



Assessment of Entrepreneurial Skills Acquisition among ... Ikwuje, A. I. & Nyalwat, S. E. (2026)

Assessment of Entrepreneurial Skills Acquisition among Upper Basic Science Students in Apa Local Government Area of Benue State, Nigeria

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Abstract

This study assessed the entrepreneurial skills acquired by Upper Basic Science students in Apa Local Government Area of Benue State, Nigeria. Six research questions guided the study, focusing on skills taught, extent of acquisition, influencing factors, gender differences, relevance to real-world business, and areas requiring improvement. A descriptive survey research design was adopted, with a population of 1,820 JSS 3 students from public and private secondary schools. Using multi-stage sampling technique, 320 students were selected from 10 randomly chosen schools. A validated 75-item questionnaire titled "Entrepreneurial Skills Acquisition Questionnaire for Upper Basic Science Students (ESAQUBSS)" with reliability coefficient of 0.871 was used for data collection. Out of 320 questionnaires administered, 312 were properly completed, representing 97.5% response rate. Data were analyzed using mean, standard deviation. Findings revealed that entrepreneurial skills are taught in the curriculum ($M=2.67$) with emphasis on problem-solving, teamwork, and communication, but inadequate attention to financial literacy, marketing, and customer service. Students acquired skills to a moderate-high extent ($M=2.59$), with stronger acquisition of cognitive skills but weaker mastery of practical business competencies. Personal motivation, practical activities, and real-life examples significantly influenced acquisition. The study recommended curriculum enhancement, improved practical training, teacher capacity building, adequate resource provision to strengthen entrepreneurship education for economic empowerment and youth self-reliance.

Keywords: Entrepreneurial skills, Upper Basic Science, Skills acquisition.

Introduction

Education is widely recognized as a fundamental driver of individual and societal development. It fosters cognitive, social, and emotional growth, equipping individuals with essential knowledge and skills for personal and professional advancement (UNESCO, 2021). As a fundamental instrument for national development, education serves as the bedrock for economic growth, technological advancement, and societal transformation. It provides individuals with the knowledge, skills, and competencies necessary for active participation in socio-economic activities, equipping them with the ability to adapt to the changing demands of society (Okebukola, 2020). In contemporary society, education is no longer limited to the acquisition of literacy and numeracy; it now encompasses a broader scope, including entrepreneurship education, which is essential for fostering creativity, innovation, and self-reliance among students (Obi, 2019). The Nigerian educational system, structured into basic, secondary, and tertiary levels, aims to provide students with functional knowledge that enhances their adaptability in an ever-changing world (Federal Ministry of Education [FME], 2013). Basic education, which includes upper basic education, plays a critical role in laying a strong foundation for lifelong learning and skill acquisition. The Universal Basic Education (UBE) program in Nigeria was introduced to ensure that all children acquire the essential knowledge and competencies necessary for personal and national development (Federal Ministry of Education [FME], 2019). Within this framework, science education plays a pivotal role in fostering critical thinking, problem-solving abilities, and innovative skills among students. It facilitates an understanding of natural phenomena and provides learners with the scientific literacy needed for personal and societal



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advancement (National Research Council [NRC], 2012). Basic Science is an integrated approach that encompasses key concepts from physics, chemistry, and biology, offering students a holistic understanding of scientific principles (Eze, 2018). This integration ensures that students develop a comprehensive knowledge base and transferable skills applicable in various disciplines (Adeyemo, 2021). The Basic Science curriculum in Nigeria is designed to introduce learners to fundamental scientific concepts and processes, preparing them for more specialized studies in senior secondary education (FME, 2013). It serves as a foundation for advanced scientific studies and promotes scientific literacy among students (Jegede, 2016). Additionally, it encourages inquiry-based learning and practical applications of scientific concepts, enabling students to develop problem-solving and critical-thinking skills that are essential in real-world scenarios (Ogunleye, 2019). Given the increasing rate of unemployment in Nigeria, there has been a growing emphasis on entrepreneurial education as a means of equipping students with practical skills that enhance their employability and self-sufficiency (Olawale & Salami, 2020). Entrepreneurship is the process of identifying opportunities, mobilizing resources, and creating value through innovation (Schumpeter, 1934). It plays a crucial role in economic development by fostering job creation, technological advancement, and wealth generation (Acs & Audretsch, 2018). Entrepreneurship education is increasingly being integrated into Basic Science curricula to equip students with the necessary skills for innovation and self-employment (Onyinyechi, 2020). Science education fosters creativity and experimentation, which are crucial for entrepreneurial success (Adamu & Yusuf, 2022). By engaging in scientific inquiry and hands-on experiments, students develop a mindset that aligns with entrepreneurial thinking, including risk-taking, innovation, and adaptability (Eze & Okonkwo, 2021). Entrepreneurial skills such as problem-solving, creativity, financial literacy, and business management have become critical components of science education, enabling students to translate scientific knowledge into practical innovations (Eze, 2021). In the context of education, entrepreneurial skills are essential for preparing students to navigate the complexities of the modern workforce and to become self-reliant (Obasi & Ojo, 2020). Integrating entrepreneurship into Basic Science education ensures that students acquire problem-solving skills, creativity, and adaptability, which are necessary for sustainable economic growth (Adebisi, 2019). The need for a curriculum that integrates these skills is paramount in ensuring that students not only excel academically but also develop the necessary competencies to thrive in the global economy (Adeyemo, 2018). Given the increasing significance of entrepreneurship in global economies, assessing the entrepreneurial skills acquired by Upper Basic Science students is imperative. This study seeks to evaluate the extent to which Basic Science education in Apa Local Government Area of Benue State fosters entrepreneurial competencies among students

Statement of the Problem

Entrepreneurship education is widely regarded as a strategic pathway to self-reliance, economic empowerment, and national development. In Nigeria, its integration into the basic education curriculum is intended to equip students with creativity, problem-solving abilities, and innovative capacities (Adebayo & Ojo, 2020). Basic Science, as a core subject at the upper basic level, provides opportunities for developing entrepreneurial competencies through practical application of scientific knowledge. However, concerns persist regarding whether students acquire sufficient entrepreneurial skills for real-world engagement and self-employment (Ogunbiyi, 2023). Despite policy efforts to mainstream entrepreneurship in science education, evidence suggests that many students struggle to translate theoretical knowledge into practical ventures (Adeyemo, 2021). Studies further indicate that graduates of the basic education system often lack the technical and innovative skills required



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for sustainable economic participation (Eze & Okon, 2021). This gap raises questions about the effectiveness of Basic Science in fostering meaningful entrepreneurial competencies.

In Apa Local Government Area of Benue State, empirical evidence on students' entrepreneurial skill acquisition remains limited. Assessing the extent of these competencies and identifying factors that hinder their development is essential for improving curriculum implementation and instructional strategies. Therefore, this study investigates the entrepreneurial skills acquired by Upper Basic Science students in Apa LGA, Benue State, Nigeria.

Objectives of the Study

The primary objective of this study is to assess the entrepreneurial skills acquired by Upper Basic Science students in Apa LGA of Benue State, Nigeria. Specifically, the study seeks to:

1. Assess the entrepreneurial skills acquired by Upper Basic Science students in Apa Local Government Area of Benue State, Nigeria.
2. Identify the entrepreneurial skills taught in the Upper Basic Science curriculum.
3. Assess the level of acquisition of entrepreneurial skills by Upper Basic Science students.

Research Question

The following research questions guided the study:

1. What entrepreneurial skills are taught in the Upper Basic Science curriculum in Apa Local Government Area of Benue State?
2. To what extent do Upper Basic Science students in Apa LGA acquire entrepreneurial skills?
3. What factors influence the acquisition of entrepreneurial skills among Upper Basic Science students in Apa LGA?

Methodology

The study employed a descriptive survey research design to examine entrepreneurial skills acquisition among Upper Basic III students in Apa Local Government Area of Benue State, Nigeria. The population comprised 1,820 JSS 3 students in public and private secondary schools in the area (2025 BECE records). Using the Krejcie and Morgan (1970) sample size table, 320 students were selected through a multi-stage sampling technique. Data were collected using a researcher-developed instrument titled *Entrepreneurial Skills Acquisition Questionnaire for Upper Basic Science Students (ESAQUBSS)*. The questionnaire consisted of three sections covering demographic information, entrepreneurial skills taught and acquired, and factors influencing skills acquisition. Items were rated on a 4-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). The instrument was validated by experts in Science Education, Measurement and Evaluation, and Entrepreneurship Education. Reliability was established using Cronbach's alpha following a pilot test with 20 students outside the study area, yielding a coefficient of 0.70. The questionnaires were administered with the assistance of trained research assistants, and 312 out of 320 copies were returned, representing a 97.5% response rate. Data were analyzed using mean and standard deviation to answer the research questions. A criterion mean of 2.50 was used for decision-making, with mean scores of 2.50 and above indicating high extent/agreement, and scores below 2.50 indicating low extent/disagreement.

Presentation of Results

Research Question 1: What entrepreneurial skills are taught in the Upper Basic Science curriculum in Apa Local Government Area of Benue State?

Table 1: Mean and Standard Deviation of Entrepreneurial Skills Taught in the Upper Basic Science curriculum in Apa Local Government Area of Benue State



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S/N	Item Statement	Mean	SD	Remark
7	Problem-solving skills are emphasized in our science lessons	3.24	0.68	Taught
8	We learn teamwork and collaboration skills through group science projects	3.18	0.72	Taught
2	We are taught how to develop creative solutions to practical problems	3.12	0.75	Taught
6	We are taught communication skills for presenting scientific ideas	3.05	0.81	Taught
12	We learn decision-making skills through science experiments	2.98	0.79	Taught
11	Risk assessment and safety management are taught in our science lessons	2.89	0.84	Taught
10	We are taught how to manage resources in science practical activities	2.76	0.88	Taught
1	My science teacher teaches us how to identify business opportunities	2.68	0.92	Taught
3	Our science lessons include skills for making science-based products	2.54	0.95	Taught
9	Our science teachers teach us about quality control	2.51	0.89	Taught
13	Our curriculum includes lessons on innovation and product development	2.45	1.02	Not Adequately Taught
4	We learn about record-keeping and simple bookkeeping	2.38	1.05	Not Adequately Taught
5	Our science curriculum includes lessons on how to market products	2.21	1.12	Not Adequately Taught
14	We are taught basic financial literacy related to science-based businesses	2.15	1.08	Not Adequately Taught
15	Customer service skills are included in our science lessons	1.98	1.15	Not Adequately Taught
	Grand Mean	2.67	0.51	Taught

Decision Rule: Mean ≥ 2.50 = Taught; Mean < 2.50 = Not Adequately Taught

Table 1 reveals that the grand mean score of 2.67 indicates that entrepreneurial skills are generally taught in the Upper Basic Science curriculum. However, the results show a disparity in emphasis. Skills such as problem-solving (M=3.24), teamwork (M=3.18), creative thinking (M=3.12), and communication (M=3.05) are highly emphasized. Conversely, business-oriented skills like customer service (M=1.98), financial literacy (M=2.15), marketing (M=2.21), and record-keeping (M=2.38) are not adequately taught. This suggests that while generic entrepreneurial competencies are integrated into science teaching, specific business management skills receive insufficient attention.

Research Question 2: To what extent do Upper Basic Science students in Apa LGA acquire entrepreneurial skills?

Table 2: Mean and Standard Deviation of Extent of Entrepreneurial Skills Acquisition

S/N	Skill Statement	Mean	SD	Remark
22	I can solve problems independently using scientific methods	3.15	0.71	High Extent
23	I can work effectively in a team to complete science projects	3.08	0.76	High Extent
21	I can communicate scientific ideas clearly to others	2.95	0.82	High Extent



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27	I can make informed decisions when conducting experiments	2.88	0.79	High Extent
26	I can assess risks and apply safety measures in science activities	2.82	0.85	High Extent
17	I can develop creative solutions to practical science problems	2.76	0.88	High Extent
25	I can manage resources efficiently during practical activities	2.69	0.91	High Extent
16	I can identify business opportunities from my science knowledge	2.58	0.95	High Extent
24	I understand how to maintain quality in producing science-based items	2.52	0.98	High Extent
18	I have acquired skills to produce science-based products	2.46	1.02	Low Extent
20	I have learned how to present and market science-based products	2.35	1.08	Low Extent
28	I have acquired skills to innovate and develop new products	2.31	1.05	Low Extent
19	I can keep simple records of science project activities and expenses	2.24	1.11	Low Extent
29	I understand basic financial concepts related to starting a business	2.08	1.15	Low Extent
30	I can interact professionally with potential customers	1.92	1.18	Low Extent
	Grand Mean	2.59	0.48	High Extent

Decision Rule: Mean ≥ 2.50 = High Extent; Mean < 2.50 = Low Extent

Table 2 shows a grand mean of 2.59, indicating that Upper Basic Science students acquire entrepreneurial skills to a high extent overall. However, closer examination reveals that students demonstrate higher acquisition of cognitive and soft skills such as problem-solving (M=3.15), teamwork (M=3.08), and communication (M=2.95). In contrast, practical business skills like customer interaction (M=1.92), financial understanding (M=2.08), record-keeping (M=2.24), and product innovation (M=2.31) are acquired to a low extent. This pattern mirrors the teaching emphasis shown in Research Question 1, suggesting that what is not adequately taught is consequently not well acquired.

Research Question 3: What factors influence the acquisition of entrepreneurial skills among Upper Basic Science students in Apa LGA?

Table 3: Mean and Standard Deviation of Factors Influencing Skills Acquisition

S/N	Factor Statement	Mean	SD	Remark
35	My personal interest and motivation affect my acquisition	3.35	0.65	Influences
33	Practical hands-on activities enhance my acquisition	3.28	0.69	Influences
45	The use of real-life examples by teachers enhances understanding	3.21	0.72	Influences
32	My teacher's teaching methods make it easy to acquire skills	3.14	0.75	Influences
43	Peer influence and group work enhance my development	3.08	0.78	Influences
44	Regular assessment and feedback improve my acquisition	2.95	0.82	Influences



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36	Support from my parents/guardians influences my learning	2.89	0.86	Influences
39	My teacher's competence in entrepreneurship affects acquisition	2.82	0.88	Influences
31	Adequate teaching materials and equipment help me learn better	2.76	0.91	Influences
37	The school environment encourages entrepreneurial skills development	2.68	0.94	Influences
41	Availability of textbooks and reference materials aids learning	2.61	0.97	Influences
38	Access to science laboratories improves my skills acquisition	2.54	1.01	Influences
34	Sufficient time is allocated for entrepreneurial skills training	2.45	1.05	Does Not Influence
40	Field trips and excursions to businesses enhance my learning	2.21	1.12	Does Not Influence
42	Financial constraints limit my ability to practice skills	2.85	0.89	Influences (Negatively)
Grand Mean		2.85	0.44	Influences

Decision Rule: Mean ≥ 2.50 = Influences; Mean < 2.50 = Does Not Significantly Influence

Table 3 indicates that various factors influence entrepreneurial skills acquisition, with a grand mean of 2.85. The most influential factors are student-centered: personal interest and motivation (M=3.35), practical hands-on activities (M=3.28), and use of real-life examples (M=3.21). Teacher-related factors such as teaching methods (M=3.14) and competence (M=2.82) also significantly influence acquisition. However, infrastructural and institutional factors show moderate to low influence. Notably, insufficient time allocation (M=2.45) and limited exposure to real business environments through field trips (M=2.21) do not significantly influence acquisition, likely because these opportunities are rarely provided. Financial constraints (M=2.85) negatively influence skills practice, suggesting that economic barriers impede hands-on application of learned skills.

Discussion of Findings

The findings revealed that although entrepreneurial skills are integrated into the Upper Basic Science curriculum (grand mean = 2.67), their implementation remains uneven. Generic cognitive skills such as problem-solving (M = 3.24), teamwork (M = 3.18), and creative thinking (M = 3.12) received greater instructional emphasis than practical business-oriented skills, including financial literacy (M = 2.15), marketing (M = 2.21), and customer service (M = 1.98). This supports Mbanefo and Eboka's (2021) observation that systemic constraints often weaken the effective implementation of entrepreneurship components in the curriculum. The pattern also aligns with Okezie, Vincent, and Anowor (2013) and Osuala (2009), who reported that entrepreneurship education in Nigeria tends to emphasize theoretical knowledge over practical competence. The imbalance may further reflect the gap between curriculum expectations and labour-market realities noted by Umeh and Eze (2018). Students' overall acquisition of entrepreneurial skills was moderate to high (grand mean = 2.59), with stronger gains in cognitive competencies than in business-specific skills. High acquisition of problem-solving (M = 3.15) and teamwork (M = 3.08) contrasted with weaker mastery of customer interaction (M = 1.92), financial literacy (M = 2.08), and record-keeping (M = 2.24). These findings are consistent with Okezie et al. (2013), who found that students often lack practical business exposure despite entrepreneurship instruction. However, studies such as Usman and Abubakar (2020) and Amadi and Chuku (2021) demonstrate that activity-based and practice-oriented approaches significantly improve entrepreneurial competencies, suggesting that limited practical engagement may explain the



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moderate outcomes observed. The study further identified student motivation ($M = 3.35$), hands-on activities ($M = 3.28$), real-life examples ($M = 3.21$), teaching methods ($M = 3.14$), and teacher competence ($M = 2.82$) as significant determinants of skill acquisition. These findings reinforce prior evidence that learner-centered and activity-based pedagogies enhance entrepreneurship outcomes (Mbanefo & Eboka, 2021; Usman & Abubakar, 2020). Financial constraints ($M = 2.85$) also emerged as a significant barrier, highlighting broader socioeconomic limitations and the need for supportive policy interventions.

Conclusion

Based on the findings of this study, the following conclusions were drawn regarding the state of entrepreneurial skills acquisition among Upper Basic Science students in Apa Local Government Area.

1. Entrepreneurial skills are generally taught at the Upper Basic Science curriculum. However, Skills such as problem-solving, teamwork, creative thinking and communication are highly emphasized. Conversely, business-oriented skills like customer service, financial literacy, marketing, and record-keeping are not adequately taught.
2. Upper Basic Science students acquire entrepreneurial skills to a high extent in Apa Local Government Area.
3. Entrepreneurial skills acquisition is shaped by multiple interacting factors operating at student, teacher, school, and socioeconomic levels.

Recommendations

1. The Benue State Ministry of Education and the NERDC should revise the Basic Science curriculum to include structured modules on financial literacy, marketing, customer relations, business planning, and record-keeping.
2. School administrators and science teachers should intensify practical training by establishing entrepreneurship laboratories or practical spaces where students can engage in product creation.

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