

**COMMERCIALISING ENTREPRENEURSHIP AND SCIENTIFIC  
SKILLS FOR SELF-RELIANCE AND JOB CREATION IN  
NIGERIA: ISSUES AND CHALLENGES**

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**Abstract**

*Entrepreneurial skills are acquired through training that emphasizes the acquisition and development of appropriate knowledge and skills that will enable an individual to maximize the resources around him within the limit of his capability. The best and easiest way of achieving this is through acquisition of entrepreneurial skills embedded in the science curriculum from secondary and tertiary levels of education. These lead to the creation of job, which can be possible if the candidate or personnel has the acquired entrepreneurial and scientific skills needed to create or secure job either in the industrial or become self-reliant individual. Science process skill is the interface between transfer of knowledge and entrepreneurial skill which is necessary for problem solving and functional living. Among the pressing issues and challenges faced is that, Nigerian policies introduced did not have much impact on entrepreneurial education simply because the policy makers did not appreciate on time the relationship between entrepreneurial education and enterprise creation. It was recommended among others that Science and Technology education must be given due attention by the government and the teachers in secondary and tertiary institution, and the practical aspect should be taught with relevant tools and equipment in well-equipped workshops/laboratories.*

Science is a branch of study especially concerned with facts, principles and methods. It is the knowledge acquired by careful observation and deduction of the laws which govern changes and conditions by testing those deductions by experiments. Science teaching in general aims at equipping the learners with appropriate scientific knowledge and skills which will enable them to explore their surroundings and become more creative and self-reliant. The knowledge and skills which science students acquire could be of value by helping them develop

entrepreneurial skills for job creation. Okoli and Onwuachu(2009), posited that exposing science students to scientific skills through practical lessons could enable them acquire skills to develop the capacity for critical thinking, generate ideas; and be able to repair and/or service simple electrical connections and wirings in the home, service and maintain mobile phones, electricity generating sets, radios, and other household electronics. The impact of skilled entrepreneurship in science should involve both male and female as stated by FRN (2004).

The goal of entrepreneurship education is to empower graduates, irrespective of their areas of academic specialization, with knowledge and skills that will enable them to create their own income generating ventures, even if they are not able to secure jobs in the public sector (Bassey & Archibong, 2005). Entrepreneurial skill consists of effective utilization of ideas, information and facts that help a learner develop competencies needed for firm career commitments such as setting up business, marketing, services or being productive, wealth creators, employers of labour and self-reliant thereby contributing in nation building. Entrepreneurship is the act of identifying, initiating, organizing and bringing a vision to life, be it a new product, service, process, organizational strategy, promotional strategy or a niche market (Akinwumi, 2012). Given the prevailing unemployment situation in Nigeria among university graduates, which currently stands at around 55% (Salami, 2011), entrepreneurial education in the university

has become crucial to enable graduates create jobs instead of job seekers.

Supporting the view that the young school leavers from Nigerian education system should be well equipped with requisite skills for survival; Okeke and Egbunonu (2008) opined that the youths should be equipped with appropriate scientific, technological knowledge and skills that will empower them economically for survival in our modern age of science and technology. The best and easiest way of achieving this is through acquisition of entrepreneurial skills embedded in the science curriculum for the secondary and tertiary levels of education.

An entrepreneurial skill according to Olagunju (2004) is the ability of an individual to exploit an idea and create an enterprise whether big or small not only for personal gain but also for social and developmental gain. His rich and Peters (2002) defined entrepreneurial skill as the ability to create something new with value by devoting the necessary time and effort, assuming the resulting rewards of monetary and personal satisfaction and independence. Entrepreneurial skills are acquired through training that emphasizes the acquisition and development of appropriate knowledge and skill that will enable an individual to maximize the resources around him within the limit of his capability. Entrepreneurial skill consists of effective utilization of ideas, information and facts that help a learner develop competencies needed for firm career commitments such as setting up business, marketing, services or being productive, wealth creators, employers of

labour and self-reliant thereby contributing in nation building.

### **Concept of Entrepreneurship**

Entrepreneurship is more than simply "starting a business." It is a process through which individuals identify opportunities, allocate resources, and create value. This creation of value is often through the identification of unmet needs or through the identification of opportunities for change. It is the act of being an entrepreneur which is seen as "one who undertakes innovations with finance and business acumen in an effort to transform innovations into economic goods hence Entrepreneurs see "problems" as "opportunities," and then take action to identify the solutions to those problems and the customers who will pay to have those problems solved. Entrepreneurial success is simply a function of the ability of an entrepreneur to see opportunities in the marketplace, initiate change (or take advantage of change) and creates value through solutions. Entrepreneurship is known as the capacity and attitude of a person or group of persons to undertake ventures with the probability of success or failures. It demands that the individual should be prepared to assume a reasonable degree of risks, be a good leader in addition to being highly innovative. In business management, entrepreneurship is regarded as the "prime mover" of a successful enterprise just as a leader in any organization must be the environmental change agents.

Kanothi, (2009) defines Entrepreneur as the 'instigator of entrepreneurial events for so long as they occur'. Tijani-Alawiye (2004) defines entrepreneurship as the process of increasing the supply of entrepreneurs or adding to the stock of existing small, medium and big enterprises available to a country by creating and promoting many capable entrepreneurs, who can successfully run innovative enterprises, nurture them to growth and sustain them, with a view to achieving broad socio-economic developmental goals. One of these goals is sustaining employment. Furthermore, Acs and Storey (2004) noted that entrepreneurship revolves around the realization of existence of opportunities in combination with decision to commercialize them by starting a new firm. This reasoning is what Thornton (1999) called demand and supply perspectives of entrepreneurship discourse. However, Shepherd and Oviawe(2010) observed that the essence of entrepreneurship development is the ability to envision and chart a course for a new business venture by combining information from the functional disciplines and from the external environment in the context of the extraordinary uncertainty and ambiguity which faces a new business venture. It then manifests itself in creative strategies, innovative tactics, mysterious perception of trends and market mood changes and courageous leadership. To the duo, 'entrepreneurship', when treated as 'enterprise-creation' helps develop new

skills and experiences that can be applied to many other challenging areas in life. More importantly, Oladele, Akeke, & Oladunjoye(2011)justified the need for promoting entrepreneurship culture on the ground that youth in all societies have sterling qualities such as resourcefulness, initiative, drive, imagination, enthusiasm, zest, dash, ambition, energy, boldness, audacity and courage which are all valuable traits for entrepreneurship development. Supporting this assertion, Unegbu, (2011) maintained that governments, NGOs and international bodies seeking to improve youth livelihoods could best pursue their empowerment objective by tapping into the dynamism of young people and build on their strong spirit of risk-taking through entrepreneurship development.

Entrepreneurship creative force has spread across markets and industries, simultaneously creating new products and business models. Many “high value” entrepreneurial ventures seek venture capital in order to raise capital to build the business (Ugwuda, 2014). An entrepreneur with basic science education skills can manage him/herself or set up his own business and become self-employed and be able to employ others (FRN, 2004). The entrepreneur can establish viable business enterprise and manage his entrepreneurial work efficiently as scientific educator. The key to successful entrepreneurial business is skill acquisition in science education. It is high time in a country without white collar jobs and government employment to

embrace science and technical education for self-reliant.

### **Self-Reliance**

An individual is said to be self-reliant when he/she can depend less on other people and his family in the management of her human and material resources. The citizens will be self-reliant when they have possible cause to access and utilize the essentials of life which includes good food, clothing, shelters, medication, transportations, and functional education (Ofoye, 2010). A self-reliant individual must be enterprising, he/she is enterprising when there is attributes of verbal skills for selling, dominating, leading, conceives himself as a strong, masculine leader, avoids well defined language or work situations requiring long periods of intellectual efforts, differs from the conventional types in that he prefers ambiguous social tasks and has a greater concern with power status, and leadership, is orally aggressive (Ugwuda, 2014). Vocational preferences, include business executive, buyer hotel manager, industrial relations consultant, manufacturers, representative, master of ceremonies, political campaign manager, real estate salesman, restaurant workers, speculator, sports promoter, stock and bond salesman, television producer, travelling salesman and entrepreneurs that are self-reliant (Ugwuda, 2014).

### **Job Creation**

Job can be defined as work done for which you receive regular payment. The oxford advanced learner’s dictionary

defined job as post, position, vacancy, placement, appointment or opening (Hornby, 2006). The creation of job can be possible if the candidate or personnel has the acquired entrepreneurial, scientific skills needed to create or secure job either in the industrial or become self-reliant individual. Job in the real sense is created for those that need it, desire it and can effectively perform the expected skills to achieve the objectives of the company. The trained entrepreneur, technical or vocational personnel can decide to be self-reliant and also create job by employing others. The government of federal state local, non-governmental agencies, international organization, and United Nations, individual can create job in order to maximize profit. The multinational oil companies wearing the cap of investment can create job in their exploration drive in Nigeria (Umunadi, 2010). The reason for job creation is to produce goods and services and the establishment of the company must require skilled personnel to actualize the objectives of the company.

#### **Entrepreneurial and Scientific Skills**

Skills are abilities and competences needed to perform a task (Adeyemo, 2009). Encarta (2009) looks at skills as the ability to perform a coordinated set of physical movements. Skills represent particular ways of using capacities in relation to environmental demands, with human beings and external situation together forming a functional system. Stephen, Stump, Roger, Dumber & Thomas (1991) see skills as the quality of performances which are developed

through training, practice and experience; and include efficiency and economy in performance. Adeyemo (2003) noted that speed and proficiency in the skill of doing a specific task increase with repetition.

When examining the vast literature on skills, two types of skills may be recognized in science education. These are Science Process Skills (SPS)/basic skills and Entrepreneurial Skill/Integrated Science Skills. Science Process skills are mental and physical abilities and competences which serve as tools needed for effective study of science and technology as well as problem solving for individuals and societal development (Nwosu & Okeke, 1995). The American Association for the Advancement of science (AAAS) cited by Bybee (1989) classified science process skills into fifteen namely; observing, measuring, classifying, communicating, predicting, inferring, using numbers, using space/time relationship, questioning, controlling variables, hypothesizing, defining operationally, formulating models, designing experiment and interpreting data.

Development of these process skills should lead to acquisition of the entrepreneurial skills that successful entrepreneurs use to start their ventures. Science process skill is the interface between transfer of knowledge and entrepreneurial skill which is necessary for problem solving and functional living. Ango (1992) stated that science process skills provide a foundation for learning and concept formation at the primary and

junior secondary school levels, while entrepreneurial or integrated science skills are more appropriate at the secondary and tertiary school levels for experimenting.

### **Issues and Challenges of Entrepreneurial and Scientific Skills in Nigeria**

Basically, entrepreneurship education in Nigeria is structural in nature in the sense that it is associated with the educational policies since independence. Shortly before independence and since after independence, Nigeria has introduced and implemented four educational structures/policies, the 8:5:2:3; 7:5:2:3; 6:3:3:4 and the 9:3:3:4 (elementary, secondary and university). The policies introduced did not have much impact on entrepreneurial education simply because the policy makers did not appreciate on time the relationship between entrepreneurial education and venture creation. Now venture creation has been identified as a solution to the decades of unemployment which is badly affecting economic development, policy makers should henceforth formulate effective policies aimed at frontally addressing unemployment through entrepreneurial education. There are other miscellaneous problems like poor leadership, corruption, and mismanagement of resources. They have all contributed in one way or the other to the low budgetary allocations to the education sector. Because of poor funding of the universities, educational institutions are characterized by frequent strikes, which those in government do not

consider as priority in terms of resolving the issues that led to the strikes.

Culturally, entrepreneurial education has been hindered by societal perception about the value system of 'quick money' venture hence truant students engage in 'okada' business and other 'quick money' venture yielding activities instead of having discipline to stay in school. Truant attitude of students has been robbing the nation the potential contribution of its graduates to national growth and economic development.

### **Challenges for Improvement**

Based on the foregoing issues affecting the development of entrepreneurial education, a number of pragmatic strategies could be recommended to enhance the programmes. The most important is establishment of a revenue yielding programme called university business incubator (UBI), establishment of strong management science degree curricula, and development of skills for handling the problems of small businesses. Others are good teaching and learning pedagogy, adequate funding and good environment.

### **Curricula**

As stated earlier, it is the responsibility of universities to build a strong education base on which entrepreneurial education can stand. To discharge that task creditably, the universities should endeavour to put in place credible management science degrees curricula. The B.Sc degree programmes should therefore be broad

based to include courses rich in theory and principles to equip students adequately for the basic knowledge courses and skill courses. In that connection, there is need to increase course offerings in the area of entrepreneurship, and small business management. Attention should be devoted to the development of skills for handling the scientific problems of small businesses which constitute the bulk of business enterprises in Nigeria (Uche, 2010; Kear, 1981; and Ezejelue, 1976). Against that background, the science curricula should be reviewed to include various courses which address the needs of small businesses. A deliberate effort by universities, to develop science graduate "experts" in small business could obviously expand the job creation opportunities of science graduate in Nigeria.

#### **Teaching and Learning Pedagogy**

As regards to entrepreneurial science teaching and learning pedagogy, the courses must be taught using appropriate methods found in the literature. Traditional lecture method is encouraged to teach students about the fundamentals of entrepreneurship, but more active approach that directly enables students to experience issues that impact on entrepreneurship should be recommended. Gibbs (2002) recommends that the methods must be complemented by innovative ways of thinking, skill development, attitudes and modes of behaviour to fully develop entrepreneurial approaches to education. The approach would logically include learning and

critical thinking activities that provide opportunities for students to actively participate in controlling and molding the learning situation. Therefore, the university should concentrate on providing sound broad education in science upon which science, technical, practical and experiential competencies can be built.

Assignment method could be used in testing students' ability on new product creation, new venture creation and solving problems. The primary concern of the science teacher therefore, should be to develop the ability of students to think. Most students can enhance, even double their ability to think if they analyze a situation before acting, keep the end result in mind and concentrate on what must be accomplished.

#### **Funding**

Funding universities in Nigeria has remained a very difficult issue for both government and university administrators. University education is very cost intensive in terms of both capital and recurrent expenditures. Most often different staff unions of the university embark on strike because of non-payment of adequate remuneration. Constant strike actions destroy university credibility. To generate more funds, universities should retool their machinery for internally generated funds (IGF) and networking. If proper contacts are made and adequate incentives offered, the business communities' alumni, international business organizations, the public sector and entrepreneurs can provide substantial financial support. The effort of universities at sourcing for funds

should be anchored on a deep sense of integrity, accountability, transparency and honesty.

#### **Good Environment:**

If the policy makers must revitalize the economy some shift in policy that is critical to effective entrepreneurial education programmes must become imperative. The seven-point agenda formulated under president Umaru Yar'Adua's administration include power and energy, food, wealth creation and employment, transportation, security and functional education and the pursuance of the rule of law. Nigerians as a whole should work towards achieving this seven point agenda by the year 2020. The government can instill the spirit of entrepreneurship in students by providing financial and subsidy support, technical support, marketing support and regulation of pricing, security and other facilities need to entrepreneurs. These will ensure evidence of good environment.

#### **Conclusion**

Entrepreneurial and scientific skills can be explained as synonymous form of training that seeks to develop one's knowledge, skills, mind, attitude and character towards self-reliant and job creation. These three areas are specially prepared to promote skills required for the world of work in different areas of life endeavour. Entrepreneurial education can be explained as a form of education given to entrepreneur who is willing to help, launch a new venture or enterprise and

accept full responsibility for the outcome. An entrepreneur can be defined as an innovating individual who has developed an ongoing business activity where none existed before. Entrepreneurship is the art of engaging in activities through which one can earn a living, as well as providing employment opportunities for others. Science education is the education that provides the skills, knowledge and attitude that lead to production of individual who are resourceful and productive. A resourceful and productive personnel quality in technical and vocational educator can best explain the meeting point of an entrepreneur, technical and vocational educator in era of joblessness, unemployment and eradication of poverty in our society.

#### **Recommendations**

1. Government should provide adequate infrastructural facilities like goods and power. Electricity supply should be given priority to solve the problems of epileptic power supply in Nigeria.
2. Science and Technology education must be given due attention by the government and the teachers in secondary and tertiary institution. Practical aspect of practical oriented course should be taught with relevant tools and equipment in well equipped workshops.
3. Government should encourage local entrepreneur to establish manufacturing industries to produce local materials for cars, computers electronics equipment,

- television to reduce importation of manufactured goods in the country.
4. Government should set-up entrepreneurial science and technology training centre to produce the required skilled personnel to cater for the local demands of skilled personnel in Nigeria.
  5. Entrepreneurial centres in our institutions in Nigeria must be equipped and utilized to assist the university and other institution to bridge gap created by the theoretical nature of our entrepreneurial science and technology programme in our institution.
  6. Government should set-up a joint curricula of entrepreneurial, science and technology education to x-ray the possibilities of mismatching skills knowledge and initiatives or the acquisition of skills for self-reliant and job creation.
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