

Entrepreneurship Education and Entrepreneurial Skills of Science Education Students in Federal University of Technology Minna. Implication for Sustainable National Development in 21st Century

Osebor, E., Duru, P., Michael. T. & Bello, M.R.

Department of Science Education,
School of Science and Technology Education,
Federal University of Technology, Minna, Niger State.

Abstract

This paper discusses the significance of entrepreneurship in Science Education, the vital issues involved in entrepreneurial in Science Education such as skills acquisition, youth empowerment, self reliance and wealth creation. Entrepreneurship in Science education can be used for wealth creation, poverty reduction, ensuring social-economic empowerment, sustained self national development. The planning, management and administration of Science education should refocus on the deliberate process of using formal and informal education to make it relevant, life-long and functional by embracing entrepreneurship in Science Education to address the challenges of unemployment and under-employment with its national consequences of poverty, insecurity, social unrest, school dropout, indiscipline in the society and schools, destruction and vandalization of public and private properties. The paper concluded with recommendations demanding the government to developmental strategies for individuals and nation's commitment to the realization of the specific objectives of actualizing basic, functional and entrepreneurship in Science Education to address the issue of unemployment, poverty, reduction and national insecurity in developing and under-developed countries of the world.

Key word: Entrepreneurial skills, Entrepreneurship education and Entrepreneurship.

Introduction

Baiden (1994) observed that there is growing rate of unemployment among the educated in the formal education sector because growths in job openings have not kept pace with the number of new entrants into the labour market for the educated. Science appears to deal with some aspects of entrepreneurship education. Entrepreneurship in Science Education is the teaching of entrepreneurial skills like competitiveness, risk taking and self confidence. Even with science, the amount of time and energy devoted to entrepreneurship education is very limited.

This paper looked at entrepreneurship in Science Education as a purposeful education which can be used as a remedy for unemployment, and poverty eradication for national security, because education has remained the major tool for national development for many countries of the world. Science is a skill oriented course that can help equip individuals with needed for self reliance.

Meaning of Entrepreneurship/Entrepreneurial Education

The term entrepreneur is a French word which literally means 'between'. An entrepreneur is a person who operates a new enterprise or venture and assumes some accountability for the inherent risks.

Entrepreneurship is the process of starting a business or other organization. The entrepreneur develops a business model, acquires the human and other required resources, and fully responsible for its success or failure. Entrepreneurship is the quality and skill required to become an entrepreneurship. It refers to the capacity required for identifying and generating innovative business ideas, mobilizing resources, organizing production marketing the products, managing the risks and constantly working for growth and excellence of the business. The attributes underlying entrepreneurship include:

1. Self-direction
2. Self-nurturing
3. Action-oriented
4. High energy level
5. Tolerant of uncertainty

Entrepreneurship according to Drucker in Akuma and Igu (2012) is all about taking risk. Stanley (2006)

was of the view that it is all about seeing opportunities and bring about change. Wikipedia (2001) and Omiko (2012) in their view defined entrepreneurship as a practice of starting new organizations (business) or revitalizing mature organizations, particularly new businesses generally in response to identified

opportunities. Entrepreneurship means the ability to overcome that structural obstacle that hinders some from excelling. Ogbackirigwe (2010) defined entrepreneurship as the power, authority and consent given to someone to carry out certain activities on his/her own without someone intervening. The present day education does not give the youths the skill to engage in self employment. It is disheartening to see many Nigerians (school leavers/graduates) roaming the streets in both the urban and villages looking for white collar jobs. The white collar job opportunities are limited and highly competitive. It cannot go round to all job seekers in Nigeria because of the number of graduates being produced every year. The only solution to this problem is to integrate entrepreneurship into our school curriculum and introduce the learners (youths) into entrepreneurial education which would enable them acquire saleable entrepreneurial skills. Ekong (2006) noted that the federal government of Nigeria (FGN) urged training institutions to re-orient their programmes towards vocational and entrepreneurial education for training of staff and for onward production of graduates that would be equipped to possess the relevant skills for self-employment and self-reliance. Entrepreneurial education is a form of education that seeks to prepare people specially to be responsible and enterprising individuals who become entrepreneurs and entrepreneurial thinkers to contribute to economic and sustainable communities (Consortium for Entrepreneurship Education, 2005). Cherwitz (2006) viewed entrepreneurial education as the ability to educate people who will utilize their Intellectual prowess to add to disciplinary knowledge as a lever for social and economic good. Etonyeaku and Ajala (2010) strongly felt that "it seeks to prepare people particularly youths to become entrepreneurs or interpersonal thinkers by immersing them in real life learning experiences where they can take risks, manage the results and learn from the outcomes". They went further to emphasize that it will enable young people to learn organizational skills, time management skills, sought by employers.

Factors Affecting Entrepreneurship

Several factors that affect entrepreneurship in an area, some of these are:

1. Financial capital
2. Human capital
3. Infrastructure
4. Local economy size
5. Natural amenities
6. Few periods in the school time-table
7. High esteem for white-collar job

Benefits of Entrepreneurial in Science Education

Mueller (2004) and Okoli (2009) identified the benefits of entrepreneurship to include the following. It will help the students to:

1. Become entrepreneurial thinkers who also have the skills and tools to start the iron business.
2. Write a business plan; assess feasibility of ideas and management risk.
3. Apply basic marketing skills, business accounting principles and principle of human relations management
4. Engage in ethical business practices
5. Demonstrate financial management
6. Identify legitimate source of capital
7. Translate problems into opportunities
8. Demonstrate skills in maintaining business longevity.
9. Access other resources and services
10. Change personal and career attitudes including: ability to control one's own life, personality creativity and interpersonal communications. Entrepreneurial education can positively impact a learner at various levels in a wide variety of contexts and the benefits accruing from

entrepreneurship education is enormous. "Entrepreneurship education seeks to encourage an innovative and sustainable range of student centered activities in entrepreneur training directed at helping students to cope with the changes of the global knowledge-based economy.

Effects of Unemployment and Poverty

Mass unemployment and the resulting poverty have multi-variance consequences on youth, economic, social, political development of a nation leading to youth restiveness and personal society and national insecurity.

As noted by Anho (2012) and Nwaosa, Ojohwoh and Jegbefum (2013), some of the effects includes;

1. Social unrest
2. School dropout
3. Destruction and vandalization of private and public properties
4. Creation of fear in citizens
5. Threat to life (individual and national)
6. Economic wastage and acute reduction in the nation's Gross Domestic Products (GDP) and Personal/National Income
7. Lack of foreign investment in a country or in particular region
8. Committal of other crimes such as; arm robbery; Arson; Bombing; Cultism; Youth exuberance; Hostage-taking; Human and drug trafficking; Ganstarism; Kidnapping; Thuggery; Rape; Vandalism of properties; Seizure of facilities; Occupation of industrial public and personal site; Inter and intra community strife; Work stoppage; Oil bunkering; Fake and illegal drug peddling; and Outright will from murder.

Entrepreneurship in Science Education as a provider of Goods and Services

Entrepreneurship in Science Education serves as provider to other firms, factories or industries. The goods and service include farm produce such as; cocoa which is a cash product for food and beverage manufacturing industries, rubber also a cash product for plastic and applied product industries, cassava and yam for food and chips and flour etc. The supply of such goods to industries increase economic growth, reduce the rate of poverty among unemployed youth in the society. Thus, entrepreneurial education enable recipients live a meaningful and fulfilling life and contribute to national development (Gibb, 2002, Agweda and Abumere, 2008). Entrepreneurship education aids the acquisition of team-building skills critical for both small-scale business and large-scale business. Entrepreneurship in education is useful for national security by creating career opportunities as identified by Okekeani (2008) cited by Akiri (2011), Anho (2013):

1. Agriculture crop production
2. Animal husbandry
3. Barbing
4. Beauty care
5. Coal production and sales
6. Clothes dyeing and tire
7. Driving career (cars, keke & okada)
8. Iron and steel production
9. Paper and pulp
10. Petroleum/petrochemical production
11. Poultry
12. Tobacco production
13. Soap and detergent production
14. Wood treatment
15. Sewing and fashion design
16. Petty trading
17. Car wash

Strategies Required For Promoting Entrepreneurship in Science Education

The following strategies will assist in promoting entrepreneurship in Science education.

1. Employment of qualified and competent resource persons/teachers: The teachers or resource persons employed to teach entrepreneurship education should be competent and qualified in terms of professional qualification, practical skills and knowledge of business opportunities available after graduation. The teacher is expected to know both the methodology and content of the subject to foster effective teaching and learning (Adetayo, 2009).
2. Teaching strategies Biology teachers should use appropriate teaching strategies (such as field trip, demonstration and inquiry) in teaching entrepreneurship education so that students will understand the lesson.
3. Entrepreneurship club & Exhibition Entrepreneurship club should be established to promote and teach those topics in biology that create self employment.
4. Seminars and workshop on entrepreneurship in biology are needed by the entrepreneur to succeed in business. So seminars and workshop should be organized for students at least once each academic session. The successful entrepreneurs and experts in biology to be invited to deliver lectures on entrepreneurship to broaden the students mind so as to learn more about the entrepreneurship.
5. The entrepreneurial teacher needs to counsel the students on the benefits, importance, significance and contribution of entrepreneurship education to national development. Regular visitation to entrepreneurs in the community entrepreneurship educators should regularly organize visits to local entrepreneurs for their students. These visits will afford students the opportunities to become familiar with entrepreneurial and management tasks. Omoifo (2009) noted that to successfully implement entrepreneurial curriculum, the teachers should use project work, case studies, field trips and link with entrepreneurs in the community.

Challenges to Entrepreneurship in Science Education

Entrepreneurship in Science Education is faced with a lot of challenges in Nigeria these include;

1. Lack of awareness
2. Large classes
3. Poor funding
4. Assessment procedure.
5. Unqualified resource persons/instructors/teachers

Recommendation

The problem of unemployed graduates in Nigeria is on the increase on daily bases as the entire human population increases. So the solution to this problem is entrepreneurship. education in higher institution. Since entrepreneurship is globally accepted to address this problem, this paper recommends the following:

1. Adequate and well equipped infrastructure at the various institutions of higher learning.
2. Replacement of out-dated equipment at the various higher institutions respectively.
3. Anho (2011) recommendation that entrepreneurship education, training, mentoring and work experiences should be integrated more in the curriculum of all higher institutions and not to restrict it to only specialized faculties/departments and that entrepreneurship education and development as a programme of human capital development, can be used and should be used for instilling and preserving entrepreneurial climate in an economy and government so as produce self-sufficient, self-sustainable citizens. This will ensure prospects of economic growth, equitable economic distribution, social cohesion, alleviate poverty in the society and guarantee national security.
4. Government should provide loans to the entrepreneurial education trainees to enable them start-up their own businesses.
5. Nigerian government should address the issue of poor infrastructural facilities like electricity and good roads.

6. More emphasis should be on skill acquisition, practical work, concentrate on the functional aspect in each field of specialization
7. The Nigeria government must create an enabling environment for graduate self employment. This can be achieved through provision of functional loans for graduating corps members who intend to achieve self employment.
8. National University Commission (N U C) could try to inculcate entrepreneurship culture among undergraduate as a solution, as this will drastically reduce unemployment challenges among graduates Nigeria.
9. Lecturers and student in higher institutions should partner with industries. This will help to expose them to successful practicing business people who would share their experiences on regular basis and some time serve as a preparatory chance for planting entrepreneurial seed for post graduate job creation ability.
10. Nigeria should up grade education just as Ghana and U.S.A education, it should move from theory based learning to practical based learning as that will foster development.
11. Entrepreneurship education should be offered by all students in Nigeria higher institution as golden opportunity toward better employment ability and self development.

Conclusion

1. The role of entrepreneurship education is a panacea to unemployment problems, so Nigeria higher institution of learning must redesign their entrepreneurship curriculum to be more functional, practical, vocational oriented like that of Ghana and U.S.A, Japan educational system where attention is paid to what you can do, not just paper certificate, grade both in the school and outside the school any where in Nigeria. There should be value for hand work persons not only white collar job employed youth. We should revisit the purpose of introduction of 6-3-3-4 system of education judiciously, it will go a long way to reduce unemployment rate.
2. Entrepreneurship in Science education is very important in our Educational system, it is necessary for all higher educational institutions in Nigeria to take part in it. Enforcing entrepreneurship in our educational system irrespective of their area of specialization will help to reduce the rate of poverty and promote the rate of unemployment which will translate to more employment and increase in economic empowerment of Nigeria graduate.

Reference

- Abdullahi, A (2004). *Science teaching in Nigeria*. Ilorin A to press limited. Akuma, N. & Igu,
- N.C. N. (2012). Integrating entrepreneurial education into teacher education curriculum: *Nigerian Journal of Curriculum Studies*. *Journal of curriculum organization of Nigeria* (CON). 19(3) 79-86.
- Agweda, F.E. & Abumere, D.J. (2008). Entrepreneurship Education: Problems and Prospects. Paper Presented at the 7th Annual Conference National Association for Research Development (NARD). Federal College of Education, Zuba.
- Akiri, A.A. (2011). Universal Basic Education. The Challenges and Future Prospects in Entrepreneurship and Sustainable Development. In E.A. Arubayi, N.E. Akpotu and E.P. Oghuvbu (Eds.) NAEAP Publication, Delta State University Chapter Abraka 107-114.
- Anho, J.E. (2011). Impact of Entrepreneurship Education and Training on University Graduates for Sustainable Development in E.A. Arubayi, N.E. Akpotu and E.P. Oghuvbu (Eds.) *A Book of Reading: Education and Training for Entrepreneurship*.

- Anho, J.E. (2013). *Recreating the Management and Administration of Adult and Non-Formal Education Vis-à-vis Entrepreneurship Education for Unemployment and Poverty Eradication*. A paper presented at the Conference of Association of Nigeria Teachers (ASCNT), Enugu.
- Baiden (1994): *Entrepreneurship as a Rural Economic Development Strategy*. Washington DC.
- Cherwitz, M. (2006). *Entrepreneurship and economic growth. An inductive survey to specific topics*. University of Namir http://www.spea.indian.edu/ids/pdfholder/IDSIS_education. Andrian Publication series.
- Eneh, (2000). *History and philosophy of Science*. Enugu: An outline, Magnet business Enterprise, Publishing Division. Entrepreneurship. Retrieved 2nd May, 2008.
- Etong, A.D. (2006). Entrepreneurship education in Nigeria, its implication for manpower needs of the nation. *Nigerian Journal of Professional Teachers*. 1(3) 112-120.
- Etonyeaku, E.A.C. & Ajala, E.O. (2010). Youth empowerment through skills development and entrepreneurship education in Nsukka education zone of Enugu State. *International Journal of Educational research*. 10(3) 133-144.
- Gibb, A. (2002). In Pursuit of a New "Enterprise" and "Entrepreneurship" Paradigm for Learning: Creative Deconstruction, New Values, New Ways of Doing Things and New Combinations of Knowledge. *International Journal of Management Review* 4(3), 233-269.
- Mapaderun, O. (1998): *History and philosophy of science: Citizenship of computer*.
- Nwaosa, I.P.; Ojohwoh, R.; and Jegbefom F.M. (2013). Curbing Youth Restiveness in Nigeria Through Entrepreneurship Opportunities in Business Education Programme - A Paper Presented at the Annual Conference of the Institute of Education, Delta State University, Abraka 11th - 17th June.
- Ogbaekirigwe, A. C. (2010). Empowering the girl-child through vocational and technical education: A panacea for sustainable development. *International journal of forum for African women educationalists of Nigeria (IJOFAWEN)*. 2(2) 22-32.
- Okoli, J.N. (2009). Enhancing gender equity in Entrepreneurship Education through Science and Technology Education (STE) in tertiary institutions in Nigeria in Science Teachers Association of Nigeria (STAN), gender and STM education series 3 (eds) N. Chibuogwu, & Z.C. Njoku pp 40-51.
- Omiko, A. (2012). Youths empowerment strategies: A call for reforms and transformation of the science, technology, vocational and technical education curricular in Nigeria. *Journal of educational administration and planning (EBSUJEAP) in print*.
- Omoifo, C. N. (2009). Curriculum and gender equity in entrepreneurship education. Annual 50th Conference of STAN Proceeding. Nigeria: Heinemann Educational Books.
- Stanley, M. (2006). Effective entrepreneurship education: a framework for innovation and implementation. *Journal of entrepreneur ship education*.
- Wikipedia (2001). *The free encyclopedia entrepreneurship* <http://wikipedia.or/wiki/>