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The Role of University-based Business Incubation and Innovation Hubs in Accelerating Student Entrepreneurial Learning

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ABSTRACT

This research investigates the role of university business incubation and innovation hubs in student entrepreneurial learning. Universities worldwide have increasingly established incubation centres and innovation hubs to foster student entrepreneurship. However, despite these initiatives, their effectiveness in facilitating entrepreneurial learning remains largely unexplored. The objective of this study is to bridge this gap by examining the impact of university incubation and innovation hubs on the development of student entrepreneurs. The study used a case-study research approach, and gather comprehensive data from students of Bayero University, Kano, who have undergone the incubation program within the university. The data was collected through a closed-ended questionnaire on students' experiences with university-based entrepreneurship support programs, including seminar, business ideas competition, hackathon, business plan competition, coaching/mentorships, and study tour/industry. 210 students who participated in the incubation and innovation was the population of the study and 53 were randomly selected. Analysis techniques such as descriptive statistics, correlation and regression analysis are conducted, and the result indicated significant effect of the programs of the university innovation and incubation hubs on students venture start-up, except for seminar. About 30 students' businesses were registered to fruition in 2022-2023 and millions of naira were won as grants by students from different donors. Furthermore, the study identifies key challenges encountered by students in leveraging these initiatives and propose strategies for enhancing their effectiveness. The results provide valuable insights for university administrators, policymakers, and educators seeking to optimize entrepreneurship education programs within their institutions.

1. INTRODUCTION

In the rapidly evolving global economy, fostering an entrepreneurial mindset and equipping students with practical skills is essential for sustaining economic growth and innovation. As traditional job markets become increasingly competitive and uncertain, entrepreneurship provides a viable path for individuals to create their own opportunities and drive societal advancement. Recognizing this paradigm shift, educational institutions, particularly Universities globally have embraced the concept of integrating entrepreneurship into their curricula and support systems.

Universities play a pivotal role in the entrepreneurial transformation of societies by establishing business incubation centres and innovation hubs (Bodolica & Spraggon, 2021; Guerrero, Urbano & Gajón, 2017; Youtie, & Shapira, 2008). These facilities are designed to nurture the entrepreneurial spirit among students by providing them with the necessary resources, mentorship, and practical experiences. The aim is to bridge the gap between academic knowledge and real-world business acumen, thus preparing students to navigate and thrive in the entrepreneurial landscape.

Many business incubation and innovation hubs have been established in many developed economies. In recent years, African countries have followed suit to have embraced the development of incubation and innovation hubs, especially in Nigeria, which has helped to facilitate the acceptability and belief in business, as a lot of startups and small businesses are undergoing incubation in the country (Akanle, Ademuson & Omotayo, 2019).

Based on Disrupt Africa's research and analysis, it is estimated that Nigeria hosts around 300 hubs and co-working spaces (Nigerian Startup-Ecosystem, 2022). These are predominantly concentrated in Lagos, with a smaller but significant presence in Abuja, and are also found in various other towns and

cities across the country, mirroring the distribution of startups. A large number of leading Nigerian universities run entrepreneurship-focused courses, and incorporate some form of centre for entrepreneurship or centre for innovation ((Nigerian Startup-Ecosystem, 2022).

Business incubation centres typically offer a range of services, including office space, access to funding, business mentoring, and networking opportunities (Aithal & Aithal, 2023). These resources are critical in the early stages of a startup, where access to capital and expert advice can make the difference between success and failure. Innovation hubs, on the other hand, focus on fostering creativity and collaboration (Aithal & Aithal, 2023), providing a platform for students to work on innovative projects, participate in hackathons, and engage in interdisciplinary research.

Despite the increasing popularity and perceived benefits of these university-led initiatives and some times private sector led, like in the case of Bayero University, Kano, one of the innovation hubs is led by Opolo Global Innovation hub for a two-year term. There is a significant gap in empirical research examining their actual impact on student entrepreneurial learning. This study aims to address this gap by focusing on Bayero University, Kano, a leading institution in northern Nigeria that has implemented various entrepreneurship support programs.

The University has established its own incubation program to cultivate entrepreneurial talent among its students. This program includes activities such as seminars, business idea competitions, business plan competitions, coaching and mentorship sessions, and study tours to industry sites. The comprehensive nature of these activities is designed to provide students with a well-rounded entrepreneurial education, combining theoretical learning with hands-on experience.

The primary objective of this research is to explore the effectiveness of Bayero University's incubation program in facilitating student entrepreneurial learning and development. Specifically, the study seeks to assess how these programs influence students' entrepreneurial skills, identify the key components that contribute to their development, and uncover the challenges students face in leveraging these initiatives. By doing so, the research aims to provide valuable insights that can help optimize entrepreneurship education programs not only at Bayero University level but also at other institutions with similar initiatives in Nigeria.

In their position Dalmarco, Hulsink, and Blois (2018) maintained that the global economy continues to evolve, the role of universities in promoting entrepreneurship has never been more critical. This research will contribute to a deeper understanding of how university business incubation centres and innovation hubs can effectively support the entrepreneurial aspirations of students, ultimately fostering a new generation of innovators and business leaders.

Problem Statement

The rapid proliferation of university-based business incubation centres and innovation hubs underscores a global trend towards fostering student entrepreneurship. These initiatives are designed to provide students with the necessary resources, mentorship, and networks to develop and launch successful business ventures. Universities worldwide, have increasingly adopted these support mechanisms to cultivate entrepreneurial skills among their students (Dalmarco et al., 2018; Aithal & Aithal, 2023), having understood the critical role entrepreneurship plays in driving economic growth and innovation in societies.

Despite the widespread implementation of these incubation centres and innovation hubs, there is a notable lack of comprehensive studies evaluating their effectiveness. While anecdotal evidence and isolated case studies suggest that these initiatives can be beneficial, there is insufficient empirical data to confirm their overall impact on student entrepreneurial learning and venture start-up success rates. The effectiveness of these programs in different cultural and educational contexts, particularly in developing countries, remains underexplored.

While it is presumed that incubation centres enhance entrepreneurial skills, there is scanty data on specific learning outcomes and how these skills translate into practical business success. A study conducted by Lewis et al. (2011) found that students participation helps them to acquire skills in business planning development. Similarly, Schwartz (2013) found that university incubators have high

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business viability success rates. However, Massey, Quintas and Wield (2003) are of the view that such positive influences of incubation and innovation hubs are over blurted because a lot of external environmental factors contributes to that success.

Much of the existing research is focused on incubation centres in Western World and American contexts. For example, Bergek and Norrman (2008) conducted their research in Sweden, there is a need for more studies in diverse geographic and cultural settings, such as Africa, to understand the unique challenges and opportunities in these regions, particularly Nigeria. Some of the few ones conducted in Nigeria, for example Akanle, Ademuson and Omotayo (2019) focused on the effect of the private business incubation hub on job creation and sustainable development in Nigeria. Therefore, this study aims to fill this gap by evaluating the impact of university-based incubation centres and innovation hubs at Bayero University, Kano. The University has established incubation programs at various centres such as Centre for Dryland Agriculture (CDA), Opolo Global Innovation-Bank of Industry (BOI), and African Centre of Excellence for Population Health (ACEPHAP) designed to support student entrepreneurs. These programs include various support mechanisms such as Booth camps, seminars, business idea competitions, business plan competitions, coaching/mentorship, and industry tours. However, there is a lack of comprehensive data on their effectiveness.

It is against this backdrop that this study explores the effectiveness of Bayero University's incubation program in facilitating student entrepreneurial learning and development. Specifically, the study seeks to assess how seminar and workshop, business idea and plan competition, mentorship and coaching, and industrial tour influence entrepreneurial learning among students in Bayero University, Kano.

Research Objectives

The primary objectives of this study are:

1. To assess the effectiveness of university incubation centres and innovation hubs in enhancing entrepreneurial learning among students.
2. To determine the key elements of the incubation program that mostly and in what ways affects the entrepreneurial skills and knowledge of the students.
3. To identify the key challenges students, face in leveraging these initiatives and suggest strategies to enhance the effectiveness of these programs.
4. To offer evidence-based recommendations for university administrators and policymakers on how to optimize entrepreneurship education programs and support mechanisms.

Significance of the Study

This study addresses a critical gap in the existing literature by providing a comprehensive evaluation of university-based incubation centres and innovation hubs at Bayero University, Kano. It aims to enhance our understanding of how these programs influence student entrepreneurial learning and venture success, offering valuable insights for educators, policymakers, and future researchers. The study provides empirical evidence on the effectiveness of university-based incubation centres in a non-Western context, contributing to the global discourse on entrepreneurship education. The findings will inform policy decisions at Bayero University and potentially other institutions in similar contexts, helping to improve the design and implementation of incubation programs.

University-based incubation centres and innovation hubs have been established globally as pivotal tools for fostering entrepreneurship among students. These initiatives aim to provide essential resources, mentorship, and networks to transform students' innovative ideas into viable business ventures. This literature review examines existing research on the impacts of business incubation centres and innovation hubs, highlighting their roles, benefits, and challenges in fostering student entrepreneurship.

The Role of Business Incubation Centres and Innovation Hubs

Business incubation centres and innovation hubs are designed to support early-stage enterprises by providing resources such as office space, funding, mentoring, and access to a network of business contacts (Mian, 2014). These centres, according to Hackett and Dilts (2004), are aimed at reducing the

risk of business failure by offering a structured environment where students and startups can grow. Incubation centres provide critical resources that students and startups typically lack. These include financial resources, administrative support, and business services (Peters et al., 2004). For example, Universities often provide access to research facilities, work space and technical expertise that can be pivotal for tech-based startups. Every other kind of start-ups could also leverage on the incubation facility

Mentorship and couching are key component of incubation programs, offering guidance from experienced entrepreneurs and business professionals. These mentors help students and start-ups navigate the complexities of starting and growing a business, from developing a business plan to scaling operations (Ratinho et al., 2012). Other components of the incubation and innovation hubs include seminar and workshop, idea and business competition, hackathon and industrial tour among others. Innovation hubs also, facilitate networking by connecting startups with potential investors, partners, and customers. This can lead to valuable business relationships and opportunities for collaboration (McAdam & Marlow, 2007).

Benefits of University-Based Incubation and Innovation Hubs

Previous studies have highlighted the impacts of university-based incubation centres and innovation hubs on student entrepreneurship. In their views, Pauwels et al. (2016) maintains that students' participation in incubation programs has been shown to enhance their entrepreneurial skills, such as business planning, financial management, and marketing. Similarly, Lewis et al. (2011) found that students participation pivots their skills in business planning development. These skills are critical for the success of any startup. As these programs often provide workshops, training sessions, and hands-on experiences that are crucial for developing entrepreneurial competencies (Roberts & Eesley, 2011).

According to Aernoudt (2004), startups that develop through incubation programs tend to have higher survival rates compared to those that do not receive such support. This can be attributed to the comprehensive support system that incubation centres provide. According to Amezcua et al. (2013), firms that received incubation support showed better performance in terms of survival rates and growth compared to those that did not. The structured environment and comprehensive support system provided by incubators reduce the risks associated with starting a new business. Successful student startups contribute to the local and national economy by creating jobs and fostering innovation. According to Clarysse et al. (2011), these successful student start-ups also serve as a testament to the effectiveness of University-based entrepreneurial support.

University incubation centres also contribute significantly to the local and national economy. Studies such as those by Grimaldi and Grandi (2005) and Mian (1996) have shown that incubated startups create jobs, foster innovation, and stimulate economic growth. These startups often serve as a testament to the effectiveness of university-based entrepreneurial support.

Challenges of Incubation

Many university's incubation centres face significant resource constraints, limiting their ability to provide comprehensive support to students. Mian (1997) highlighted that inadequate funding, limited physical space, and a shortage of high-quality mentors are common challenges that can hinder the effectiveness of these programs.

The diverse needs of startups present another challenge. Bergek and Norrman (2008) posited that different industries and stages of business development require specific resources and expertise that may not be uniformly available in all incubation centres. This can lead to varying levels of support and success among incubated firms, which might not be readily available.

Another fundamental challenge Measuring the success of incubation programs is complex. Success metrics can vary widely, from the number of startups created to their long-term economic impact. According to Hackett and Dilts (2004), the variability makes it difficult to assess the true effectiveness of these programs.

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Empirical Review

Studies have documented several positive outcomes associated with incubation programs. For example, Schwartz (2013) found that participation in university incubators led to increased business viability and success rates. Similarly, Ratinho and Henriques (2010) reported that incubated startups experienced faster growth and higher survival rates. Another study by Akanle et al. (2019) in South-western Nigeria investigated effect of private business incubation on job creation and sustainable development, the result revealed that incubation has significant effect on job creation and community development. Also, Adegbiji (2021) found that technology incubation hubs in Lagos helped in job creation and entrepreneurship development in the state.

Some researchers argue that the benefits of incubation programs are often overstated. Massey et al. (2003) pointed out that the success of these programs heavily depends on external factors such as the local economic environment and availability of funding. These external dependencies can skew the perceived effectiveness of incubation centres.

Many studies focus on specific cases, which limits the generalizability of their findings. For instance, Bergek and Norrman (2008) conducted a detailed analysis of Swedish incubation programs, finding that while some programs were highly effective, others struggled due to resource limitations and management issues.

The existing literature highlights that university-based incubation centres and innovation hubs play a crucial role in fostering student entrepreneurship by providing essential resources, mentorship, and networking opportunities. However, the effectiveness of these programs can vary widely depending on several factors, including resource availability, management quality, and external economic conditions. There is a clear need for comprehensive studies to evaluate these initiatives' effectiveness systematically. This study aims to address this gap by providing a detailed evaluation of the impact of these programs at Bayero University, Kano.

Theoretical Framework

The study is grounded in the Theory of Planned Behaviour (Ajzen, 1991), which posits that entrepreneurial skills and intentions are influenced by attitudes towards entrepreneurship, perceived behavioural control, and subjective norms. The presence of incubation centres and innovation hubs can positively influence these factors by providing the necessary support and environment for entrepreneurial activities.

Conceptual Framework

The conceptual framework of this study links university incubation and innovation hubs to student entrepreneurial outcomes through various support mechanisms such as seminars, business plan competitions, coaching/mentorships, and study tours/industry visits.

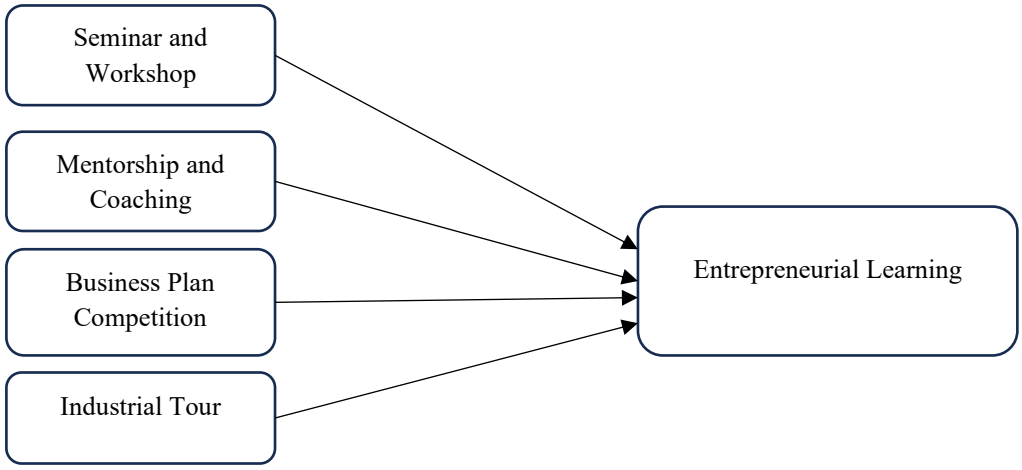

Fig 1: Study Conceptual Framework

Hypothesis:

H1: Seminars influence Entrepreneurial Learning
H2: Business Plan Competitions influence Entrepreneurial Learning
H3: Mentorships influence Entrepreneurial Learning
H4: Industrial Tour influence Entrepreneurial Learning
H5: Seminars, Business Plan Competition, Mentorships, and Industrial Tour simultaneously influence Entrepreneurial Learning

2. METHOD

The study employs a case-study research approach, focusing on Bayero University, Kano. This approach allows for an in-depth exploration of the university's entrepreneurship support programs and their impact on student entrepreneurial learning. The case-study method is particularly suited for this research as it provides a detailed contextual analysis of a specific institution, enabling a comprehensive understanding of the programs' effectiveness (Cooper and Scindler, 2013). 210 students who participated in the incubation and innovation was the population of the study and 53 were randomly selected (Krejci and Morgan, 1979).

Data was collected using a closed-ended questionnaire distributed to students who participated in the university's incubation program. The questionnaire was designed to assess various aspects of the students' experiences with university-based entrepreneurship support programs (Artino et al., 2014). These programs included seminars and workshops, business plan competitions, industrial tours, and mentorship and coaching sessions. Data analysis was conducted using the Statistical Package for Social Science (SPSS), with techniques such as correlation, and regression analysis was used to interpret the results.

3. RESULTS AND DISCUSSION

The analysis revealed a significant positive effect of the university's entrepreneurial support programs on student venture start-ups. Descriptive statistics indicated that 30 student businesses were successfully registered in 2022-2023, and students won grants in millions of naira from different donors. Correlation and regression analyses showed strong relationships between participation in specific program components and the likelihood of business registration and success.

Correlation Among Study Variables

To elucidate the relationship between the variables in the study, a correlation analysis was performed utilizing Spearman's rank correlation model. This model was employed to examine the correlation coefficients among the variables, determining the strength and direction of their relationships. Additionally, it was used to assess multicollinearity before proceeding to test the study's hypotheses. Multicollinearity, which can increase the variance of regression coefficients, poses a threat to the validity of the regression equation (Bambale, 2014).

Table 1: Correlations Among Variables

Model	ETL	SAW	BPC	IDT	MAC
ETL	1.000				
SAW	.365	1.000			
BPC	.505	.056	1.000		
IDT	.025	.285	.210	1.000	
MAC	.245	.306	.377	.107	1.000

The Spearman's correlation analysis was conducted to examine the relationships between the dependent variables. According to Cooper and Schindler (2003) and Allison (1999), there is no definitive criterion for the acceptable level of correlation that constitutes a multicollinearity problem. However, correlations of 0.80 or higher are considered problematic, even though a maximum of 0.75 is often accepted as a rule of thumb.

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The highest correlation among the independent variables was between MAC and BPC, significant at the 0.01 level ($r = .377$, $p<0.01$). On the other hand, the lowest correlation was between BPC and SAW, also significant at the 0.01 level ($r = .056$, $p<0.01$), indicating a weaker relationship. All correlations between the dependent variable (ETL) and the independent variables were positive and significant at the 0.01 level as indicated in Table 3 above.

ETL and SAW ($r = 0.365$, $p<0.01$), ETL and BPC ($r = 0.505$, $p<0.01$)

ETL and IDT ($r = 0.025$, $p<0.01$), ETL and Mac ($r = 0.245$, $p<0.01$)

The correlation matrix shows that independent variables are positively correlated with the dependent variable, which does not support the null hypothesis of no relationship. However, while correlation indicates a relationship, it does not imply causation. Consequently, to explain cause and effect relationships among the variables, a multivariate statistical analysis is required. Thus, the current study explores multiple regression techniques because of their ability to predict compounding effects and test the formulated hypotheses effectively.

Results of Multiple Regression Analysis

The outcomes of the regression analysis usually gave answers to the research objectives and hypotheses of a study. The standardized Beta coefficient value is used to indicate the predictive power of an independent variable on the dependent variable, hence the higher the Beta is the stronger the prediction power.

Table 2: Regression Coefficients of the Study Model

Model	B	Std.Error	Beta	t	Sig.	Tolerance	VIF
ETL (Constant)	.840	.259		3.249	.001		1.520
SAW	.101	.063	.104	1.608	.110	.761	1.381
BPC	.151	.056	.177	2.666	.008	.716	1.315
IDT	.205	.054	.265	3.825	.000	.658	1.397
MAC	.293	.050	.384	5.812	.000	.724	1.520

This section presents the results as presented in Table 4 of the testing relationship between Entrepreneurial Learning (ETL) as the dependent variable and the independent variables—Seminar and workshop, Business Plan Competition (BPC), Industrial Tower (IDT) and Mentorship and couching (MAC). Multiple regression analysis was conducted to establish the actual effect of the independent variables on the dependent variable. The significance levels of $p<.05$ and $p<.01$ were adopted for this study (Cooper & Schindler, 2003; Hair et al., 2010).

The key findings of the analysis indicates that MAC emerged as the strongest predictor with a standardized Beta coefficient value of $\beta = 0.384$, $t = 5.812$, and $p = 0.000$. This indicates that MAC significantly explains 38.4% of the variation in the dependent variable when other independent variables are held constant. IDT is the second strongest predictor with a Beta value of $\beta = 0.265$, $t = 3.825$, and $p = 0.000$, significantly explaining 26.5% of the causal relationship with ETL as the dependent variable.

The third ranked variable in terms of effect is BPC having $\beta = 0.177$, $t = 2.666$, and $p = 0.008$. coefficient value, which represent 17.7% significant cause of variation in ETL. Similarly, SAW has the lowest predictive power among the independent variables with a Beta value of $\beta = 0.104$, $t = 1.608$, and $p = 0.110$, indicating that the variable is insignificant in explaining 10.4% of the variation in the dependent variable.

Furthermore, the variance inflation factor (VIF) and tolerance statistics are two additional methods that can be used is assessing collinearity/multicollinearity. It is a generally believed that any VIF that exceeded 10 and a tolerance value that is below 0.10 are indications of a potential problem of multicollinearity (Hair et al., 2010). Consequently, in this study there is no issue of multicollinearity, as all the thresholds were within targeted parameters.

The overall model performance is indicated in the multiple regression analysis results, which shows that the independent variables collectively explain 50.6% of the variance in the dependent

variable (R^2 = 0.506) as indicated in Table 3, which is considered adequate to predict variation in Entrepreneurial Learning.

Table 3. Correlation Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.711[a]	.506	.493	.36568	.506	39.944	4	56	.000	1.773

The results of multiple correlation (R), squared multiple correlation (R^2) and adjusted squared multiple correlation (R^2adj) shows how well the combination of independent variables predicts the dependent variable. This study's R^2 of 0.506 in Table 3 above indicates that the variability in Entrepreneurial Learning (ETL) being the dependent variable was up to 50.6%. This means that the independent variables are good predictors of ETL. The 1.722 Durbin Watson has fallen within the acceptable range of 1.5 – 2.5 as recommended by Norusis (1999).

Discussion of Research Findings

The regression analysis provided insightful results regarding the relationship between Entrepreneurial Learning (ETL) and the independent variables: Seminar and Workshop (SAW), Business Plan Competition (BPC), Industrial Tower (IDT), and Mentorship and Coaching (MAC). The findings revealed varying degrees of influence that these independent variables have on ETL. What this means is that there is need to have such hubs in higher institutions of learning to complement with the already compulsory two entrepreneurship courses in the Nigerian Universities' curriculum. As it provides additional skills for students to use when they get to the real business world.

The substantial impact of MAC highlights the crucial role of personalized guidance and mentorship in entrepreneurial education. It underscores the effectiveness of one-on-one coaching and tailored mentorship programs in enhancing entrepreneurial learning among students. These findings align with previous research indicating the positive impact of mentorship on entrepreneurial outcomes (St-Jean & Audet, 2012). The degree of impact of engaging potential students entrepreneurs with mentors who will continue to guide, advice and counsel students on the intricacies of business is high. Mentors who are mostly professional in their respective endeavours always have a lot of experience to share with the students. Some of them are business practitioners whom have exhale in their business world could provide students with case studies in their chosen businesses.

The significance of IDT suggests that industrial tower programs is contributing to entrepreneurial learning, emphasizes the value of interactive learning environments. It implies that industrial exposure is valuable, as it provides students with practical knowledge, networking opportunities, and exposure to real-world entrepreneurial challenges. It allows students to see the reality of what they been thought in class and asks questions, gets immediate feedbacks from real practitioners, which enhances learning and inspiration. This finding aligns with the notion that diverse and integrated learning experiences are more effective in entrepreneurship education (Fayolle & Gailly, 2008).

The positive influence of BPC highlights the importance of competitive platforms in fostering entrepreneurial spirit. Business plan competitions encourage students to apply their theoretical knowledge, develop viable business ideas, and receive critical feedback from experts. Previous studies have shown that participation in business plan competitions can significantly enhance entrepreneurial competencies (Russell, Atchison, & Brooks, 2008).

The relatively low and insignificant effect of SAW may not be as effective in isolation for promoting entrepreneurial learning. Seminars and workshops may need to be integrated with other entrepreneurial education activities to enhance its impact. This result is consistent with literature suggesting that experiential learning methods enhance entrepreneurial skills (Kolb, 2014). Unlike the normal class room lectures, seminars/workshop should advance to knowledge sharing, so that students

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are allowed to present their ideas and share experiences with one another. It may give room for teamwork, networking and collaboration among students to harness the best idea anyone a student develops.

Recommendations for Future Research and Policy

a. Future research should conduct longitudinal studies to assess the long-term impact of business incubation and innovation hub's programs on students' venture creation as career outcomes. This would provide deeper insights into the effectiveness of these initiatives over time.
b. Comparative studies across different universities and regions would help identify best practices and contextual differences in business incubation and innovation hubs and entrepreneurial education in general. Such studies can inform tailored strategies for different educational settings.
c. Policymakers should develop policies that support the integration of business incubation and innovation hubs activities in higher education curricula. This includes funding for mentorship programs, resources to support business plan competitions in universities, and partnerships with industry.
d. Future research should explore the impact of business incubation and innovation hub's programs on diverse student populations. Understanding how these programs affect students from different backgrounds can help in designing inclusive and equitable educational strategies.

CONCLUSION

University business incubation centres and innovation hubs significantly contribute to student entrepreneurial learning and venture start-ups. The findings from the regression analysis provide significant insights into the relationship between Entrepreneurial Learning (ETL) and the independent variables: Seminar and Workshop (SAW), Business Plan Competition (BPC), Industrial Tower (IDT), and Mentorship and Coaching (MAC). The study highlights the varying degrees of influence these variables have on ETL by identifying effective program components and addressing existing challenges, universities can enhance the support provided to student entrepreneurs, fostering a more entrepreneurial generation. The study's findings have several implications for university administrators, policymakers, and educators aiming to enhance entrepreneurial learning among students. Therefore, implementing the recommendations made by the research by universities and policymakers can enhance the effectiveness of entrepreneurial education, fostering a new generation of successful entrepreneurs in the Nigerian society. Invariably, reducing the rate of unemployment in the country and its related challenges of crimes and other social vices in the society. The study's findings have several important implications for university administrators, policymakers, and educators aiming to enhance entrepreneurial learning among students.

Given the strong impact of mentorship and coaching, universities should prioritize and invest in robust mentorship programs. This includes training mentors, providing resources for mentorship activities, and facilitating regular mentor-mentee interactions. Consequently, the University should develop a structured mentorship programs with clear objectives, regular feedback mechanisms, and incentives for mentors.

The significant role of industrial tower programs suggests that interactive and experiential learning environments are crucial. Universities should incorporate more practical sessions during industrial visits and internships, and real-world problem-solving activities in their curricula. Key action required here is to increase the number of industrial towers and hands-on projects in entrepreneurial courses. Partnership with industry experts to conduct sessions during such visits could go along way to buttress every effort in the right direction.

Business plan competitions are effective in fostering entrepreneurial skills. Universities should organize and encourage student participation in such competitions. Hence, it is advisable for be holding university-wide business plan competitions regularly and provide platforms for students to showcase their ideas. Offer mentorship and resources to help students prepare for these pitch deck competitions.

The low impact of seminars and workshops suggests a need for better integration with other entrepreneurial activities. Universities should design programs that combine seminars and workshops,

industrial exposure, with mentorship, and competitions. The university could develop comprehensive programs that link seminars and workshop with classroom learning and mentorship opportunities.

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