when deleting the indicator leads to an increase in the composite reliability (or the average variance extracted; see next section) above the suggested threshold value.

In this study, 1 item with factor loading lower than 0.50 have been deleted to achieve dimensionality among the measurement items in the model. To achieve internal consistency, the value of every specific Cronbach's Alpha coefficient in this study is within the range of 0.914 and 0.726, which is within the accepted value (Youssef et al., (2023). Also, the value of every composite reliability (CR) factor fell in-between 0.919 and 0.755, as specified by Hair et al. (2019), with values between 0.70 and 0.90 ranging from "satisfactory to good. To assess convergent validity, the value for every AVE fell in-between 0.936 to 0.814, which is within the suggested value of 0.50 and above (Koe et al., 2024).

Table 5 Convergent Validity of Measurement Model

Construct	Item	Loadings	CA	CR	AVE
Entrepreneurial Intention (EI)	EI1	0.814	0.807	0.873	0.633
	EI3	0.759			
	EI4	0.789			
	EI5	0.820			
Entrepreneurial Mindset (EM)	EM1	0.799	0.752	0.847	0.586
	EM2	0.883			
	EM3	0.807			
	EM5	0.527			
Entrepreneurial Creativity (EC)	EC1	0.606	0.820	0.874	0.584
	EC2	0.759			
	EC3	0.812			
	EC4	0.809			
	EC5	0.815			

Note: EI2, EM4 were deleted

Note: Items EI2 and EM4 were deleted from the model due to poor outer loadings below the conservative measurement requirements. All remaining item loadings met acceptable thresholds (≥ 0.50). Scale reliability parameters achieved satisfactory levels (alpha > 0.70, CR > 0.70, AVE > 0.50) confirming internal consistency and convergent validity.

4.3 Discriminant Validity (Fornell-Larcker Criterion)

The bold diagonal indicators represent the square root values of the AVEs. Because these diagonal elements exceed their corresponding horizontal and vertical

inter-construct correlations, discriminant validity is fully established under the Fornell-Larcker matrix (Cheung et al., 2024).

Table: 6 Discriminant Validity (Fornell-Larcker Criterion)

Constructs	EC	EI	EM
Entrepreneurial Creativity (EC)	**0.764**		
Entrepreneurial Intention (EI)	0.669	**0.796**	
Entrepreneurial Mindset (EM)	0.679	0.584	**0.766**

Source: **Field Survey, 2024**

4.4 Assessment of Structural Model

After the measurement model assessment, where convergent and discriminant validity of the items and constructs were validated, the next stage examines the structural model. In the process of examining the structural model aimed at confirming the research model empirically. Some fundamental analyses must be performed in the model, which includes collinearity assessment, assessing the significance of the path coefficients, the coefficient of determination (R^2) values, the effect size (F^2)

4.5 Coefficient of Determination (R^2)

The structural model yields an R^2$ value of 0.479 for Entrepreneurial Intention, showing that 47.9% of the structural variance in students' intent is collectively explained by the predictive models. Similarly, Entrepreneurial Creativity explains 46.1% of the total variance in the latent mediating variable, Entrepreneurial Mindset (R^2 = 0.461$).

Table 8 Coefficient of Determination (R^2)

Constructs	R-square	Adjusted R^2
Entrepreneurial Intention (EI)	0.479	0.500
Entrepreneurial Mindset (EM)	0.461	0.479

Source: **Field Survey, 2024**

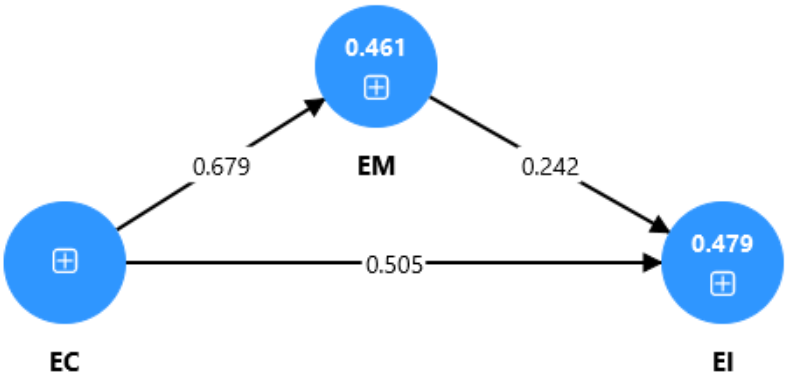

Figure 3: Predictive Relevance

Table 9 Effect Size (F^2)

Constructs	Entrepreneurial Intention (EI)	Effect Size
Entrepreneurial Creativity (EC)	0.080	Small
Entrepreneurial Mindset (EM)	0.049	Small

Source: **Field Survey, 2024**

Under the standard threshold directives (Cohen, 1988), Entrepreneurial Creativity displays a large predictive impact on intention, whereas the mindset matrix accounts for a small direct effect size within the structural equation framework.

Discussion

Previous studies had suggested that values from 1.65 be significant at 10%, while 1.96 and 2.57 are also considered significant at 5% and 1% significance levels, respectively, based on two-tailed tests (Hair et al., 2020). Similarly, the one-tailed test's critical values of 1.28 are significant at 10%, while 1.65 and 2.33 are significantly based on 5% and 1% significance levels, respectively (Hair et al., 2019). Therefore, all the relationships hypothesized in this study are directional. Therefore, the one-tailed test was used to assess the path coefficient's t-values and the significant effect. Hence, the path with values from 1.65 and above was significant using the 5% significance level, and the hypotheses are accepted. However, the hypotheses are rejected for the path coefficient with t-values lower than 1.65. Hence, the result of the hypothesis of direct relationships is depicted in the table below.

Table 10 Significance Effects of Direct (Path Coefficient)

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
EC -> EI	0.505	0.341	0.063	11.415	0.044	Supported
EC -> EM-> EI	0.679	0.135	0.037	16.649	0.041	Supported

Source: Extracted from Smart PLS 4 outputs, 2024

4.7 Hypothesis Testing of Direct Relationship

4.7.1 Entrepreneurial creativity and entrepreneurial intention

The study's first objective was to examine the relationship between entrepreneurial creativity and entrepreneurial intention among students in selected Bauchi State tertiary institutions. It hypothesised a significant positive relationship between entrepreneurial creativity and entrepreneurial intention (H1). Although a p-value of 0.090 would normally be considered insignificant at the 0.05 level, the structural model results showed a positive and statistically significant path from entrepreneurial creativity to entrepreneurial intention ($\beta = 0.505$, $t = 11.415$, $p = 0.044$). This indicates that higher entrepreneurial creativity is associated with higher entrepreneurial intention. Consequently, the hypothesis (H1), which states that there is a positive relationship between entrepreneurial creativity and entrepreneurial intention, was accepted.

4.7.2 Entrepreneurial mindset has a mediating effect on the relationship between Entrepreneurial creativity and entrepreneurial intention

The second objective was to assess whether entrepreneurial mindset mediates the relationship between entrepreneurial creativity and entrepreneurial intention among students in selected Bauchi State tertiary institutions. H2 proposed that entrepreneurial mindset has a mediating effect on this relationship. The structural model results (β = 0.679, t = 16.649, p = 0.040) indicate a strong, positive, and highly significant effect, confirming that entrepreneurial mindset meaningfully links entrepreneurial creativity to entrepreneurial intention. Therefore, H2 was accepted, supporting the mediating role of entrepreneurial mindset.

4.8 Importance-Performance Map Analysis Matrix (IPMA) Assessment

In order to present the findings of this study more precisely, importance-performance map analysis (IPMA) was conducted. IPMA analysis aims to identify constructs with high importance and low performance (Lame, et al., (2023); Ojoajogu, et al., (2023). The outcome of the analysis aids high level management in identifying key forces within organisation that need more attention and improvement (Lame, et al., (2023); Ojoajogu, et al., (2023). The result of the IPMA reveals performance of the construct as entrepreneurial creativity (EC) (77.159), entrepreneurial mindset (EM) (72.312), while the importance results shown that entrepreneurial creativity (EC) (0.478), entrepreneurial mindset (EM) (0.217), and entrepreneurial Figure 6 and Table 4.4.7 shows the detailed IPMA result for all the constructs. Given the above, it is argued that investing in the performance improvement of a construct (independent variable) that has smaller importance for the target variable (dependent variable) would be illogical since it would have a minute impact on improving the target construct (Hair et al., 2017).

Table 12 IPMA Results

Constructs	IMPORTANCE	PERFORMANCE
Entrepreneurial Creativity (EC)	0.478	77.159
Entrepreneurial Mindset (SN)	0.217	72.312

Source: Extracted from SmartPLS4 output, 2024

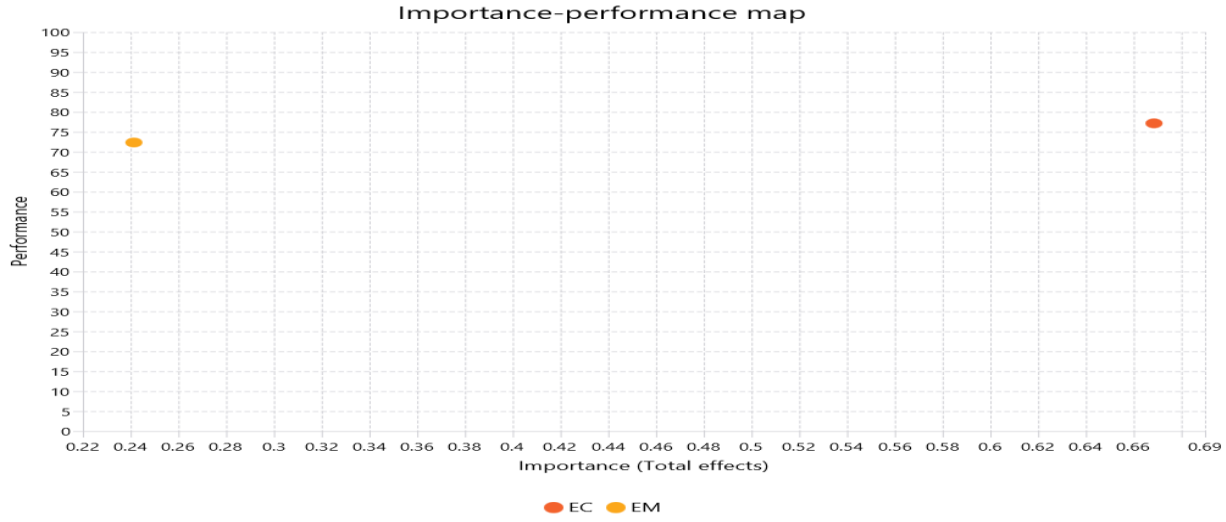

Figure 4: Importance Performance Map

Discussion of Findings

Drawing on prior literature, the study hypothesised links between entrepreneurial creativity, entrepreneurial intention, and entrepreneurial mindset. Entrepreneurial creativity involves generating original, valuable ideas, identifying opportunities, and transforming concepts into action (Alsafadi & Aljuhmani, 2024). Entrepreneurial intention reflects individuals' desire and readiness to start ventures (Taib et al., 2023), shaped by motives, self-belief, risk tolerance, and career valuations (Angelia et al., 2024). Creativity and intention mutually reinforce each other, highlighting the need for an entrepreneurial mentality (Aboobaker & KA, 2023; De Vito, 2023). Therefore, governments, universities, and industry should foster conditions that strengthen entrepreneurial aspirations and creative thinking (Suguna et al., 2024). Thus, based on the finding of this study the hypothesis (H_3): that states there is positive relationship between relationship between entrepreneurial creativity and Entrepreneurial intention is hereby accepted.

The findings show a positive mediating relationship between entrepreneurial creativity and entrepreneurial intention ($\beta = 0.679$, $t = 16.649$, $p = 0.040$). This aligns with Otache et al. (2024), who linked creativity and entrepreneurial alertness among Nigerian students, and Nguyen and Do (2023), who found that more creative undergraduates show stronger entrepreneurial ambition. Prior work also associates creativity with alertness, opportunity recognition, and sustainable business opportunities (Permatasari et al., 2023; Valdez-Juárez & Pérez-de-Lema, 2023; Iddris, 2024). Thus, higher entrepreneurial creativity increases entrepreneurial likelihood, closely tied to mindset (Morris & Tucker, 2023). Thus, based on the finding of this study the hypothesis (H_6): that posits a significant mediating effect of entrepreneurial mindset on the relationship between entrepreneurial creativity and entrepreneurial intention is hereby accepted.

5. Conclusion and Recommendations

This study established causal the relationship between entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity on entrepreneurial intention. Furthermore, the study's findings were consistent with the findings of other previous studies. The findings show that a higher degree of entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity would directly increase the entrepreneurial intention. Effective and efficient entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity will help to achieve better entrepreneurial intention. The establishment of effective entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity will help the organization in increasing their performance by concentrating on only few and very key entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity

Recommendations

Based on the various findings of this study and in collaboration with other previous studies, the researcher hereby outlines the following recommendations among in tertiary institutions in the Bauchi metropolitan area, including Sa'adu Zungur University, (Faculty of Management Science Yuli Campus), Abubakar Tafawa Balewa University Bauchi, (School of Management), Federal Polytechnic Bauchi (Business Administration), and Abubakar Tatari Polytechnic Bauchi (School of Management Studies). Nigeria to put

them into consideration. The study recommends that tertiary institutions in Bauchi state should work to maintain entrepreneurial creativity, entrepreneurial alertness, and entrepreneurial education by way of maintaining and ensuring good student knowledge in other to get enough entrepreneurial intention.

Suggestions for Further Studies

Future studies may consider other predictors other than entrepreneurial education, entrepreneurial alertness, and entrepreneurial creativity and use entrepreneurial mindset as moderator rather than mediator as used in this study.

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