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

Mediating role of entrepreneurial education on relationship between market orientation on entrepreneurial intention

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Abstract

The aimed of this study is to explore the mediating role of entrepreneurial education in the relationship between market orientation and entrepreneurial intention. The study adopted a quantitative design, using primary data collected via a structured questionnaire survey. Cluster sampling was employed to generate responses from respondents in the study area. The population of the study was 5,129, and the sample size of 357 was determined using the Krejcie and Morgan (1970) table. Reliability and regression analyses were conducted using SPSS, while path analysis was performed using partial least squares structural equation modeling (PLS SEM). The findings show a positive and significant relationship between market orientation and entrepreneurial intention. Furthermore, entrepreneurial education mediates the relationship between market orientation and entrepreneurial intention, indicating that entrepreneurial education plays a significant role in transmitting the effect of market orientation into entrepreneurial intention.

Keywords: Market orientation, entrepreneurial education, entrepreneurial intention, mediating effect, PLS SEM, tertiary institutions in Bauchi State

1. Introduction

Entrepreneurial intention serves as the primary predictor of start-up success, reflecting an individual's willingness and effort to pursue business creation. Understanding the drivers of entrepreneurial intention is vital for fostering economic growth. Globally, the start-up landscape is expanding by 21% annually, with the Asia-Pacific region leading at 27.4%. Notably, 62% of global entrepreneurs hold at least a bachelor's degree, highlighting the synergy between formal education and business acumen. Furthermore, modern trends show a shift toward sustainable entrepreneurship, with 60% of entrepreneurs prioritizing social impact over profit. In Africa, the entrepreneurial landscape is defined by a "youth bulge," where over 60% of the population is under 25. However, youth unemployment, averaging 6.8% in 2024, often forces individuals into entrepreneurship out of necessity rather than opportunity. Nigeria, Africa's largest economy, epitomizes this challenge. While small and medium enterprises (SMEs) contribute 48% to the national GDP and 84% of employment, the formal sector cannot absorb the 3.5 million new workers entering the labor force annually.

Bauchi State serves as a critical microcosm of these challenges. With a population of over 8 million, the state faces youth unemployment rates between 35% and 40%. Although agriculture and small-scale trading dominate, there is an urgent need to transition toward structured entrepreneurial endeavors.

This study focuses on 5,129 final-year students across four major tertiary institutions in Bauchi State Sa'adu Zungur University, Abubakar Tafawa Balewa University (ATBU), Federal Polytechnic Bauchi, and Abubakar Tatari Ali Polytechnic (ATAP) to investigate how entrepreneurial education mediates the impact of entrepreneurial orientation, social networks, and market orientation on their intentions to start businesses. Despite formal education, youth unemployment remains a systemic crisis. Globally, 64.9 million youths were unemployed in 2023. In Nigeria, the youth unemployment rate hovers around 5.05%, though this is likely underreported due to changes in survey methodology. In Bauchi State specifically, graduate unemployment has surged to over 42%. Without strong entrepreneurial intentions, graduates fall into cycles of poverty, social instability, and "brain drain." Current programs in Bauchi are often inadequate, as 70% of the workforce remains trapped in low-productivity agriculture.

Bauchi's unique socioeconomic environment exacerbates the gap between intention and action. As a rural, agrarian state, it suffers from limited credit access, poor infrastructure, and insecurity, which disrupt social networks and mentorship. Cultural norms in Northern Nigeria still heavily prioritize "white-collar" government jobs over self-employment. Furthermore, market orientation is weak; students lack exposure to competitive analysis, and female students (comprising 31.4% of the academic cohort) face additional barriers. Consequently, only 10–15% of Bauchi graduates launch enterprises within five years, compared to the 25% national average. Existing literature on entrepreneurial intention in Nigeria is often flawed. Many studies rely on self-reported measures and convenience sampling, which introduce significant bias. Furthermore, research has historically focused on the Southwestern region, neglecting the unique socio-cultural dynamics of Northern Nigeria. Most critically, there is a lack of integrated research examining the mediating role of entrepreneurial education; most studies focus only on direct relationships, failing to capture how education transforms orientations and networks into actual intentions.

i. To what extent does market orientation relate with entrepreneurial intention?
ii. To what extent does entrepreneurial education mediate the relationship between market orientation and entrepreneurial intention?

The main objective of this research is to examine the influence of entrepreneurial intention among students of some tertiary institutions in Bauchi state. However, the specific objectives include:

i. To examine the relationship between market orientation on entrepreneurial intention.
ii. To evaluate the mediating role of entrepreneurial education on the relationship between market orientation and entrepreneurial intention.

Managerial implication**:** The outcome of this research will assist policymakers in utilizing the study's findings to evaluate the mediating role of entrepreneurial education in the relationships between entrepreneurial orientation, social networks, market orientation, and entrepreneurial intention. Theoretical implication: It is anticipated that this study will add to the body of knowledge by integrating entrepreneurial orientation, social networks, and market orientation, along with the mediating role of entrepreneurial education, to examine their contribution to entrepreneurial intention. Methodological implication: The study will employ PLS-SEM as a multivariate analysis technique. Data will be analyzed to broaden the coverage of entrepreneurial orientation,

social networks, and market orientation and their links to entrepreneurial intention, providing evidence to support the proposed framework. This study investigates the impact of entrepreneurial intention among selected tertiary institutions in Bauchi State and examines the mediating role of entrepreneurial education in the relationships between entrepreneurial orientation, social networks, and market orientation and how they positively or negatively influence entrepreneurial intention.

2.1 Literature Review

2.2.1 Entrepreneurial Intentions

Entrepreneurial intention is defined in multiple ways. According to Musallam and Kamarudin (2021), entrepreneurial intention is the willingness to engage in entrepreneurial activity or to become an entrepreneur. Alshebami and Al Marri (2022) describe it as the cognitive tool that enables the goal of firm establishment. Logue and Grimes (2022) define entrepreneurial intention as the deliberate response and conviction of individuals who wish to launch a new business or become entrepreneurs in the future.

2.2.2 Market Orientation

Market orientation (MO) is defined as "the collection of interdisciplinary procedures and actions aimed at generating and gratifying clients through ongoing needs analysis" (Unruh & Junior, 2023). Gonu et al. (2023) describe market orientation as a process of business operations linked to the development of customer wants and satisfaction. Since all businesses understand that customers are assets that can boost business success, market orientation is essential in conjunction with increased competition and shifts in consumer needs (Tuominen et al., 2023). According to Munkki (2024), market orientation is a philosophy or style of thinking that prioritizes creating superior customer value in the marketplace.

2.2.3 Entrepreneurial Education

Education is an important tool for sustainability (Uralovich et al., 2023). It has been established that education promotes entrepreneurship (Porfírio, 2022). Worldwide, postsecondary institutions have seen a sharp increase in teaching entrepreneurship (Mack & Honig, 2024). The increasing number of postsecondary institutions offering entrepreneurship courses indicates that entrepreneurship can be taught (Hentschke et al., 2023). Numerous scholars assert that entrepreneurship courses help students develop a positive attitude toward business and provide them with the fundamental knowledge and skills needed to succeed (Valencia-Arias et al., 2022). Relevant theories were used in this study. The underpinning theory is the theory of planned behaviour, while the supporting theory is human capital theory, both of which are deemed suitable for this study.

2.3 Empirical Review/Hypotheses Development

2.3.1 Market Orientation and Entrepreneurial Intention

Martins et al. (2023) found that market orientation plays a significant role in influencing entrepreneurial intention, as it leads to the development of a customer-focused mindset and a willingness to innovate. Abdul-Talib et al. (2023) also found that this relationship is stronger for individuals who are highly proactive and have a high need for achievement. Al-Jubari et al. (2023) reported that market orientation has a significant and positive impact on entrepreneurial intention. Loi et al. (2023) found evidence of a positive relationship between these two variables.

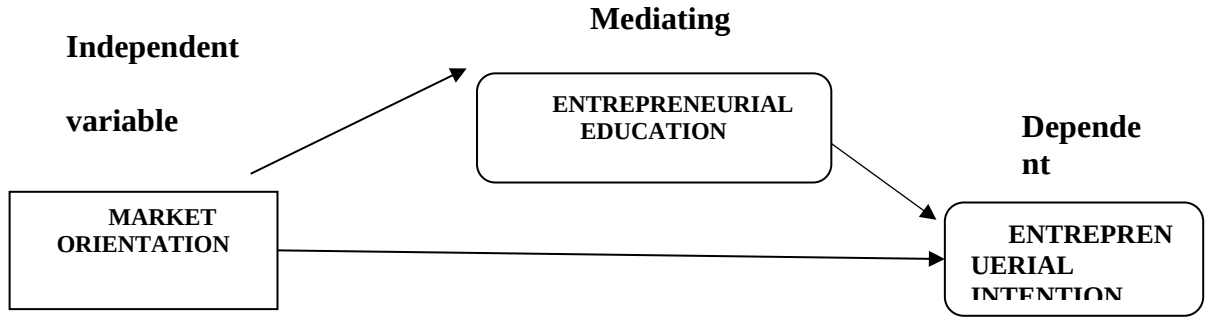
H_1: There is a significant relationship between market orientation and entrepreneurial intention.

2.3.2 Entrepreneurial Education as a Mediator on the Relationship Between Market Orientation and Entrepreneurial Intention

Presutti et al. (2023) found that market orientation and entrepreneurial orientation have a beneficial relationship. Do Nguyen and Nguyen (2023) reported that entrepreneurship education helps students become more entrepreneurial, and students' entrepreneurial capacity helps build and grow their intentions to start businesses. Anwar et al. (2022) found that entrepreneurial education and opportunity recognition have a direct impact on entrepreneurial intention, as well as an indirect one through the mediating role of self-efficacy. Otache et al. (2022) found that after exposure to entrepreneurship education, students' entrepreneurial orientation, motivation, and entrepreneurial ambitions increased significantly, as shown in a repeated-measures t-test.

H_2: Entrepreneurial education has a mediating effect on the relationship between market orientation and entrepreneurial intention.

2.4 CONCEPTUAL FRAMEWORK



3. Methodology

A research design is a framework developed in the planning stages to guide the research, including determining the research questions, selecting appropriate methods, and identifying suitable data collection and analysis techniques (Daniel et al., 2024). A five-point Likert scale structured questionnaire (with anchors: Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree) was used as the instrument for data collection. The study population and sample size were determined. The population of the study was 5,129, and the minimum required sample size was 357, as shown in the Krejcie and Morgan (1970) table for populations between 5,000 and 6,000. A sample is a subset of the population selected for examination and is made up of a portion of the population's items or people chosen to represent the population (Lohr, 2021). Krejcie and Morgan (1970) suggested that a population of 1–10 can be studied as a census, whereas populations above 10 should be sampled. For this study, the published table by Krejcie and Morgan (1970) was adopted based on the population size.

It is evident from the literature that the adequate response rate for questionnaire surveys in research is approximately 30% (Abu-Rumman, 2021). Consequently, researchers should make provisions for missing questionnaires and non-response. Story and Tait (2019) opined that in survey

research, 30% (about 107) can be added to the minimum sample size to take care of incomplete responses and ensure sufficient statistical power. Therefore, 30% was added to the initial sample, yielding 464 as the effective sample size to account for missing, non-response, or incomplete questionnaires. The sampling procedure used was cluster sampling. Cluster sampling is a technique widely used in research to ensure that the sample represents specific subgroups within the population. The survey questionnaire, which included statements or questions intended to gauge the main research constructs, served as the instrument for data collection. A research instrument is a device used to quantify observable social and natural phenomena (Fadele & Rocha, 2025). Primary data were used for the study, collected through the administration of the structured questionnaire to respondents in the study area. The Statistical Package for the Social Sciences (SPSS) software, version 25, was used to enter, clean, and prepare the data for analysis. SmartPLS 4 was further used to analyse the data.

4. Result and Discussion

4.1.1 Descriptive Statistics of Respondents

Gender, age, educational background, and faculty are displayed in Table 2. Out of the 425 participants, 351 (82.6%) were male and 74 (17.4%) were female. The largest proportion of respondents (162; 38%) were aged between 18 and 30. Of the respondents, 142 (32%) were between 31 and 40, while 122 (30%) were 41 and above. In terms of educational background, 264 (62%) participants held a Bachelor of Science (B.Sc.) degree, and 161 (38%) held a Higher National Diploma (HND). The largest proportion of respondents (221; 52%) were from the Faculty of Management Sciences, followed by Management Technology (71; 16.7%), School of Management Sciences (SMS; 69; 16.2%), and Others (64; 15.1%).

4.2 ASSESSMENT OF MEASUREMENT MODEL

The mediating role of entrepreneurial education on relationship between entrepreneurial orientation, market orientation, and social network on entrepreneurial intention was examined in this study using the SmartPLS4 software. In this study, the measurement model and the structural model were estimated using the software. The links between the constructs and their indicators are described by the measurement models, which are external models. (Hair Jr et al., 2020). Both formative and reflecting measurement techniques are possible, with social science research frequently use reflective measurement models. (Rose et al., 2023). The factor loadings, composite reliabilities, and average variances extracted (AVE) of the measurement items were tested using the measurement model shown in Table 4. in order to assess the validity and reliability of the items. The path coefficients, which show the direction and strength of the links between the latent variables in Table 4. were estimated using the structural model in order to test the associations between the latent variables.

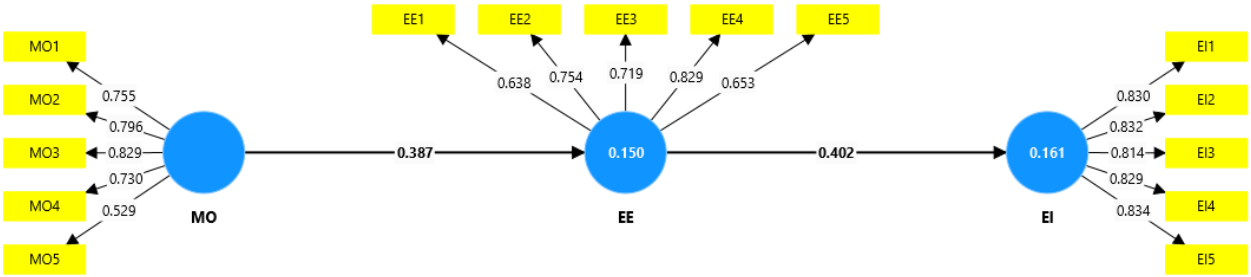


Figure 1: Measurement Model

For outer loading, a value greater than 0.50 is acceptable (Purwanto & Sudargini 2021). Consequently, factor loadings below 0.50 ought to be eliminated. Saeed et al. (2022) 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. In social science investigations, researchers usually find weaker outer loadings, particularly when using recently constructed measures (Russo & Stol 2021). Instead of automatically removing indicators when their outer loading is less than 0.70, researchers should carefully consider how item removal affects both the content validity of the construct and the composite reliability. In general, only when removing an indicator raises the composite reliability (or the average variance extracted; see the next section) above the recommended threshold value should indicators with outer loadings between 0.40 and 0.70 be considered for removal from scaling. To obtain dimensionality among the measurement items in the model, one item with a factor loading below 0.50 was eliminated from the study. The value of each individual Cronbach's Alpha coefficient in this study falls between 0.914 and 0.726, which is the acceptable range, in order to maintain internal consistency. (Hair et al., 2020). 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 (Hair et al., 2015).

Table 1 Convergent Validity of Measurement Model

Construct	Item	Loadings	CA	CR	AVE
Entrepreneurial Intention (EI)	EI1	0.819	0.885	0.889	0.685
	EI2	0.822			
	EI3	0.817			
	EI4	0.836			
	EI5	0.844			
Entrepreneurial Education (EE)	EE1	0.702	0.768	0.777	0.509
	EE2	0.692			
	EE3	0.657			
	EE4	0.794			
	EE5	0.716			
Market Orientation (MO)	MO1	0.693	0.782	0.786	0.535
	MO2	0.729			
	MO3	0.815			

	MO4	0.770
	MO5	0.636

Note: SN5 was deleted

4.2.1 Discriminant Validity (HTMT)

Discriminant validity is used to determine the average correlation of indicators across the model after convergent validity has been finished and verified (Rönkkö & Cho 2022). When the constructs inside the model are different from one another, discriminant validity is established (Rönkkö & Cho 2022). A powerful technique for determining discriminant validity is the Heterotrait-Monotrait Ratio (HTMT) criterion Rasoolimanesh (2022) stated that all the values above 0.90 show discriminant validity issues. In the same vein Cheung et al. (2024) claims that a result of 0.85 or below indicates that the data's discriminant validity is unproblematic. As a result, Table 6 demonstrates that each construct satisfies the discriminant validity condition by being empirically distinct from the others.

Table 2 Discriminant Validity (HTMT) Matrix

Constructs	EE	EI	MO
Entrepreneurial Education (EE)			
Entrepreneurial Intention (EI)	0.475		
Market Orientation (MO)	0.488	0.539	

Source: **Field Survey, 2024**

4.2.2 Coefficient of Determination (R^2)

The prediction ability of the model is assessed using the coefficient of determination (R2). The R2, also known as in-sample predictive power, is a number between 0 and 1, where larger values denote a stronger explanatory ability. (Hair and Sarstedt 2021). Considered substantial, moderate, and weak are R2 values of 0.75, 0.50, and 0.25, respectively. R2 values, however, must be evaluated in light of the model's complexity and context. The model overfits the data when the R2 values are excessive. (Naser et al., 2022). The result in Table 8 shows that Entrepreneurial intention (dependent variable) have an R^2 of 0.150. This simply implies that 3 independent variables (market orientation) had formed and explained the phenomenon of entrepreneurial intention 15% of variance explained capacity in the model.

Table 3 Coefficient of Determination (R^2)

Constructs	R-square	Adjusted R^2
Entrepreneurial Education (EE)	0.161	0.172
Entrepreneurial Intention (EI)	0.150	0.161

Source: **Field Survey, 2024**

Table 4 Effect Size (F^2)

Constructs	Entrepreneurial Intention (EI)	Effect Size
Entrepreneurial Education (EE)	0.360	Large
Market Orientation (MO)	0.061	Small

Source: **Field Survey, 2024**

Additionally, Liu andYuan (2021) suggests an effect size value (F^2) of 0.02, 0.15, and 0.35 as small, moderate, and large effect size respectively. Any predicting construct, with an effect size (F^2) value lower than 0.060, is considered to not have affected the related endogenous construct in the model. The result on Table 10 shows the level of effect size (F^2) for all the direct relationships among the constructs in the model. It shows that (EE) with an effect size value of ($F^2 = 0.360$), has large effect size on Entrepreneurial intention and (MO) has ($F^2 = 0.061$) effect on entrepreneurial intention. According to two-tailed tests, 1.65 was previously thought to be significant at the 10% level, while 1.96 and 2.57 were also deemed significant at the 5% and 1% significance levels, respectively (Ojoajogu et al., 2023). Likewise, the crucial values of 1.96 for the two-tailed test are significant at 5%, and 1.65 and 2.57 are significant at 10% and 1% significance levels, respectively (Datti & Inuwa 2023). As a result, every relationship this study hypothesizes is directional. Thus, the path coefficient's t-values and the significant effect were evaluated using the two-tailed test. Therefore, the hypotheses are accepted because the path with values 1.96 and higher was significant at the 5% significance level. With t-values less than 1.96, the hypotheses are disproved for the route coefficient. As a result, the table below shows the outcome of the direct relationships hypothesis.

Table 5 Significance Effects of Direct (Path Coefficient)

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
MO -> EI	0.387	0.214	0..056	8.859	0.044	Supported
MO -> EE -> EI	0.402	0.011	0.012	10.828	0.037	Supported

Source: Extracted from Smart PLS 4 outputs, 2024

4.2.3 Market orientation and entrepreneurial intention

According to the third hypothesis (H_3), "market orientation and entrepreneurial intention have a significant relationship." Table 11 normalized regression weight results indicated a strong and positive correlation between MO and EI ($\beta = 0.387$, $t = 8.859$, $p = 0.044$). Stated otherwise, with a p-value of 0.024, the regression weight for MO in the prediction of EI is substantially different from zero. It is clear from the findings that MO and EI are positively correlated. Thus, the hypothesis (H_3): that states there is positive relationship between relationship between market orientation and entrepreneurial intention is hereby **supported.**

4.2.4 Entrepreneurial education has a mediating effect on the relationship between market orientation and entrepreneurial intention

The sixth objectives of the study state the mediating role of entrepreneurial education on the relationship between market orientation and entrepreneurial intention among some tertiary institutions in Bauchi state. The sixth hypothesis of this study stated (H_6) that entrepreneurial education has a mediating role on relationship between market orientation and entrepreneurial intention. It was assumed that entrepreneurial education mediates the relationship between market orientation and entrepreneurial intention, but the results ($\beta = 0.402$, $t = 10.828$, $p = 0.037$) supports this hypothesis. Therefore, it is supported that the relationship between market orientation

and entrepreneurial intention is mediated by entrepreneurial education.

4.3 Importance-Performance Map Analysis Matrix (Ipma).

The importance-performance map analysis (IPMA) was used to more accurately describe the study's findings. Constructs with low performance and high importance is the goal of IPMA analysis (Haverila et al., 2023). The IPMA results show that the construct performed as follows: entrepreneurial education (EE) (79.2) market orientation (MO) (77.3). In contrast to the importance results, which showed that entrepreneurial education (EE) (0.07) and market orientation (MO) (0.22).

Table 6 IPMA Results

Constructs	IMPORTANCE	PERFORMANCE
Entrepreneurial Education (EE)	0.075	79.2
Market Orientation (MO)	0.220	77.3

Figure 3: Importance Performance Map Analysis

Discussion of findings

This study's main goal was to investigate the mediating role of entrepreneurial education on relationship between entrepreneurial orientation, social networks and market orientation on entrepreneurial intention among students of some tertiary institutions in Bauchi State. With the help of data analysis, the study discovered a number of findings.

H_1: There is significant relationship between market orientation and entrepreneurial intention.

Abdul-Talib et al., (2023). According to their findings, entrepreneurial intention is positively and significantly impacted by market orientation. A study by Al-Jubari et al., (2023), market orientation significantly and favorably influences entrepreneurial intention. Both intrinsic motivation and the perceived value of social support act as mediators in this relationship. Loi et al., (2023). Their results confirm that these two variables have a beneficial relationship. Therefore, the hypothesis (H_3) that asserts a significant relationship between market orientation and entrepreneurial intention is hereby supported.

H_2: Entrepreneurial Education has a mediating effect on the relationship between Market Orientation (MO) and entrepreneurial intention

(H_2) Entrepreneurial Education (EE) x market orientation (MO)-> Entrepreneurial intention (EI): presumed that, Entrepreneurial Education mediating the relationship between market orientation and Entrepreneurial intention (EI).

But the results (β = 0.011, t = 2.828, p = 0.003) also suggests that there is a mediating and positive relationship between *Market Orientation (MO)* and Entrepreneurial intention (EP). Presutti et al, (2023) We discovered that market orientation and entrepreneurial orientation had a beneficial relationship. Do Nguyen and Nguyen (2023) Our results demonstrate that students' entrepreneurial inclinations are positively impacted by entrepreneurship education. Anwar et al. (2022) The analysis's findings showed that entrepreneurial education and opportunity recognition had a direct impact on entrepreneurial intention as well as an indirect one through the mediating role of self-efficacy. Therefore, the hypothesis (H_2) asserts that entrepreneurial education has a positive mediation influence on the relationship between market orientation and entrepreneurial intention is hereby supported based on the study's findings.

5. Conclusion and Recommendation

This study demonstrated a causal association between entrepreneurial intention and entrepreneurial orientation, social networks, and market orientation. The results show that higher levels of entrepreneurial orientation, social networks, and market orientation are associated with increased entrepreneurial intention among students. Moreover, entrepreneurial education plays a mediating role, strengthening the transmission of market orientation into entrepreneurial intention.

Recommendations

1. The study suggests that in order to sustain entrepreneurial education, Bauchi State's tertiary institutions should make an effort to incorporate and preserve pertinent entrepreneurial knowledge and abilities that will stimulate and propel entrepreneurial intention.
2. Bauchi State's tertiary institutions ought to create forums where students may communicate with administrators and receive guidance on how to enhance and plan their education in order to accomplish their desired outcomes.

Suggestions for further studies

Future research might employ entrepreneurial education as a moderator rather than a mediator, as was done in this study, and take into account factors other than entrepreneurial orientation, social network and market orientation.

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