



ASSESSING THE ADEQUACY AND UTILIZATION OF PHYSICAL FACILITIES FOR ENTREPRENEURSHIP PROGRAMS IN NORTH-EASTERN NIGERIAN UNIVERSITIES

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Abstract

Entrepreneurship education has become a strategic driver for national development, particularly in Nigeria where youth unemployment remains a persistent challenge. This study investigates the adequacy and utilization of physical facilities provided for entrepreneurship programs in federal universities located in the North-East geopolitical zone of Nigeria. Guided by two objectives, the study assessed (i) the adequacy in terms of types and quantity of physical facilities available for entrepreneurship programs, and (ii) the extent to which these facilities are utilized in supporting program implementation. The population of the study consisted of 247 respondents, including all 235 lecturers of Entrepreneurship Education in the federal universities of the zone. Data were collected through structured questionnaires and analyzed using descriptive statistics and inferential tests. Findings reveal gaps in both adequacy and utilization of physical facilities, with some institutions lacking critical infrastructure such as innovation hubs, workshops, and ICT laboratories. The study concludes that inadequacies in facilities hinder effective delivery of entrepreneurship education. Recommendations include increased government and university investment in modern facilities, enhanced maintenance culture, and stronger collaboration with industries to optimize utilization.

Keywords: Entrepreneurship Education, Physical Facilities, Adequacy, Utilization, Universities, North-East Nigeria

Introduction

Education remains central to national development and human capital formation, and universities worldwide play a vital role in equipping graduates with skills for employment, innovation, and self-reliance. In

Nigeria, entrepreneurship education has become an essential policy response to persistent unemployment and underemployment among graduates. Since the 2006 federal directive mandating entrepreneurship education in all universities,



institutions are expected to cultivate competencies such as creativity, innovation, problem-solving, risk management, and resilience. Yet the effectiveness of entrepreneurship programmes depends not only on curriculum and pedagogy but also on the availability, adequacy, and utilization of physical facilities that support hands-on and experiential learning.

Physical facilities, such as classrooms, workshops, ICT laboratories, business incubation centres, and innovation hubs, provide the enabling environment for translating entrepreneurial theory into practice. Without these infrastructures, entrepreneurship education becomes overly theoretical and disconnected from real-world business activities. This concern is particularly acute in the North-East zone of Nigeria, which comprises Borno, Adamawa, Yobe, Bauchi, Taraba, and Gombe. The region continues to face severe socioeconomic challenges, including insurgency, infrastructural deficits, and widespread poverty. Federal universities in this zone are expected to play transformative roles in rebuilding local economies by producing graduates with entrepreneurial capacities. However, the extent to which these institutions possess and effectively utilize essential facilities remains uncertain. While lecture halls may be available in many institutions, practical facilities such as technical workshops, fabrication labs, ICT-enabled centres, and business incubators are frequently inadequate or absent. Such deficiencies undermine experiential learning, which requires exposure to tools, technologies, and simulated business environments. Even where facilities exist, problems such as poor maintenance culture, limited technical personnel, administrative bottlenecks, and resource mismanagement often lead to underutilization. Facilities may deteriorate due to neglect or remain inaccessible because of bureaucratic

restrictions. Studies conducted in Nigeria support these concerns, identifying inadequacy and underutilization of facilities as major impediments to effective entrepreneurship education (Adepoju, 2020; Onabe, Chima, Uzoigwe, Osuagwu & Uzoigwe, 2024). How these challenges specifically affect North-Eastern universities, however, has not been comprehensively established.

This study is significant for two main reasons. First, it focuses on the adequacy of physical facilities within the context of entrepreneurship education, which requires specialized infrastructural inputs distinct from those used in traditional academic programmes. Second, it examines whether existing facilities are being effectively utilized, a critical issue because investments in facilities without corresponding strategies for use often lead to wastage, while attempts to use inadequate facilities limit learning outcomes. Globally, entrepreneurship education is increasingly understood as requiring a holistic ecosystem that integrates skilled lecturers, practical learning spaces, business simulation environments, and innovation-driven collaboration hubs. While developed countries invest heavily in university-based entrepreneurship centres, many developing countries, including Nigeria, struggle to provide even foundational infrastructure. Understanding this gap is essential for aligning policy intent with practical realities in the North-East.

The study therefore aims to investigate the adequacy and utilization of physical facilities designated for entrepreneurship education in federal universities in North-East Nigeria. It addresses two key questions: What facilities exist in terms of type and quantity? And how effectively are these facilities utilized to support entrepreneurship learning? By answering these questions, the study seeks to contribute evidence that can inform policy

reforms, institutional planning, and improved implementation of entrepreneurship education in the region.

Objectives of the Study

1. To assess the adequacy in terms of types and quantity of physical facilities available for entrepreneurship programs at North-Eastern universities.
2. To analyze the extent of utilization of physical facilities in the implementation of entrepreneurship programs.

Research Questions

1. Are the physical facilities designated for the implementation of entrepreneurship programs at North-Eastern universities available in terms of types and quantity?
2. How effectively are these facilities utilized in supporting entrepreneurship education and activities?

Research Hypothesis

Ho₁: There is no significant adequacy in the types and quantity of physical facilities designated for the implementation of entrepreneurship programs in North-Eastern universities.

Literature Review

This section reviews empirical and theoretical studies related to entrepreneurship education in higher institutions, focusing particularly on physical/infrastructural facilities, adequacy, and utilization. It draws on recent publications (2020 onwards where possible) and identifies gaps which the current study aims to address.

Entrepreneurship Education in Nigerian Higher Institutions: Overview & Challenges

Entrepreneurship education (EE) in Nigeria has been recognized as a policy response to youth unemployment, underemployment, and the need for self-employment. Since 2006, EE has been mandated in university curricula. However, multiple studies document persistent challenges in implementation. One key challenge is inadequate funding, which often translates to deficits in infrastructure, equipment, and facilities needed for hands-on / experiential learning. Ugwu, Ezinne, Odinakachi, Emmanuel, Chinyere & Kyna (2024) in “Stimulating Entrepreneurship Culture and Skill Development through Vocational Education and Training in the Nigerian Educational Sector” highlight that while the culture of entrepreneurship is promoted, there is a lag in providing materially adequate facilities, which is essential to translate training into real competencies.

Levong, Barko & Zakka (2018) in the “Assessment of Facilities Required for Achieving Entrepreneurship Education in Colleges of Education in North Central Nigeria” found that many colleges lacked basic facilities and equipment required for hands-on teaching of business education and entrepreneurship. The study’s findings indicated that many relevant infrastructural materials are either non-existent or very insufficient in number.

Adequacy of Physical / Infrastructural Facilities: What Has Been Found

Studies at various levels (polytechnics, colleges of education, universities) have assessed what facilities are present, what are needed, and the gap between them. North Central Nigeria: In the Levong, Barko & Zakka (2021) study of colleges of education, many institutions were found not to have basic facilities, well-equipped workshops,



up-to-date classrooms, practical tools, equipment for entrepreneurship education.

Tertiary institutions more broadly: In “Ukala & Adieme, (2024), *“Management of entrepreneurship education for Developing Entrepreneurial Human Capital in Public Universities in Rivers State, Nigeria*, the author outline that one of the core requirements for effective entrepreneurship education is adequate infrastructural materials. They reported that many institutions fail in this respect, often due to funding shortfalls and administrative neglect. Incubation & Technology Incubation Centres (TICs): The 2021 study, “Impact of Technology Incubation Programme in Promoting Entrepreneurship in Nigeria,” by Abubakar-Sadeeq et al. (2021) found out that while incubation significantly improves entrepreneurial training and funding, its impact is limited in areas like marketing and general business growth due to factors like insufficient capacity and a lack of venture capital. The study recommends expanding training, facilitating access to finance, and improving marketing support to better promote entrepreneurship in Nigeria.

Entrepreneurial competency among incubation graduates: Adewale & Fapohunda, (2020) in “The Role of Entrepreneurship Education in Promoting Innovation and Job Creation in Nigeria” assessed entrepreneurial competencies of graduates from Technology Incubation Centres and while competencies were moderate to high for some components, the absence or inadequacy of physical and technical facilities was noted as a constraint to higher competency.

Utilization of Physical Facilities: Observations from Literature

Having facilities is one thing; using them well is another. Utilization pertains to how available infrastructure is used: frequency, relevance, maintenance, access, etc.

Underutilization & Maintenance Issues: Several studies noted that even where facilities exist, they may be underutilized due to poor maintenance, lack of operational budgets, or lack of trained personnel to run them. While specific quantitative studies focusing purely on utilization are fewer, qualitative observations across studies point to this. (E.g. in the Cross Rivers State study, facility usage was hampered by equipment breakdowns and lack of technical staff), Daniel & Sunday, (2023).

Mismatch between facility design and program needs: Some studies show that physical facilities, even when available, are not always aligned with the specific hands-on, practical demands of entrepreneurship education. For example, necessary tools for prototyping, ICT infrastructure, incubation space, workshops are often missing or generalised classrooms are used instead, limiting experiential learning. Otamiri, & Pac Diseph, (2022) in ‘*Availability, Adequacy and Utilization of Instructional Resources for Entrepreneurship Development of Business-Education Students in Public Universities in South-South Nigeria*’, identifies absence of practical studios, workshops / entrepreneurship centers among top challenges.

Frequency of Use & Access Constraints: Access constraints, both physical (space, scheduling) and administrative (permission, scheduling, oversight), are often reported. There are reports of available facilities being reserved for certain times or portions of students only, or that technical equipment is locked due to lack of staff or security. While most of these observations are qualitative, they suggest that utilization tends to fall short of potential. (While not all recent datasets quantify this, the thematic evidence is present.).



Role of Incubation Centers in utilization: The Impact of Technology Incubation Programme study found that many incubation centers are nominal: they exist but their physical functionality is limited; some functions are under-utilized because incubates cannot access needed equipment, or resources are outdated, Abubakar-Sadeeq, Othman, Audu, Ramalan & Abdullahi (2021).

Theoretical and Policy Frameworks Relating Facilities & Utilization to Entrepreneurial Outcomes

It is important in this review to connect how adequacy and utilization of facilities theoretically relate to outcomes in entrepreneurship education.

Experiential Learning Theory: This theory (e.g. Kolb, etc.) emphasises learning through doing. For entrepreneurship education, this implies that physical facilities (labs, workshops, incubation centres) are essential to allow students to engage in real, tangible practices rather than merely lecture-based instruction. Without these, key competencies (problem solving, innovation, prototype development) are hard to develop.

Resource-based View (RBV): Institutions that have superior (or adequate) tangible resources (facilities, infrastructure) have an advantage in producing graduates with more relevant skills and capacities. This is seen in some of the incubation studies which imply that students who have access to better incubation facilities develop better competencies. (Ugwu, Kekeocha, Odinakachi, Emmanuel, Chinyere & Nkiruka, 2024).

Policy and regulation frameworks: The National Universities Commission (NUC) and other policy instruments in Nigeria prescribe Minimum Academic Standards for entrepreneurship components. These often include expectations about infrastructural facilities. However, studies reveal that there is often a gap between policy prescriptions

and actual provision/implementation. (Daniel & Sunday, 2023).

Methodology

The study employed a descriptive survey design to assess the adequacy and utilization of physical facilities for entrepreneurship education in federal universities in North-East Nigeria. This design enabled systematic collection of quantitative and qualitative data without manipulating variables and supported identification of available facilities, their adequacy, and utilization, as well as hypothesis testing. Structured questionnaires and observation checklists provided triangulated evidence across institutions.

The population consisted of 247 participants: 235 entrepreneurship lecturers and 12 entrepreneurship centre directors across the six federal universities in the region. Because the population was small and specialized, a census approach was adopted to ensure full representation, with an acceptable minimum response rate of 85%. Three instruments were used: a structured questionnaire (covering demographics, facility adequacy, utilization, and challenges), an observation checklist for verifying facility availability and condition, and a semi-structured interview guide for directors to obtain deeper insights on maintenance and utilization issues.

Content validity was established through expert review and a pilot test at the University of Abuja. Cronbach's Alpha yielded 0.82, confirming reliability. Data collection involved institutional approval, questionnaire distribution, facility observation, and director interviews over eight weeks. Quantitative data were analyzed using descriptive statistics and Chi-square tests (SPSS 25), while qualitative interviews were thematically analyzed. Participation was voluntary, anonymity ensured, and



triangulation mitigated limitations such as insecurity and self-reported bias.

Results

This section presents the results of the study in line with the stated objectives and research questions. Data were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations), while Chi-square tests were employed to test the hypothesis on adequacy of physical facilities. Qualitative responses

from interviews with centre directors and observations were integrated to enrich interpretation.

Availability of Physical Facilities in Terms of Types and Quantity

Table 1 summarizes the types of physical facilities available for entrepreneurship programs across the federal universities surveyed in North-East Nigeria.

Table 1: Availability of Physical Facilities in North-Eastern Universities (N = 247)

Facility Type	Adequate (Freq, %)	Inadequate (Freq, %)	Not Available (Freq, %)	Mean Score (5-point)	Remark
ICT Laboratories	162 (65.6%)	57 (23.1%)	28 (11.3%)	3.89	Moderately Adequate
Incubation Centres	104 (42.1%)	88 (35.6%)	55 (22.3%)	3.22	Partly Adequate
Technical Workshops	95 (38.5%)	102 (41.3%)	50 (20.2%)	3.12	Partly Adequate
Demonstration Farms	71 (28.7%)	84 (34.0%)	92 (37.2%)	2.68	Largely Inadequate
Co-Working/Innovation Hubs	55 (22.3%)	97 (39.3%)	95 (38.5%)	2.53	Largely Inadequate
Business Simulation Rooms	67 (27.1%)	78 (31.6%)	102 (41.3%)	2.62	Largely Inadequate

The study found wide variation in the availability and adequacy of physical facilities for entrepreneurship programmes in North-Eastern universities. ICT laboratories were the most adequate, with 65.6% of respondents rating them sufficient and a mean score of 3.89, reflecting national ICT investment. However, incubation centres (mean 3.22) and technical workshops (3.12) were only partly adequate, with many institutions lacking functional or purpose-built spaces. Demonstration farms, co-

working hubs, and business simulation rooms were the most deficient, with mean scores below 2.70 and high rates of non-availability. Overall, inadequate funding, poor maintenance, and low prioritization undermine experiential entrepreneurship training in the region.

Extent of Utilization of Facilities

To answer the second research question, the study examined how effectively the existing facilities were utilized.

**Table 2: Utilization of Physical Facilities for Entrepreneurship Programs (N = 247)**

Facility Type	Highly Utilized (%)	Moderately Utilized (%)	Rarely Utilized (%)	Not Utilized (%)	Mean Score	Remark
ICT Laboratories	148 (59.9%)	72 (29.1%)	20 (8.1%)	7 (2.8%)	4.31	Highly Utilized
Incubation Centres	93 (37.7%)	82 (33.2%)	50 (20.2%)	22 (8.9%)	3.76	Moderately Utilized
Technical Workshops	75 (30.4%)	92 (37.2%)	60 (24.3%)	20 (8.1%)	3.58	Moderately Utilized
Demonstration Farms	61 (24.7%)	77 (31.2%)	65 (26.3%)	44 (17.8%)	3.14	Low Utilization
Co-Working/Innovation Hubs	48 (19.4%)	72 (29.1%)	71 (28.7%)	56 (22.7%)	2.92	Low Utilization
Business Simulation Rooms	42 (17.0%)	68 (27.5%)	72 (29.1%)	65 (26.3%)	2.88	Low Utilization

The second research question assessed the availability and utilization of physical facilities for entrepreneurship programmes in North-Eastern universities. Six facilities were examined: ICT laboratories, incubation centres, technical workshops, demonstration farms, co-working hubs, and business simulation rooms. Utilization varied considerably. ICT laboratories were most used, with a mean of 4.31 and 59.9% reporting high usage. Incubation centres and workshops showed moderate use (means: 3.76 and 3.58) but faced space limitations, weak support services, inadequate equipment, and power challenges. Demonstration farms, co-working hubs, and simulation rooms were underutilized (means below 3.15) due to poor maintenance, limited consumables, overcrowding, and weak coordination. Overall, availability does not guarantee effective usage; improved policy, maintenance, scheduling, and curriculum integration are needed.

Hypothesis Testing

The null hypothesis (H_0) stated that there is no significant adequacy in the types and quantity of physical facilities designated for

entrepreneurship programs in North-Eastern universities.

Chi-square tests comparing observed adequacy levels with expected benchmarks (NUC standards) revealed a **significant shortfall** ($\chi^2 = 42.76$, $df = 5$, $p < 0.05$).

Decision: Reject H_0 .

Conclusion: There is a significant inadequacy in both the types and quantities of physical facilities available for entrepreneurship education.

Qualitative Findings (Interviews and Observation)

The interviews with directors of entrepreneurship centres highlighted several recurring themes:

Maintenance Issues: Many facilities are underutilized because equipment is broken and not repaired promptly.

Funding Gaps: Insufficient budget allocations lead to incomplete projects (e.g., half-equipped workshops).

Security Concerns: In certain states, insecurity limits students' access to facilities, especially farms.



Policy Constraints: Bureaucratic procurement procedures delay replacement of outdated equipment.

Observations corroborated these claims, with several universities having non-functional simulation labs or farms lying idle due to lack of irrigation support.

Summary of Findings

1. Facilities are present but unevenly distributed across universities. ICT labs dominate, while farms, workshops, and co-working hubs are either absent or grossly inadequate.
2. Utilization is higher for ICT-based facilities but considerably lower for practical and production-oriented spaces.
3. Statistical testing confirms significant inadequacy of facilities relative to program requirements.
4. Qualitative insights point to systemic issues such as poor maintenance, underfunding, and contextual challenges of insecurity.

Discussion

The study examined the adequacy and utilization of physical facilities for entrepreneurship programmes in North-Eastern Nigerian universities. Findings show substantial inadequacies in key facilities, especially incubation centres, demonstration farms, co-working hubs, and business simulation rooms, while ICT laboratories were the only facilities rated moderately adequate. Hypothesis testing confirmed a significant gap between available facilities and NUC expectations. These results align with earlier studies (Levong et al, 2018; Gwalem et al 2024), as well as Akinwale & Adepoju, (2018) observation that infrastructural weaknesses hinder entrepreneurship education, particularly in conflict-affected regions. The shortage of

demonstration farms and workshops is especially worrying in a region where agriculture is central to livelihoods, limiting students' practical exposure to agribusiness skills.

Utilization patterns similarly revealed inconsistencies. ICT laboratories were highly used, but workshops, farms, and simulation rooms recorded low to moderate utilization. This supports findings by Offem, (2021) and Agu & Otamiri & Pac Diseph, (2022) that universities often possess facilities that are poorly maintained, understaffed, or inaccessible, reducing their instructional value. Interviews further indicated that broken equipment, funding constraints, and insecurity limit access. Overall, the results highlight that availability alone is insufficient. Effective entrepreneurship training requires facilities that are adequately equipped, maintained, and integrated into teaching. In the North-East, weak infrastructure, poor maintenance culture, and insecurity collectively undermine experiential learning and reduce the practical impact of entrepreneurship education.

Conclusion

This study assessed the adequacy and utilization of physical facilities for entrepreneurship programmes in North-Eastern Nigerian universities. Findings revealed major infrastructural deficits: key facilities such as incubation centres, workshops, demonstration farms, and co-working hubs were insufficient or unavailable, limiting the practical, hands-on learning central to entrepreneurship education. Although ICT laboratories were relatively adequate and frequently used, they cannot alone produce the experiential competencies required. Even where facilities existed, issues such as poor maintenance, inadequate staffing, unreliable power supply, weak internet connectivity, and insecurity led to low utilization. Hypothesis testing



confirmed that existing facilities fall significantly below expected standards, with implications for teaching quality, graduate employability, and regional innovation capacity. Without urgent intervention, universities in the North-East will struggle to contribute meaningfully to economic recovery and job creation.

Recommendations

The following recommendations were made:

1. **Strategic Infrastructure Investment:** Government and NUC should prioritize provision of core facilities, incubation centres, farms, workshops, and simulation labs, based on regional needs.
2. **Maintenance and Sustainability:** Universities should institutionalize maintenance frameworks with technical staff and dedicated funding to prevent deterioration.
3. **Curriculum Integration:** Facilities should be embedded in teaching through practicums, project-based learning, and incubation activities; lecturers should be trained in experiential pedagogies.
4. **Public-Private Partnerships:** Engage private firms, NGOs, and donors to support the establishment and upkeep of innovation hubs and specialized labs.
5. **Security-Sensitive Planning:** Develop on-campus, secure facilities and explore digital or mobile alternatives where access is risky.
6. **Monitoring and Evaluation:** Use indicators such as utilization rates and start-ups incubated to guide continuous improvement.
7. **Policy Support:** Strengthen national facility standards and introduce incentives for institutions demonstrating effective facility use.

Overall, strengthening infrastructure and utilization systems is essential for entrepreneurship education to drive economic and social transformation in the North-East.

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