DOI: https://doi.org/10.57233/ihcfs.043

ISBN: 978-978-68-07775

BOOK OF PROCEEDINGS

IHCFS – 2025 WEBSITE: fos.fugusau.edu.ng

1ST INTERNATIONAL HYBRID CONFERENCE OF FACULTY OF SCIENCE

(A PUBLICATION OF FACULTY OF SCIENCE, FEDERAL UNIVERSITY GUSAU, NIGERIA)

ENHANCING ENTREPRENEURSHIP SKILLS ACQUISITION INTO SCIENCE EDUCATION PRACTICS; A CATALYST FOR SUSTAINABLE ECONOMIC DEVELOPMENT IN NIGERIA

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ABSTRACT

Science Education consists of different departments like Biology, Chemistry, Physics, Agriculture, Mathematics and other related science courses that undergo physical application of scientific concepts that could be turn into products. It was observed that lack of knowledge and ideal innovations make science education to be job seeker instead of job provider. Application of scientific concepts can lead to entrepreneurship skills acquisition that can serve as catalyst for sustainable economy development. Increase in banditry, poverty and involvement of youth in social crimes should not continue but to stop this can only be achieved if entrepreneurship skills acquisition is integrated as a process in science education practice, if not totally eradicated but can be reduced into barest minimum. The research is empirical descriptive survey design, the population consists of all 400level student in science education department. Multi stage procedure was used and the sample comprises of fifty (50) randomly selected student. A structured research questions was raised on the view of the student towards integrating and practicing entrepreneurship skills in science education (VIPE) for data collection using Linkert scale, frequency, mean and standard deviation were used in the results analysis. A pilot test was conducted to (20) non participants using Cronbech Alpha with the reliability co-efficient of (0.81). The result reveled that entrepreneurship can be integrated and practices in science education process. It was recommended that the government should introduce entrepreneurship skills acquisition into science education practice.

Keywords;- Science Education, Sustainability, Integration, Entrepreneurship.

1.0 Introduction

The high rate of youth unemployment in Nigeria is undoubtedly a national problem, as many youths who could contribute to productive ventures that would boost the nation's economy remain unemployed. This has led to an increase in criminal activities, making life increasingly difficult for citizens. Education plays vital roles in all human capacity to be developed this necessitated the willingness of every individual to look for better ways of acquiring education to suit their demands. Education is a process by which the society trains, forms, or molds individuals to achieve the social needs and aspirations. Educational system is not aimed to suffer the learners with the factual knowledge, but at equipping the learners with type of knowledge that will enable him to be capable and relevant anytime and anywhere (National policy on education 2004) NPE revised 2013. This implies that knowledge gained was to promote functional education for skill acquisition, job creation, poverty reduction and the good quality of instruction at all levels of endeavors.

Education involves different teaching and learning processes that could create activities for both teacher and the students. Education serves as a tool that avails people with knowledge, skills, techniques, and information which empowers them to their right and duties towards their society and nation. What we need now is to see how this can be achieved through teaching approaches. Ademiotan, Jimoh, Yusuf, Adedo, & Abdurauf (2021) view education as a social medium and process of acquisition of relevant knowledge, skills and attitude for survival in changing world. This means that teacher needs to see teaching process beyond the classroom situation.

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Education effectiveness and efficiency during teaching and learning situation in the classroom a teacher must be able to pay attention to the three teaching and learning domain which includes cognitive, affective and psychomotor. (Ojo, Vincent, Ogunjobi, Adebayo, and Adewale, 2021) view learning as an activity or process of gaining knowledge or skill by studying, practicing, experiencing or being taught while Gbenga, (2021) observed that learning is based on foundation of impulse reactive relation, where student receive feedback for answer, that help them to avoid wrong answer this shows that decision of the student need to be decided at every point of learning through activities doing by practices. If education is social medium and social service the only way to achieve this change is through new innovations.

The personal skills acquired can be integrated as an ideal into teaching and learning process because science education is beyond the classroom practice because teacher can be an innovator. Innovation can be refer to something that brings new or a change made to an existing product, idea, or field of practics. Innovation is activity supported within the human capital Salavou 2007, its boil down to creativity and willingness to experiment Wach et al, 2022, as a drivers for growth and key stimulus for internalization Akbar et al 2021, as alternative strategies to improve and experimenting to developed human capacity Al-Mamary & Alshallaqi 2022; Usman & Nasiru (2024).

The aspect of laying emphasis on theoretical teaching is becoming unproductive this is because the reality have shown that our present education programme does not focus on developing students' skills in sciences, the scientific skills include observation, classification, measurement, prediction, controlling variables, interpretation, communication and drawing conclusion. Integration scientific practical concepts application is inevitable; science education practices might be in the best way to provide the appropriate skills needed to develop economically. Most of the sciences consist of some applicable concepts that can be translated into product or materials Obi 2010; Adigun 2013; Taiwo and Onasnya 2024 and Adaramoja and Adedo (2025) remarked that training and re-retraining of the skills, attitudes and experience that will make one productive and self-reliance become crucial for national development.

The tools for integration of individuals effectively into a society is to achieve self-realization, promote unity and strive for social, economic, political, scientific, cultural, potentials, capabilities and fulfillment to develop national consciousness (Adedo, Umar & Adesoji 2022). Achieving a sustainable development may be jeopardize if integration of new idea or innovation is missing. As rightly noted by, Alada, et al., 2017; Adedo, et al., 2022 and Adaramoja and Adedo (2025) that development of a nation and its citizen does not occur in a vacuum, but can be actualized through advancements in science education. Science education is recognized as a cornerstone of all growth that set down the foundation for skills development, technical progression and the capacity to utilize the country's natural resources,

Science education introduces learners to both the content and methodologies required for acquiring scientific knowledge and applying it to practical life endeavors however integrating new advance ideal will greatly assist in moving for realization of educational objectives. Opataye 2012; Adedo. and Omoniyu (2024) that science education as making of efficient provision of preparation for citizens which have been observed to be possible when there is provision of scientifically literate teacher who have the idea innovation of their global needs for teaching with the aim of instilling scientific and skill values in learner. This will allow a literate scientific teacher to establish his/her knowledge application in teaching and learning process.

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The expected work of science education includes science content, science process (scientific method and the pedagogy that involve. Aliu, Adedo & Adewuyi, (2024) noted that the practice of science education has been increasingly informed by research as a science of teaching and learning that relies mostly on the wide varieties of methodologies, borrowed from many branches of science and engineering. Science education is a body of knowledge and facts which can be rationally explained, observed, experimented, applied and proven (chineta, 2023; Yahaya 2023). This means that frequent replication of the above procedures when put into practice, can serve as a catalyst for skills acquisition in science education entrepreneurship. One of the aims of education today is to make the student gain the thinking skills and strategies that they will use throughout their lives rather than storing information

The mismatched gaps between science education curriculums seem to be the entrepreneurship orientation and skill competencies. Kuratkos. 2005; Odiagbe and Otemuyiwa 2021; Taiwo and Onasanya 2024; Adedo and Olubunmi (2024) stated that entrepreneurship is a vision, change and creation, process that involves exploring idea generation, The call for the integration of entrepreneurship into science education practices is termed science education entrepreneurship with the aims of producing students that can convert the understanding of practice concepts knowledge into products and materials learning. Entrepreneurship skills can initiate a commercialization of their innovative skills in chemistry to acquire great financial profits, become job creators and contribute positively to the national economy especially in global economic recession period through products production.

Cognitive science demonstrates how concepts form in students' minds and, more crucially, how they are linked, which may indicate students' conceptual knowledge. Students' conceptual understanding will continue to improve and will require both knowledge of interdisciplinary capacity to utilize scientific concepts based on a current scientific theory. Cognitive theories emphasize the teacher's role in fostering environments conducive to student learning (Aliu et al., 2020). The most important aspect of entrepreneurship is that it is a cognitive process that uses mental approaches to demonstrate the potential of human knowledge;

Science education was known to be into teaching and learning methodology. In the history of education, the integration of entrepreneurship into practices is to represents a transformative shift, stipulating a new era in learning and teaching methodologies. These can be translated into entrepreneurship science education in order to achieve the Federal Government of Nigeria's targets as spelled out in the Sustainable Development Goals (SDG).

2.0 Statement of the problem

The rate of unemployment and social criminal vices as directly or indirectly affecting sustainability of economy in Nigeria this can be mitigated if is well attended to by the concerned stakeholders.

It's of great surprise that student of science education become job seeker instead of job provider this needs to be corrected through practical application practics.

It is sad to note that the continuous ever increase in unemployment rate in Nigeria has assumed a daunting trajectory that might be the sole administrator of others challenges that led to banditry, herdsman with other social crimes, this must be mitigated.

Lack of awareness toward the importance of science education as a tool for entrepreneurship skills provider as a catalyst for national and economy development yet to be realized,

Our teaching and learning process had lay more emphases on theoretical rather than practical this had made it difficult for student to understand the principles behind the scientific concept this should be discourage in science methodology process.

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This led the researchers to posit the integration of entrepreneurship skills acquisition in science education into practices as a catalyst for sustainable economy development.

3.0 Objective of the study

The following objectives are to be determined:

1. Determine the importance of science entrepreneurship education as a catalyst tool for sustainability in an economy
2. View entrepreneurship education as profession
3. Determine the awareness of the importance towards integrating science entrepreneurship education in economy development
4. View the contributory effects of science entrepreneurship practices education on students' performance in skills acquisition.
5. Determine by exposing the students to practical application of scientific skill that can make them functioning in the society.
6. Examine how science entrepreneurship education can be put in to practices

4.0 Research Questions

This study sought answers to the following research questions:

1 What is the level of integrating science entrepreneurship education into teaching and learning process towards economy development?

2. What is the level of putting science entrepreneurship education into teaching and learning as a practices?

5.0 Research Methodology

The research is descriptive survey design and empirical inclined, a structured questionnaire on student views to determine the level of integrating science education entrepreneurship into practice (VISEEP) were used for data collection. Science concepts that practically applicable was demonstrated for the student on Egg incubation, Electric Stove, Scurrying Powder using (Egg shell) and saponification process on (Soap) production. Multi stage sampling procedure was used, (50) fifty students of 300level were randomly selected from faculty of science education. Linkert scale was adopted for data collection. 14 research questions item was raise consisting of two fold, A is on integration with six questions item while B is on the practices with eight questions item. Pilot test was conduct for 20 non-participating student using Cronbech Alpha with reliability coefficient of 0.81. Frequency, mean and standard deviation was used for the result analysis.

6.0 Results

6.1 Research Question 1

What is the level of integrating science entrepreneurship education into teaching and learning process towards economy development?

Table 1 ; Statistics showing the responses of the student on the integration of science education entrepreneurship skills A

		X	SD	Decision
1	Entrepreneurship skills integration into science education is most likely to be inevitable in having sustainable economy	2.66	0.172	AGREED
2	The practical production of changing scientific Produced by the expert in science education	2.80	0.172	AGREED
3	The product produce still have the same Characteristics to the original that make it suitable For used	2.60	0.843	AGREED
4	The turning of scientific concept products			

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	can serve as a new idea in acquiring scientific skills	3.92	0.716	AGREED
5	Appropriate and adequate use of new innovations Make science to be an entrepreneur	2.72	0.188	AGREED
6	Most daily used materials were mainly products Produced through scientific concepts	2.55	0.173	AGREED

Source; Sodangi, Nuhu & Adedo, (2025)

Table 1;-The research question one revealed the responses of the student on the integration of science education entrepreneurship skills into the classroom teaching it was agreed by the view of the students that science entrepreneurship skills can be integrated. The responses of the mean scores were above the decision rule of 2.50 this indicated that entrepreneurship skills acquisition can be done in classroom teaching. It's concluded that entrepreneurship can be integrated into science education teaching. In line with experiment conducted on classroom crises Onwuka 1990; Adedo, Jimoh, & Monsur, (2021), that knowledge of available techniques is a valuable asset towards effective teaching. Generally, success in teaching depends to a large extent on the appropriate selection and application of a teaching strategy from each subject matter while Kuratkos. 2005; Odiagbe and Otemuyiwa 2021; Taiwo and Onasanya 2024; Adedo and Olubunmi (2024) stated that entrepreneurship is a vision, change and creation, process that involves exploring idea generation that call for integration into science education practices. The strategies the teacher employs determine all other factors both in planning, organizing, practice and integrating as a process in the classroom teaching.

6.2 Research Question 2

What is the level of integrating science entrepreneurship education into teaching and learning as a practices?

Table 2 ; Statistics showing the responses of student on science education entrepreneurship practice

	X	SD	Decision
1	Continuous training on science entrepreneurial skills can legitimate improved the scientific skills	0.24	0.364 AGREED
2	The used of scientific process is in evitable during skills acquisition	2.62	0.185 AGREED
3	Application of practical concept in entrepreneurship skills can be used inform of scientific practice	3.30	0.185 AGREED
4	Application of scientific knowledge gained without practice allow individual to nuisance to the society	2.84	0.217 AGREED
5	Demonstration method in teaching was design to develop and inculcate scientific attitude and skills into the student to practice and function within the society	3.20	0.166 AGREED
6	Since demonstration method could be done in the classroom situation entrepreneurship		

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	can also be practice in the same way	2.62	0.125	AGREED
7	Applied practical in scientific concepts without practice allow individual to lost the knowledge gain through scientific process	3.24	0.170	AGREED
8	Continuous training in science likely be determine by the cutineneous used of scientific Process	2.74	0.191	AGREED

Source; Sodangi, Nuhu & Adedo, (2025)

Table 2; showing the responses of the student views on science education entrepreneurship practice in turning scientific concepts into products during the classroom teaching. From the mean scores it shows that the mean responses were higher than the decision rule of 2.50 it was concluded that science entrepreneurship skills can serves as a practice and can be practice within the classroom situation. In line with Aliu, Adedo & Adewuyi (2024) that input on acquiring training in teaching functions serve as practice to access and improve student pedagogical content knowledge. Opataye 2012; Adedo. and Omoniyu (2024) that science education as making of efficient provision of preparation for citizens which have been observed to be possible when the idea innovation of their global needs for teaching with the aim of instilling scientific and skill values in learner.

7.0 Conclusion

The findings revealed that integration of science entrepreneurship skills as a practice would serve as a catalyst for economy development is inexorable. Science education entrepreneurship is with the aims of producing students that can convert the understanding of practice concepts knowledge into products and materials learning. Integration and practice are two different words but synonymous to each other in entrepreneurship content because there are some skills that one need to integrate into practice if not done probability of loosens such skills may inevitable to achieve sustainable economy development.

8.0 Recommendations

1 Giving adequate and enough financial assistance needed that will encourage the students to practice entrepreneurship even if in a small scale.
2 Government and the education stake holders must realize the aims and objectives that establish science as goal.
3 the integration and practice.
4 Science education teachers should see how this entrepreneurship skills be introduce into classroom practice
5 Science must see need for entrepreneurship skill practice beyond the classroom teaching
6 Adequate training should give to science teacher on how practical applied concepts on entrepreneurship is to be taught
7 Giving adequate and enough financial assistance needed that will enable government and the education stake holders to realize the objectives of the integration and practice.
8 Organizing seminars and workshop on entrepreneurial skills

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