

## **Investigation of Curriculum Related Global Challenges to Entrepreneurship among Biology Education Fresh Graduates of Nigerian Universities**

Anidu, Innocent C. (PhD), Ndirika, Maryann C. (PhD)

Department of Science Education Micheal Okpara University of Agriculture Umudike – Abia State.

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**Abstract:** *The researchers investigated the curriculum-related global challenges to entrepreneurship among the fresh Biology Education graduates of Nigerian Universities. Two Universities were sampled randomly from each of the South- East and South-South geopolitical zones. Simple balloting was also used to sample 20 Biology Education fresh graduates from each of the universities as respondents. Only 77 out of the 80 respondents sampled returned their questionnaire. Four research questions and one hypothesis guided the study which adopted a survey design. Data analysis was by use of 5- points rating scale in which the respondents rated the extent they have acquired some Biology – based entrepreneurship skills described for them in the questionnaire. The mean ratings were used to answer the research questions, while T- test was used to test the hypothesis. Results show that these fresh graduates of Biology Education don't have enough biology based skills from their curriculum that would enable them go into business on graduation. The researchers therefore, recommend for review of curriculum to incorporate topics that would impact skills and inculcate spirit of entrepreneurship among these fresh graduates.*

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### **I. Introduction**

Education is viewed globally as an instrument for social development and social reforms through individual's development. It is therefore a key agent in the development of human skills and attitudes. Edeh and Ogbu (2002) thus pointed out that education is generally perceived to be the process of discipline through consistent and meaningful training and study in the development and acquisition of skills and knowledge. In other words, education implies a certain level of attainment in both knowledge and skills. The numerous Universities, Polytechnics and other tertiary institutions in Nigeria have continued to produce numerous graduates on yearly basis to the extent that majority of these graduates are now roaming the streets in search of jobs that are not always available. It is against this background that both the governments and educational institutions began to perceive that the necessary skills and attitudes needed by these graduates for self employment are lacking. Entrepreneurship education became incorporated as an integral part of the schools curricular at various levels of education in Nigeria, to motivate and help these young graduates towards self-employment on graduation. Graduates of Biology Education are among the numerous graduates produced from Nigerian Universities who are roaming the streets in search of employment, the courses they studied in entrepreneurship notwithstanding. This study is therefore aimed at investigating the short comings in the Biology Education curriculum as a result of which the fresh graduates are unable to venture into business on graduation even when all other resources are available.

### **Unemployment and Poverty Situation in Nigeria**

Unemployment refers to the difficulty of getting a job when one is seen and known to be seriously seeking to get it. This concept includes those who earnestly search for work, but may reject certain employment opportunities on account of unattractive income (Anidu, 2016). Unemployment no matter the type and the cause is a stigma both to the unemployed and to the society at large and therefore needs to be strongly addressed. Unemployment is highly associated with poverty and both of them can be seen as two sides of the same coin, the former facilitating the existence of the later. To be poor means to suffer a low standard of living, to be socially excluded, and worse still, to be vulnerable. The symptoms of unemployment and poverty in Nigerian society can be easily noticed from the various forms of anti- social activities prevalent in the society which include desperate undertakings and escapist life styles such as armed robbery, kidnapping, women and child trafficking, prostitution, ritual killings and cultism.

Nigeria, therefore deserves a better and functional education system that would shift our graduates from these social vices which they enter into out of frustration, to a better and self reliance – oriented learning which would enable the graduates perceive themselves as not only self – sustaining individuals but also as employers of labor. It is in the light of this need for functional educational system that various entrepreneurship education programmes were introduced into the Nigerian system.

### **Entrepreneurial Training And The Biology Education Curriculum**

The World Wide Website Dictionary.Com (Feb. 2016) defined an entrepreneur as a person who originates and manages any enterprise, especially a business, usually with considerable initiative and risk. According to Ejim, Okoye and Ezigbogu (2011) a typical entrepreneur is a risk taker and one who braves uncertainty. Through devotion to duty and singleness of purpose, he creates a business and industrial activity where none existed before. Entrepreneurial training can therefore be defined as a form of training that equips an individual with the ability of seeing and identifying business opportunities, gather the necessary resources to take advantage of them and initiate appropriate actions to ensure success.

The National policies on Education in Nigeria had always emphasized the production of school leavers who can be self reliant and also who would be able to provide employment for others through their entrepreneurship.

Thus, the federal Republic of Nigeria (2013) in her new edition of the National Policy on Education re-emphasized that.

“University Education shall make optimum contribution to national development by... (d) making entrepreneurial skills acquisition a requirement for all Nigerian Universities” (FGN, 2013: Section 5 No 86 d).

This objective can only yield fruit if these school leavers had acquired enough technical skills in their respective areas of specialization, as well as the basic entrepreneurial training/ education while at school. The authors are of the view that the present structure of Entrepreneurship education in Nigeria puts many university graduates, especially those in Biology Education at a disadvantage.

This explains why many of them after searching for non- existing (teaching) jobs abandon their discipline and go into trading, while others settle for less attractive and even less prestigious jobs like driving, salesmanship and local task- force operatives. The whole situation calls for an over-view of the Biology Education curriculum as prescribed by the Nigerian University Commission (NUC), to find out if the curriculum content actually provides any form of entrepreneurial training in Biology, which can enable the Biology Education graduate start up a business if the white- collar job is not available. If the curriculum does not provide for the appropriate and enough entrepreneurial training, then it should be reviewed in order to achieve the desired goals.

### **Statement of the Problem**

Unemployment and poverty have become protracted twin cankerworms in Nigerian society, all the effort being made by the government and educational institutions to arrest the situation notwithstanding. A survey carried out by Sahara Reporters (a leading recruitment agency in Nigeria based in Lagos), and published in Guardian Newspaper (Of January 25, 2016) shows that out of total of 89,755 graduates randomly sampled for their study, 41,032 of them representing 45.72% are totaling unemployed. Various courses/ programmes on entrepreneurship were mounted for these graduates while they were still in school, yet they seem not to be able to start up any business of their own after graduation. The authors therefore, suspect that the problem is based on the curriculum these graduates passed through which seems to be defective.

### **Purpose of the Study**

The aim of the study is to investigate the curriculum related impediments to entrepreneurship among the fresh graduate of Biology Education from Nigerian Universities. Specifically the researchers intend to find out:

- i. The entrepreneurship skills in Biology which the students can acquire based on the present NUC curriculum in Biology Education.
- ii. The extent to which the entrepreneurship skills in Biology are acquired by the fresh graduates of Biology Education.
- iii. The extent to which business management skills are acquired by the fresh graduates of Biology Education based on the present NUC curriculum.
- iv. The entrepreneurship skills in Biology which could not be acquired by fresh graduates of Biology Education based on the present NUC curriculum.

### **Research Questions**

The following research questions were posed to guide the study;

- i. What are the entrepreneurship skills in Biology which the students do acquire based on the present NUC curriculum in Biology Education?
- ii. To what extent are these entrepreneurship skills in Biology Education?

- iii. To what extent are Business Management skills acquired by the fresh graduates of Biology Education based on the present NUC curriculum?.
- iv. What are the entrepreneurship skills in Biology which are not acquired by fresh graduates of Biology Education based on the present NUC curriculum?

**Research Hypothesis**

The following Null hypothesis was formulated to further guide the study:

H<sub>01</sub>: The ratings given by the male graduates and the female graduates in respect of the acquisition of entrepreneurship skills from NUC curriculum in Biology Education do not significantly differ from each other.

**II. Research Method**

The study is a cross-sectional survey study, in which cross-sections of graduating Biology Education students from South-East and South-South geopolitical zones where sampled. The population of the study consists of all the graduating students of Biology Education of the Universities in the South-East and South-South States of Nigeria, the exact number of which could not be obtained at the time of the study.

The graduating students were chosen as they would have completed their course work leading to the award of Bachelors degree in Biology Education. The authors felt that such a study has not been carried out in those two zones, hence the choice of the zones.

Simple random sampling method was used to sample two universities from each of the Geo-Political Zones. Simple random sampling was also used to sample twenty students from each of the four (4) Universities sampled for the study.

However, out of the 80 (Eighty) graduating students sampled for the study, only 77 (seventy – Seven) returned the questionnaire administered on them. Thus, seventy-seven (77) graduating students were used for the study. This consists of 32 males and 45 females.

The instrument used for data collection was the questionnaire on curriculum related impediments to entrepreneurship among Biology Education graduates of Nigerian Universities. The questionnaire consists of basic entrepreneurship skills in areas of Biology and Business Management. The respondents were expected to indicate the extent to which they have acquired those skills on a 5- points rating scale as follows:

- Very High Extent (VHE) = 5points
- High Extent (HE) = 4 points
- On the Average (AVE) = 3
- Little Extent (LE) = 2
- Very Little/No Extent = 1

Mean ( $\bar{X}$ ) ratings of each of the entrepreneurial skills by the respondents were calculated and used to answer the research questions. Mean (X) ratings of 3.00 and above were accepted indicating that the graduating students have the skill under investigation. Any rating below 3.00 was rejected indicating that such a skill has not been acquired by graduating students. The mean ratings were used to answer the research questions. The hypothesis was tested using the T- test.

**III. Results**

The results obtained from the analysis of the collected data are presented in the following table:

**Table 1:** The extent of acquisition of some entrepreneurial skills in Biology Education among fresh graduates from sampled Universities in South- East and South- South geopolitical zones of Nigeria.

**NB:** Total Number of Respondents = (N) = 77  
 No. of Males (nm = 32)  
 No. of Females (nf = 45)

S/No	Biology Based Skills	Mean (Males)	Mean (Females)	Sample Mean	Decision
1.	Fish Farming	2.23	2.19	2.21	Reject
2.	Snail Farming	2.25	2.20	2.22	Reject
3.	Grass cutter Farming	1.01	1.00	1.00	Reject
4.	Aquaculture	2.09	2.04	2.06	Reject
5.	Poultry Farming	2.90	2.79	2.83	Reject
6.	Rabbit try	3.09	3.03	3.05	Accept
7.	Sheep/Goat Farming	3.32	3.28	3.30	Accept
8.	Floriculture/Ornamental Plants Production	3.34	3.34	3.34	Accept
9.	Olericulture/Vegetables Production	3.45	3.45	3.45	Accept
10.	Pornology/Fruits Production	3.50	3.46	3.48	Accept
11.	Mycology/Mushroom Culture	1.10	1.10	1.10	Reject
12.	See Weeds Culture	1.08	1.08	1.08	Reject

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13.	Pests/Weeds control	3.96	3.81	3.87	Accept
14.	Environmental Management	4.14	4.01	4.06	Accept
	<b>Business Management Skills</b>				
15.	General Feasibility Studies	3.27	3.22	3.25	Accept
16.	Bio/Agro based Feasibility	3.20	3.17	3.18	Accept
17.	Feasibility on Educational Business	3.43	3.38	3.40	Accept
18.	Accounting Skills	3.74	3.74	3.74	Accept
19.	Marketing/Public Relations Skills	3.61	3.58	3.60	Accept
	Totals	X=3.05 nm=19	Y=2.85 nf=19	EX=2.85 n=19	Reject
	Standard Division (S <sup>2</sup> )	S <sup>2</sup> m= 0.9802	S <sup>2</sup> f= 0.9129	S <sup>2</sup> = 0.9409	

**Source:** The Researchers 2017 Field Study.

Based on the above data, the research questions are hereby answered as follows.

**Research Question 1**

What are the entrepreneurship skills in Biology which the graduates do acquire based on the present NUC curriculum in Biology Education?

From the table above, the entrepreneurship skills which the graduates do acquire are Rabbitry, Sheep/Goat farming, Floriculture, Olericulture, Pomology, Pests/Weeds control, Environmental Management.

**Research Question 2**

To what extent are these entrepreneurship skills in Biology acquired by the fresh graduates of Biology Education?

From the above table, most of the acquired skills are acquired only at average/slightly above average extent. They include

- Environmental Management Skills (4.06) High Extent
- Pests/Weeds Control Skills (3.87) Average Extent
- Fruits production/ Porn logy (3.48) Average Extent
- Vegetable Production/Olericulture (3.45) Average Extent
- Ornamentals Production/Floriculture (3.34) Average Extent
- Sheep/Goat Farming (3.30) Average Extent
- Rabbitry (3.05) Average Extent

**Research Question 3**

To what extent are Business Management Skills acquired by the fresh graduates of Biology Education based on the present NUC curriculum?

From the above table also, all the Business Management skills are acquired only at average extent as follows:

- Accounting Skills (3.74) Average extent
- Marketing/Public Relations Skills (3.60) Average extent
- Feasibility of Educational Business (3.40) Average extent
- General feasibility studies (3.25) Average extent
- Bio/Agro based feasibility (3.18) Average extent

**Research Question 4**

What are the entrepreneurship skills in Biology which are not acquired by fresh graduates of Biology Education based on the present NUC curriculum?

From the table also, it could be observed that the graduates do not acquire the following skills.

- Grass cutter farming (1.00) Very little/No extent
- Sea Weeds Culture (1.08) Very little/No extent
- Mycology (Mushroom Culture (1.10) Very little/No extent
- Aquaculture (2.06) Little extent
- Fish Farming (2.21) Little extent
- Snail Farming (2.83) Little extent

**Research Hypothesis**

The ratings given by the male graduating students and the female graduating students in respect of the acquisitions of entrepreneurship skills from the NUC curriculum in Biology Education do not significantly differ from each other.

i.e.  $H_0 = \mu_m = \mu_f$       ~~3.05~~ = 2.84

The null hypothesis is tested using T-test at 0.05 level of significance as follows:

$$T. \text{ cal} = \frac{\bar{X} - \bar{Y}}{\sqrt{\frac{S^2_p}{nm} + \frac{S^2_f}{nf}}} \text{ where } S^2_p = \frac{(nm-1) S_m^2 + (nf-1) S_f^2}{nm + nf - 2}$$

**T-test Summary**

T-test Cal	T-test Tab	Level of Sig.	Degree of Fred.	Remark
0.665	2.03	0.05	36	Not Significant

**Decision**

Since the T-test calculated (0.665) is less than the tabular value of the T-test (2.03) at 0.05 level of significance, the null hypothesis which states that the ratings given by the male and female graduates do not differ from each other is hereby accepted.

**IV. Discussion**

As could be observed from the data collected and analyzed, the Biology Education graduates do not have adequate Biology/Agro-based entrepreneurship skills that would enable them start off business of their own. The very few skills they do acquire in the areas of pests/Weeds control, Horticulture, Sheep/Goat farming and Rabbitry are only acquired at average extent. Only Environmental Management skills are acquired at high extent.

Other vital skills which are supposed to make the graduates self- reliant and possibly employers of labor are lacking. These include Grass Cutter Farming, Snail Farming, Fish Farming, Poultry Farming, Aquaculture, Sea Weeds Farming and Mycology/Mushroom culture. The lack of entrepreneurship skills in these areas lead to existence of untapped resources and unexplored business opportunities. This situation indicates curricular inadequacies, a situation whereby the curriculum cannot solve the unemployment problem in the country in the area of Biology Education.

The entrepreneurship education programme that were introduced by Nigerian Universities into their curricular to reverse the graduate unemployment trend has not solved much problems. This calls for further review of the curriculum content of Biology Education, to find out the extent the course contents can help to make the graduates self- reliant and even employers of labour for the future. It may require the incorporation of local technology, as well as local experts as resource persons, especially in the areas of Snail Farming, Mushroom Culture, Rabbitry, Grass Cutter Farming etc. Ezeudu (2005) had earlier maintained that;

“We have functional scientists in Africa before the Europeans came to our shore. When we recall that the skills, knowledge and procedures of making and doing useful things in indigenous technology approximates those of the modern technology, then the need to harness the indigenous science and technology becomes imperative. These are in the areas like saponification, herbal treatment and bone setting”.

Therefore, the authors are of the opinion, that even the indigenous technology can be modified and incorporated into the Biology Education curriculum if some of its contents can boost the entrepreneurship skills of the fresh graduates.

**V. Recommendations**

The authors hereby make two broad recommendations based on impartation of skills and inculcation of the spirit of entrepreneurship in the prospective graduates. These two recommendations should form part of the curriculum restructuring process.

**VI. Impartation Of Skills:**

Entrepreneurship education programmes in school should be restructured and decentralized. According to Anidu (2016), most higher institutions in Nigeria run the entrepreneurship development programmes as mere general studies courses, in which case all the students in 200 level or 300 level are gathered in a lecture hall in the name of Entrepreneurship Education. Most universities have even gone as far as giving the courses GNS/GST/GSS code numbers. The authors are hereby recommending that curriculum planners in Biology Education should develop specific entrepreneurship course – outline in Biology, such that the student of Biology Education should have as part of his/her scheme of work in Entrepreneurship Development Programme, such topics like Fish Farming, Snail Farming, Mushroom culture, Floriculture, etc. The idea does not condemn or cancel courses in general entrepreneurship as found in the present GSS/GNT/GNS courses, rather, these General (Basic) entrepreneurship courses should serve as mere foundation courses in entrepreneurship. This may lead to removal of some existing Biology or other courses from the present curriculum to make way for those that can

make the graduates self-reliant and future entrepreneurs. This recommendation also entails that the universities should facilitate the establishment of cottage business outfits based on these entrepreneurial topics. This will make the students have the first-hand skills acquisition while in school, using the business out-fits (e.g. the snail farm) as the training ground.

### **Inculcation of Spirit of Entrepreneurship**

It is one thing to acquire a skill, it is yet another thing to have the zeal and confidence to shun paid employment and decide to open up a business outfit where the acquired skill would be put into practice on self employment basis. For this reason, the authors advocate entrepreneurship development curriculum that incorporates three processes of inculcation of entrepreneurship spirit, namely; motivational processes, managerial opportunities and reinforcements. As earlier indicated in Anidu (2016),

“Motivational processes in this context means that the facilitator counsels the student on the need to be able to open and manage a business organization, and making him/her believe that he/she can do it successfully. In this process, the student becomes encouraged. Managerial opportunities entails that the student should be given the opportunity to freely manage a business outfit or parts of it while in school, and made to be accountable for every success/failure, but without financial punishments on the side of the student. By so doing, the student’s mistakes are identified and corrected. Reinforcement practices means that all the positive aspects of the student’s managerial abilities are identified and amplified, and possibly rewarded. This would serve as a morale booster to the student”.

## **VII. Conclusion**

The current curriculum (or syllabus) for the Biology Education programme appears to be lacking a lot. It does not give room for any other employment opportunity apart from classroom teaching, obviously under a paid employment.

The curriculum seems to be filled up with some academic exercises that have no bearing with the future needs of the people, or the people’s way of life. Biology Education curriculum should therefore be restructured to take into considerations, the countries societal needs, the people’s indigenous technology and ways of life, and entrepreneurial competences of the graduates. This would definitely contribute significantly towards reducing graduate unemployment both in Nigeria and in many other African countries.

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