

**DEVELOPING A CULTURE OF ENTREPRENEURSHIP AMONG
SCIENCE, TECHNOLOGY, ENGINEERING AND
MATHEMATICS EDUCATION STUDENTS: THE WAY
FORWARD**

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Abstract

Entrepreneurship education is introduced to all students of all disciplines in higher institutions as a means of reducing unemployment, poverty reduction and self reliance after graduation. The purpose of this research work was to find out the response of science, technology engineering and mathematics education students towards entrepreneurship education and also the challenges faced by students during the implementation of entrepreneurship education in tertiary institution. In order to carry out the study two research questions were formulated. The area of the study was Akwa Ibom State. A survey research design was adopted for the study. The sample size for the study was one hundred and twenty final year students (120) randomly selected from three (3) tertiary institutions in the state. The instrument for data collection was a 10 item questionnaire tagged Entrepreneurship Response Questionnaire (ERQ). The instrument was administered personally by the researchers to the respondent after entrepreneurship classes in their

respective schools. Data collected were analyzed using frequency count and percentages. The result revealed that students' response to entrepreneurship education subject was high. It also revealed an enormous challenges faced by the students in the implementation of entrepreneurship education such as lack of facilities, lack of collaboration between schools and allied industries, lack of commitment to the practical perspective by the educators as well as lack of funds and take off grant for students to put to practice their acquire knowledge and experiences after school. Based on the finding it was recommended among others that government should provide take off grant for all students of entrepreneurship education of higher institutions to enable them to externalize their acquire skills and knowledge in different trades.

Tertiary education (University, Polytechnic, Monotechnic and Colleges of education) are at the centre of human resource development the world over. The fundamental mission of Tertiary institutions is to promote the life of the mind through intellectual inquiry and to generate, store and transmit specialized knowledge and sophisticated expertise, higher forms of culture and ethical bases of conduct. The World Bank (2009) justified the usefulness of tertiary institutions to a nation's development and well being when it stated that particularly University education is fundamental to the construction of a knowledge economy for the society in all nations. The importance of Nigeria tertiary education and University education in particular is aptly spelt out by the Federal Government of Nigeria in its National Policy on Education document (2014) *inter alia*: "To contribute to national development through high level relevant manpower training; To develop and inculcate proper values for the survival of the individual and society; To develop the intellectual capability of individual to understand and appreciate their level and external environment; To acquire both physical and intellectual skills, that will enable individuals to be self-reliant and useful members of the society; To promote and encourage scholarship and community service; To forge and connect national unity and to promote national and international understanding and interaction. This objective of tertiary institution calls for a radical approach in the structuring of its curriculum.

The World's Education Forum (2015) draft declaration on education 2030: Towards inclusive and equitable quality education and life-long learning for all, "commits to an education agenda that is holistic, ambitious and aspiration, leaving no-one behind". The declaration in line with Dakar Framework for Action on Education for all by UNESCO under pin that all young people and adults must be given the opportunity to gain the knowledge and develop the values, attitude and skills that will enable them to develop their capabilities to work, to participate fully in their society, to take control of their own lives and to continue learning, and become active agents in shaping their future and develop useful work-related skills. Arising from this notion

therefore, Aliu (2014) opined that entrepreneurship education is learning directed towards developing in young people those skills, competencies, understanding, and attributes which equip them to be innovative, creative, initiators, and successfully managers and/or community businessmen. It is about increasing student's ability to participate and respond to societal changes (Olorundare & Kayode, 2014).

Entrepreneurship education is the type of education designed to change the orientation and attitude of the recipients and the process will equip them with the skills and knowledge to enable them start and manage a business. It aims at developing the requisite entrepreneurial skills, attitudes, competencies, and disposition that will predispose the individual to be a driving force in managing a business. Agu (2006). On the other hand, entrepreneurship education can be said to focus on developing understanding and capacity for pursuit of entrepreneurial behaviours, skills and attitudes in widely different contexts (Aliu, 2014).

Entrepreneurship Education is education programme that prepares individuals to undertake an operation of a small business enterprise Anuwa (2008). Agomuo (2015) opined that entrepreneurship education has become the vogue in contemporary economic development and that any well meaning and serious architecture for economic growth development must focus on entrepreneurship education. Emphasizing on the growth of entrepreneurship education throughout the world Agomuo (2015) opined that, entrepreneurship is a front burner within the Nigeria economic contexts and several institutions in the country have developed entrepreneurship curricular for their students in keeping with the national consciousness. Entrepreneurship education involves a special training given to student to enable them acquire the skills, ideas and managerial abilities and capabilities for employment rather than being employed. Entrepreneurs have long been drivers of innovation in developed countries. They start companies and create new industries that keep economics like china, state-controlled economic are building robust industries at stunning speed and siphoning off jobs from the west.

Entrepreneurship has become the most reliable employment strategy that can lead to economic self sufficiency. Entrepreneurial education promises self employment, which in turn provides people and their families with the potentials to create and manage their businesses. Entrepreneurial education enables individuals to be employer rather than merely being an employee. The concept of entrepreneurial Education, therefore, is embedded in the person of entrepreneur. The process involved in the production of this human person called the entrepreneur, whether through formal or informal is called entrepreneurial education or entrepreneurial training.

Little wonder therefore that the Nigerian government considered it necessary to introduce entrepreneurial studies in the tertiary education curriculum during the 2010/2011 academic session across the country. The primary goals of the entrepreneurship educations in Nigeria are not different from the generic goals captured

in the Dakar framework of 2015. However, due to the peculiar socio-economic circumstances of Nigeria, the specific goals of entrepreneurial education include:

- To serve as a catalyst for economic development and growth.
- To provide the young graduates with enough training and support that will enable them to establish an occupation in small and medium sized businesses.
- To inculcate the spirit of perseverance in the youths and adults which will enable them to persist in any business venture they embark on.
- To reduce the high level of rural urban migration
- To offer functional education for the people that will enable them to be self-employed and self reliant.
- To provide the youth with adequate training that will enable them to be more creative and innovative in identifying noble business opportunities, and
- To offer tertiary institution graduates with adequate training in risk management.

For the objectives to be achieved Nigeria approach is anchored on the involvement of school agencies, such as the National Universities Commission (NUC), National Commission for Colleges of Education (NCCE), and National Business and Technical Commission (NBTC) These tertiary institutions board is charge with the responsibility of introducing entrepreneurial courses into the existing curriculum. These courses are taken during the second year of National Certificate in Education (NCE) and four year degree programme, or the third year of a five year degree programme. During the first semester, students are exposed to courses covering core areas of business, while the second semester is spent in some business units within close proximity of the institution. This is followed by a practical component where the student is required to spend 10 weeks during the second semester of the respective years in school, as an apprentice in a manufacturing outfit such as a welding workshop or a service organization such as a tailoring workshop.

The educators equip the student theoretically under a standard classroom setting. The student is introduced to the fundamental elements of business such as the development of a business plan, the core content of entrepreneurship such as critical thinking, and idea generation. Besides, the classroom experience does not prepare the student for any specific industrial project. At the end of class activities students are given examination and relevant grades are assigned based on regular academic performance. Hence the present study want to find out the extent to which STEM student's response to the culture of entrepreneurship curriculum embedded in their curriculum.

Statement of the Problem

Entrepreneurial educations have been introduced in school curriculum across the nation's tertiary institution in Nigeria since 2010/2011 academic session. Students graduate from the course year in year out without commensurate changes in the labour market. The nation is still dabbling with high graduate unemployment. The problems therefore forces the researchers to find out the response of STEM students to a culture of entrepreneurship education curriculum and the possible challenges as identified by the students hampering the proper implementation of the curriculum in higher institutions.

Objective of the Study

The purpose of the study is to find out the response and challenges of developing a culture of entrepreneurship among science, technology, engineering and mathematics education students in tertiary institutions. Specifically the objectives of the study are:

1. To find out the response of STEM students to a culture of entrepreneurship in tertiary institutions.
2. To determine the challenges faced by STEM students in the implementation of entrepreneurship in tertiary institutions.

Research Questions

The following research questions were raised to guide the study:

1. What is the response of STEM student's to a culture of entrepreneurship in tertiary institutions in Akwa Ibom State?
2. What are the challenges faced by STEM students in the implementation of entrepreneurship in tertiary institutions in Akwa Ibom State?

Methodology

The area of the study was Akwa Ibom State, is one of the state in the south - south geopolitical zone in Nigeria, the state is bless with six (6) tertiary institutions (one federal university, one state university, two polytechnics federal and state, one school designated for Art and Science and one college of education).

A survey research design was adopted for the study. At the initial stage the researchers consider using one hundred and fifty final year student as a sample size for the study. However, after the distribution of the questionnaire to the sample student, only one hundred and twenty questionnaire were retrieved, thus reducing the propose sample size to one hundred and twenty. These sample size was randomly selected from the three tertiary institutions in the state. The instrument for data collection was a 20 item questionnaire tagged Entrepreneurship Response Questionnaire (ERQ). The instrument was administered personally by the researchers to the respondent after

entrepreneurship classes in their respective schools. Data collected were analyzed using frequency count and percentages.

Data Analysis

Frequency counts and percentage were used to analyze the data generated from the study.

Research Question: I

1. To what extent do STEM student's response to a culture of entrepreneurship in tertiary institutions?

Table I: Percentages Response of Students to a Culture of Entrepreneurship in Tertiary Institutions

S/N	Items	Agree	%	Disagree	%
1	Entrepreneurship classes will help me to have real work experience.	118	98.33	2	1.67
2	Entrepreneurship classes will help me to have entrepreneurship skills.	110	91.67	10	8.33
3	Entrepreneurship classes will help me to be self reliance after graduation.	80	66.67	40	33.33
4	Entrepreneurship classes will help me to acquire basic knowledge about business ventures.	60	50.00	60	50.00
5.	Entrepreneurship classes will make me creative and innovative thinker.	70	58.33	50	41.66

Table I revealed the response of students to a culture of entrepreneurship in tertiary institutions as follows 118 students (98.33) were of higher side that entrepreneurship classes will help them to have real work experience, 110 (91.67) responded that entrepreneurship classes will help them to have entrepreneurship skills, 80 (66.67) responded that entrepreneurship classes will help them to be self reliance after graduation, 60 (50.00) responded that entrepreneurship classes will help them to acquire basic knowledge about business ventures and 70 (58.33) responded that entrepreneurship classes will make them creative and innovative thinker. The total students score on the five (5) items researched into 438 (73.00) this indicated that students response to a culture of entrepreneurship education classes was high.

Research Question: II

2 What are the challenges faced by STEM students during and after implementation of entrepreneurship education in tertiary institutions?

Table II: Percentages Response of the Challenges Faced by STEM Students During and After Implementation of Entrepreneurship Education in Tertiary Institutions

S/N	Items	Agree	%	Disagree	
1	Lack of funds and take off grant and funds on the part of students to procure the needed entrepreneurial facilities could hinder students to established small business venture after graduation.	120	100	0	00.0
2	Lack of commitment to the practical perspective of entrepreneurship education by the educators could hinder student’s investment in business venture after graduation.	115	95.83	5	4.16
3	Poor student’s-industrial relationship could hinder student’s investment in business venture after graduation.	120	100	0	0.00
4	Lack of trained manpower in the pre-requisite entrepreneurial skill could hinder student’s investment in business venture after graduation.	90	75.00	30	25.00
5	Lack of effective supervision by educators on the entrepreneurial skill development could hinder student’s investment in business venture after graduation.	80	66.67	40	33.33

Table II revealed the challenges faced by students in the implementation of entrepreneurship education in tertiary institutions as follows 120 students (100) were of higher side that Lack of funds and take off grant and funds on the part of students to procure the needed entrepreneurial facilities could hinder students to established small business venture after graduation, 115 (95.83) responded that Lack of commitment to the practical perspective of entrepreneurship education by the educators could hinder student’s investment in business venture after graduation, 120 (100) accepted that Poor student’s-industrial relationship could hinder student’s investment in business venture after graduation, 90 (75.00) responded that Lack of trained manpower in the pre-requisite entrepreneurial skill could hinder student’s investment in business venture after graduation, and 80 (66.67) responded that Lack of effective supervision by educators on entrepreneurial skill development could hinder student’s investment in business venture after graduation. What this means is that all the challenges that were

researched into were major factors that hinders students acquired knowledge of entrepreneurial education practices after graduation.

Discussion of Findings

The response of STEM students to the culture of entrepreneurship education in tertiary institution was high this was an indicated by total of 438 (73.00) response to the five item pose in the questionnaire. What this means is that students are willing to acquire the culture of entrepreneurship education in tertiary institution. The students themselves acknowledge that entrepreneurship classes will help them to have real work experience, it will also help them to be self reliance after graduation. But however one wonders why we still have massive unemployed graduate after their exposure to entrepreneurship education in their year two and three respectively in tertiary institution. The finding of this study is in line with Aruwa (2008) who observed that students in higher institution have a serious liking for entrepreneurship curriculum. The study also revealed a serious challenge faced by the student during and after the implementation of entrepreneurship education in schools among were lack of funds and take off grant and funds on the part of students to procure the needed entrepreneurial facilities could hinder students to established small business venture after graduation. lack of commitment to the practical perspective of entrepreneurship education by the educators could hinder student's investment in business venture after graduation, poor student's-industrial relationship could hinder student's investment in business venture after graduation, lack of trained manpower in the pre-requisite entrepreneurial skill could hinder student's investment in business venture after graduation and lack of effective supervision by educators on the entrepreneurial skill development could hinder student's investment in business venture after graduation. The finding also is in line with Emenyeonu and Ogunsola (2012) who noted that the none implementation of entrepreneurial skills acquire by students after graduation were a direct result of the fact that students only acquire the knowledge but lack the financial capabilities to put to practice the acquire skills.

Summary and Conclusion

The study revealed that STEM students culture of entrepreneurship education were high, however great were the challenges of implementation of entrepreneurship education during and after graduation which hinders the establishment of business venture by the student.

Recommendations

Based on the finding of this study it is recommended as follows:

1. Take off grant should be provided by government to entrepreneurship education students so as to ensure that appropriate business of their interest is established.

2. The introduction of entrepreneurship education only for two semesters may not be enough to help the students develop appropriate skills that will need to start up their business. There is need to review tertiary institution curriculum to reflect entrepreneurship education from year one to the final year. This will help the students passing through it to be immerse into a trade of their choice.
3. Educators that are saddled with the responsibility of training these students should be exposed to different business ventures through workshops and seminars.

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