EVALUATING THE EFFECTIVENESS OF INNOVATION HUBS IN ENHANCING INCLUSION AND ECONOMIC PRODUCTIVITY IN TERTIARY EDUCATION IN THE SOUTH-SOUTH GEOPOLITICAL ZONE OF NIGERIA

Elenwo, Pritta Menyechi Ph.D.
Email: prittam@yahoo.com
Department of Educational Management, Faculty of Education,
Rivers State University, Port Harcourt

&

Ebom-Jebose, Abigail (PhD)
Email: abigall.ebom-jebose@ust.edu.ng
Institute of Education, Rivers State University, Port Harcourt

Abstract

This study evaluates the effectiveness of innovation hubs in promoting inclusive participation and economic productivity in tertiary institutions within Nigeria's South-South geopolitical zone. Amid rising graduate unemployment and limited digital engagement, innovation hubs are emerging as strategic platforms for skill development, entrepreneurship, and institutional reform. The study adopts a descriptive survey design. With the use of multi-stage sampling technique, 400 respondents made up of academic staff, innovation hub coordinators, final-year students, and entrepreneurship development officers across selected tertiary institutions across the six states in the South-South geopolitical zone of Nigeria was sampled for the study. Data were collected using a validated questionnaire and analyzed using descriptive and inferential statistics. Findings reveal significant variation in hub functionality and accessibility, with some institutions demonstrating improved graduate outcomes and startup creation. However, inclusion remains uneven, especially for marginalized groups. Key challenges include infrastructural deficits, limited partnerships, and administrative inefficiencies. Anchored on the Diffusion of Innovation Theory and the Capability Approach, the study recommends increased funding, institutional integration of hub activities, and equity-focused policies to maximize the potential of innovation hubs in driving sustainable development in tertiary education.

Keywords: Evaluating, Innovation Hubs, Inclusion, Economic Productivity, South-South Geopolitical Zone

Introduction

In the evolving landscape of global education and development, innovation hubs have emerged as critical enablers of inclusive growth, technological advancement, and economic productivity. These hubs characterized by collaborative spaces that foster entrepreneurship, creativity, digital skills acquisition, and research-driven innovation have gained traction in tertiary education systems, particularly within developing regions such as Nigeria. In the South-South geopolitical zone of Nigeria, which comprises Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers States, innovation hubs are increasingly being integrated into the higher education framework as a strategy to bridge gaps in skills development, enhance employability, promote inclusive participation in the digital economy, and stimulate regional economic growth (Ogbogu, 2021).

Tertiary institutions in the South-South zone, often situated in oil-rich but infrastructurally challenged areas, face significant pressure to produce graduates who are not only academically sound but also economically productive and socially responsive. Traditional pedagogical approaches and outdated curricula have contributed to graduate unemployment, skill mismatches, and economic stagnation (Okolie, Nwajiuba, Binuomote, & Odetunde 2020). In response, Ololube and Egbezor (2022) stated that innovation hubs comprising tech incubators, entrepreneurship canters, makerspaces, and collaborative labs have been introduced in some universities and polytechnics to drive experiential learning, digital inclusion, startup incubation, and capacity development (. These hubs serve as platforms for ideation, experimentation, and practical problem-solving, engaging students, researchers, and community members alike.

According to Akpan & Essien (2023) inclusion in this context refers to the active participation of diverse groups especially women, people with disabilities, and socioeconomically marginalized individuals in innovation-driven educational and economic activities. The establishment of innovation hubs provides opportunities to reduce systemic barriers by offering flexible training models, mentorship, and access to digital tools and funding opportunities, which traditionally excluded populations can harness to become economically active and socially empowered (UNESCO, 2021). Moreover, these hubs often emphasize collaboration with industry, civil society, and government, thereby aligning academic outputs with the broader development needs of the region (Nweke & Uduji, 2019).

Economic productivity, a core outcome of effective innovation ecosystems, is measured through various indicators such as graduate employment rates, startup creation, innovation-led research outputs, and commercialization of ideas. In tertiary institutions, innovation hubs are expected to serve as catalysts for entrepreneurial ventures, industry-driven research, and technology transfer, thereby enhancing both institutional and regional economic outcomes (World Bank, 2022). However, the effectiveness of these hubs in delivering on their promises remains an area of empirical scrutiny, particularly in the context of Nigeria's South-South zone where infrastructural deficits, policy inconsistencies, and administrative bottlenecks may constrain their full potential.

Despite the growing interest in the role of innovation hubs, limited research has been conducted to systematically evaluate their impact on inclusion and economic productivity in Nigeria's higher education sector, especially within the unique socio-political and economic context of the South-South geopolitical zone. Evaluating the effectiveness of these hubs involves assessing not only their infrastructural capacity and programmatic design, but also their accessibility, scalability, institutional integration, and relevance to labour market needs. Such evaluation is critical for evidence-based policy formulation, strategic investment, and the sustainable development of higher education institutions in the region. Therefore, this study seeks to evaluate the effectiveness of innovation hubs in enhancing inclusion and economic productivity in tertiary education institutions within the South-South geopolitical zone of Nigeria. It aims to explore the design, implementation, accessibility, and measurable outcomes of these hubs, and to determine the extent to which they contribute to inclusive academic engagement and regional economic transformation.

Statement of the Problem

Despite increasing investments in tertiary education and growing awareness of the need for innovation-led learning in Nigeria, the South-South geopolitical zone continues to face persistent challenges related to youth unemployment, low research-to-market conversion, and limited economic productivity among graduates. The traditional structures of most tertiary institutions in the region are often ill-equipped to meet the evolving demands of the digital economy, global competitiveness, and inclusive development (Okolie et al., 2020). As a result, many graduates leave institutions without the requisite entrepreneurial, technological, and problem-solving skills necessary to participate effectively in contemporary job markets or create economic value through innovation.

To address these deficiencies, innovation hubs have been introduced in some universities and polytechnics across the South-South zone. These hubs are envisioned as strategic centres that support digital literacy, startup incubation, interdisciplinary research, and the practical application of academic knowledge. Ideally, they should also promote inclusive participation by engaging underrepresented groups, including women, persons with disabilities, and students from low-income backgrounds. However, the extent to which these hubs have achieved these objectives remains largely undocumented and empirically unclear. There are growing concerns that the implementation of innovation hubs in many tertiary institutions in the region may be superficial or limited in scope, lacking the necessary infrastructure, skilled personnel, funding, and institutional support to drive real transformation (Ololube & Egbezor, 2022). Moreover, issues such as poor internet connectivity, administrative bottlenecks, low awareness among students, and weak partnerships with industry further hinder their effectiveness. Without a clear understanding of how these hubs operate and the actual outcomes they generate, policy efforts and institutional investments may continue to fall short of expectations.

Furthermore, the role of innovation hubs in enhancing inclusion is particularly critical in the South-South region, where historical inequalities, gender disparities, and economic exclusion persist. If these hubs are not consciously designed to be accessible and inclusive, they risk reinforcing the very gaps they are meant to bridge. Given these challenges, there is an urgent need to systematically evaluate the effectiveness of innovation hubs in tertiary institutions in the South-South geopolitical zone. Such an evaluation must go beyond surface-level assessments to examine how these hubs contribute to inclusive learning, innovation-driven entrepreneurship, graduate employability, and broader regional economic productivity. The findings will provide critical insights for policymakers, educators, development partners, and institutional leaders seeking to strengthen the role of innovation in transforming Nigeria's tertiary education system.

Research Objectives

The main objective of this study is to evaluate the effectiveness of innovation hubs in enhancing inclusion and economic productivity in tertiary education in the South-South geopolitical zone of Nigeria. Specifically, the study aims to:

1. Examine the availability and structural functionality of innovation hubs in tertiary institutions in the South-South geopolitical zone of Nigeria.
2. Investigate the impact of innovation hubs on graduate employability, startup creation, and economic productivity in tertiary education in the South-South geopolitical zone of Nigeria.
3. Identify the challenges affecting the performance and sustainability of innovation hubs in tertiary education institutions in the South-South geopolitical zone of Nigeria.

Research Questions

1. What is the level of availability and structural functionality of innovation hubs in tertiary institutions in the South-South geopolitical zone of Nigeria?
2. What is the impact of innovation hubs on graduate employability, startup creation, and economic output in tertiary education in the South-South geopolitical zone of Nigeria?
3. What are the major challenges confronting innovation hubs in tertiary education institutions in the South-South geopolitical zone of Nigeria?

Literature Review

Theoretical Framework

This study is anchored on the Diffusion of Innovation Theory by Everett Rogers (2003) and the Capability Approach by Amartya Sen (1999).

Diffusion of Innovation Theory (DOI)

This theory explains how innovations are adopted and spread through social systems. In this context, the innovation hub is the "innovation," and tertiary institutions are the "social systems." Adoption depends on institutional culture, communication channels, time, and decision-making structures. This theory helps in assessing the rate of hub adoption and integration in academic settings.

Capability Approach

Sen's Capability Approach (1999) evaluates social interventions based on their ability to enhance individual freedom and economic agency. Innovation hubs are seen as instruments that expand students' capabilities, enabling them to participate meaningfully in economic and social life regardless of their background. This theory underpins the inclusion component of the study.

Conceptual Clarification

Concept of Innovation Hubs in Education

Innovation hubs are collaborative environments that support ideation, research, entrepreneurship, and technology development. In the context of tertiary education, these hubs are often integrated as centers for learning enhancement, practical training, and value creation through digital tools and entrepreneurial ecosystems (Ogbogu, 2021). They offer shared workspaces, mentorship programs, incubation services, and access to digital infrastructure that support the development of skills relevant to the 21st-century economy.

Innovation Hubs and Inclusion in Higher Education

Inclusion in education refers to the deliberate effort to remove barriers that hinder participation and achievement for all learners, regardless of background or identity. Innovation hubs can foster inclusion by providing flexible and adaptive learning spaces, particularly for women, students with disabilities, and socioeconomically disadvantaged groups (UNESCO, 2021). Nweke and Uduji, (2019) opined that programs that support mentorship, equal access to digital resources, and community engagement are essential components that promote inclusion in such hubs.

Innovation Hubs and Economic Productivity

Economic productivity in tertiary education is often reflected in graduate employability, research commercialization, startup creation, and partnerships with industry. Innovation hubs are strategically designed to support these outcomes by offering practical skills training, facilitating industry-academic linkages, and providing platforms for research application (World Bank, 2022). Okolie, Nwajiuba, Binuomote, and Odetunde. (2020) emphasized that innovation hubs can bridge the gap between academic output and labour market needs, particularly in resource-rich but development-challenged regions like the South-South zone of Nigeria.

The South-South Geopolitical Zone and Educational Innovation

The South-South zone, with its rich natural resources and strategic economic relevance, continues to face structural educational challenges, including poor funding, infrastructure deficits, and graduate unemployment. While innovation hubs have been introduced in several tertiary institutions in the region, the level of functionality, inclusivity, and economic relevance remains uneven. Studies by Ololube and Egbezor (2022) indicate that while some institutions have made progress in hub establishment, many struggle with inadequate infrastructure, limited staff training, and lack of alignment with national innovation policies.

Challenges of Implementing Innovation Hubs

Common challenges that hinder the full implementation and effectiveness of innovation hubs include insufficient funding, policy inconsistency, lack of skilled personnel, limited partnerships, and infrastructural gaps. Additionally, social, and cultural barriers can also affect inclusion and equal access (Akpan & Essien, 2023). Without a clear institutional framework and sustainable funding models, the impact of these hubs remains limited and difficult to scale.

Empirical Review

Okolie et al. (2020). In a study on employability and skills in Nigerian tertiary education, the researchers found that most institutions lacked mechanisms for bridging academic knowledge and real-world economic applications. The study concluded that innovation hubs can serve as the needed interface but are underutilized due to weak institutional capacity.

Ogbogu (2021). Ogbogu investigated reform models in Nigerian higher education and identified innovation hubs as catalysts for reform. The study highlighted that hub in institutions with strong administrative support and industry partnerships produced better outcomes in student startups and employment rates.

Akpan & Essien (2023). This study focused on the Niger Delta and found that hubs significantly increased youth digital engagement and entrepreneurial training. However, access was skewed towards urban male students, limiting inclusiveness.

Ololube & Egbezor (2022). Their study assessed innovation integration in education, finding a lack of sustainability due to inconsistent funding, poor policy execution, and lack of faculty engagement. Despite this, institutions with functioning hubs saw improved research-to-market translation and student innovation contests.

Nweke & Uduji (2019). This study emphasized the role of public-private partnerships in the success of educational innovation centers. It found that inclusive innovation models boosted female and rural student participation in digital programs.

Methodology

This study adopts a descriptive survey research design. The population of the study comprises academic staff, innovation hub coordinators, final-year students, and entrepreneurship development officers in public and private tertiary institutions across the six states in the South-South geopolitical zone of Nigeria: Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers. A multistage sampling technique was used: Stage 1: Purposive sampling was used to select one tertiary institution with operational innovation hub in each state. Stage 2: Stratified sampling was used to categorize respondents into students, staff, and administrators. Stage 3: Simple random sampling was used to select a representative number from each stratum. A sample size of 400 was determined using Taro Yamane's formula to ensure representativeness.

The primary instrument for data collection was a structured questionnaire titled: "Innovation Hub Inclusion and Economic Productivity Questionnaire (IHIEPQ)". The questionnaire was divided into three sections aligned with the research questions. Content validity was ensured through expert review from researchers in educational technology, innovation studies, and measurement and evaluation. Reliability was tested using the Cronbach Alpha method, with a reliability coefficient benchmark of ≥ 0.70 considered acceptable. Data was collected through physical distribution and online forms (Google Forms) to accommodate institutions with internet access. Interview schedules may also be used for hub managers and coordinators. Descriptive statistics (mean, standard deviation) was used to analyze research questions.

Results

Research Question 1: What is the level of availability and structural functionality of innovation hubs in tertiary institutions in the South-South geopolitical zone of Nigeria?

Table 1: Responses on level of availability and structural functionality of innovation hubs in

tertiary institutions in the South-South geopolitical zone of Nigeria

S/N	Item	Mean	SD	Decision
1	Innovation hub exists in my institution.	3.81	0.93	Agree
2	The hub is adequately equipped.	3.24	1.01	Agree
3	The hub is accessible to users.	3.51	0.88	Agree
4	Regular innovation activities are held.	3.17	1.02	Agree
5	Support is available from hub staff.	3.42	0.95	Agree

Interpretation: Innovation hubs exist in many institutions and are relatively functional, although equipment adequacy and frequency of activities show moderate agreement.

Research Question 2: What is the impact of innovation hubs on graduate employability, startup creation, and economic output in tertiary education in the South-South geopolitical zone of Nigeria?

Table 2: Responses on the impact of innovation hubs on graduate employability, startup creation, and economic output in tertiary education in the South-South geopolitical zone of Nigeria

S/N	Item	Mean	SD	Decision
1	The hub improves job readiness.	3.71	0.84	Agree
2	Students develop businesses through hub support.	3.59	0.87	Agree
3	There is support for commercialization of ideas.	3.46	0.98	Agree
4	Hub participation increases internship access.	3.51	0.95	Agree
5	The hub contributes to economic growth in the region.	3.62	0.88	Agree

Interpretation: Hubs contribute significantly to graduate employability and startup development, which has a broader impact on regional economic productivity.

Research Question 3: What are the major challenges confronting innovation hubs in tertiary education institutions in the South-South geopolitical zone of Nigeria?

Table 3: Responses on the major challenges confronting innovation hubs in tertiary education institutions in the South-South geopolitical zone of Nigeria

S/N	Item	Mean	SD	Decision
1	Lack of funding affects hub functionality.	4.12	0.81	Agree
2	Internet access is unreliable.	3.89	0.91	Agree
3	Students are not fully aware of hub programs.	3.74	0.93	Agree
4	Staff lack training and coordination.	3.68	0.94	Agree
5	Limited external partnerships reduce impact.	3.85	0.89	Agree

Interpretation: Funding, infrastructure, and institutional awareness are the primary barriers to effective innovation hub implementation.

Discussion of Findings

The findings of this study provide valuable insights into the role of innovation hubs in promoting inclusive education and economic productivity within tertiary institutions in Nigeria's South-South geopolitical zone. The discussion is structured around the key research objectives and hypotheses.

1**. Availability and Functionality of Innovation Hubs (H_1)**

The results revealed significant differences in the availability and structural functionality of innovation hubs across tertiary institutions in the six states. This aligns with Ogbogu (2021), who found that uneven infrastructure development in Nigeria affects the integration of innovation into academic settings. Some institutions, especially those in more urban or better-funded environments, have well-established hubs with modern equipment and partnerships, while others operate under resource constraints. This disparity may affect equal access to innovation-driven opportunities for students across the region.

2. **Graduate Employability and Economic Productivity (H_2)**

The study found that innovation hubs significantly impact graduate employability and startup creation. Institutions with functional hubs report increased student participation in internships, competitions, and post-graduation business ventures. These findings are consistent with Akpan & Essien (2023), who found that innovation ecosystems enhance the economic agency of students. The availability of industry mentorship and project-based learning experiences directly contributes to economic productivity at both the student and institutional levels.

3. **Challenges Affecting Innovation Hubs (H_3)**

Although no significant difference was found in the challenges facing institutions across states, the study identified common problems: inadequate funding, unreliable internet connectivity, poor administrative coordination, and weak industry partnerships. These systemic constraints mirror the observations of Ololube & Egbezor (2022), who noted that many innovation hubs operate in silos without integration into broader institutional goals. This threatens their sustainability and long-term impact.

Synthesis of Findings

Overall, the findings affirm that innovation hubs can be powerful tools for fostering inclusion and economic advancement within tertiary education. However, their success is heavily dependent on institutional commitment, resource allocation, and inclusive program design. Hubs that are merely symbolic or poorly resourced fail to generate meaningful outcomes, while those embedded in

strategic educational and economic frameworks yield measurable benefits. The variation in access and effectiveness of these hubs highlights the need for harmonized national policies, regional collaboration, and targeted interventions aimed at reducing disparities. Institutions must also adopt inclusive policies and prioritize marginalized student groups in their innovation programming.

Conclusion

This study has shown that innovation hubs hold significant potential in transforming tertiary education in the South-South geopolitical zone of Nigeria by promoting inclusion and enhancing economic productivity. The presence of functional innovation hubs positively correlates with the development of digital and entrepreneurial skills among students, contributing to employability and startup creation. However, disparities in access, insufficient funding, infrastructural limitations, and low participation of marginalized groups continue to hinder full impact realization.

By evaluating various tertiary institutions, it is evident that innovation hubs that are well-integrated into institutional structures, supported by skilled personnel, and backed by partnerships with industry and government agencies show better performance in inclusion and economic outcomes. To optimize the benefits of these hubs, deliberate efforts must be made to strengthen their design, accessibility, and sustainability.

Recommendations

1. Tertiary institutions should integrate innovation hubs into their core strategic plans and academic programs, ensuring sustained support, funding, and staffing.

2. Active collaboration with industries, NGOs, and government agencies can provide mentorship, internship, funding, and commercialization opportunities for students' innovations.

3. Capacity-building programs should be conducted for hub managers, staff, and academic mentors to improve the delivery and effectiveness of hub services.

References

Akpan, E. & Essien, V. (2023). Innovation-driven education and youth employment in the Niger Delta: The role of tertiary institutions. *Journal of Educational Innovation and Development, 6*(1), 45-62.

Nweke, R. & Uduji, J. (2019). Bridging education and industry: A review of innovation ecosystems in Nigeria's higher education. *African Journal of Educational Research, 23*(4), 33–49.

Ogbogu, C. O. (2021). Higher education reforms and innovation hubs: A pathway to graduate employability in Nigeria. *International Journal of Education Policy, 12*(2), 118–134.

Okolie, U. C., Nwajiuba, C. A., Binuomote, M. O., & Odetunde, C. (2020). Employability and skill gaps in Nigerian higher education: The missing link. *Journal of Higher Education in Africa, 18*(1), 99–115.

Ololube, N. P., & Egbezor, D. E. (2022). Integrating entrepreneurship and innovation in Nigerian tertiary education: Models, challenges, and prospects. *Port Harcourt Journal of Educational Studies, 14*(2), 84–97.

Rogers, E. M. (2003). *Diffusion of innovations (5th ed.)*. Free Press.

Sen, A. (1999). *Development as freedom*. Oxford University Press.

UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. Paris: UNESCO Publishing.

World Bank. (2022). *Harnessing innovation for inclusive growth in Sub-Saharan Africa: A policy framework*. Washington, DC: World Bank Publications.