

# **BUILDING BRIDGES BETWEEN THE STUDIES OF SCIENCE IN SECONDARY SCHOOLS IN NIGERIA AND EMPLOYMENT OPPORTUNITIES**

By

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## **Abstract**

*Unemployment in Nigeria was found to be as high as 18.8% as at the third quarter of 2017, and the unemployment rate among the secondary educational group was 16.2%. Out of the different types of unemployment, only classical unemployment can be described as not to apply in Nigeria situation. Unemployment among school leavers of secondary education group was found to be as a result of lack of entrepreneurship education, a large number of graduates, and lack of functional education in secondary schools. The researcher discovered that secondary school leavers are not employable because they do not possess the appropriate skills. Concepts studied in science such as fermentation, esterification, and saponification and different types of technical skills are the embodiment of scientific knowledge, and they are sources of practical skills that secondary students should acquire for the creation of employment. Through the study of science, learners acquire innovation and creativity necessary for economic activities and job creation. However, the study of science in secondary schools is not well equipped to prepare students for the acquisition of practical skills, job creation and entrepreneurship. This was found to be due to certain factors such as curricular deficiencies, lack of qualified teachers, as well as poorly equipped laboratories among others. It was concluded that the study of science in secondary schools require repositioning. It was recommended, among others, that qualified teachers with good knowledge of science and practical skills in specific areas should be employed to teach science in secondary schools in Nigeria.*

Unemployment, over the recent years, has been a major economic and social problem in Nigeria. Thousands of youths are being turned out from different levels of the educational system without a corresponding increase in employment opportunities. The unemployment rate in Nigeria increased from 7.6% in the first quarter to 10.4% in the fourth quarter of 2015 (National Bureau of Statistics, NBS, 2016). In 2016, the unemployment rate was 12.1% in the first quarter and rose to 13.9% in the third quarter (NBS, 2016), and by the fourth quarter, it has risen to 14.2% (Kolawole, 2017). According to National Bureau of Statistics, the unemployment rate rose from 14.2% to 18.8% by 2017 (Vanguard, 2017). Again unemployment and underemployment combined increased from 32.2% in the previous quarter to 40% in the third quarter. In a report by National Bureau of Statistics (2017), the unemployment rate among the secondary educational group in the country as at the third quarter of 2017 was 16.2%.

Secondary education is next to tertiary education in educational ranking. The number of people entering secondary schools is increasing year on year. Correspondingly, large numbers of people are turned out every year from secondary schools throughout the country. It would have been expected that most of the senior secondary school leavers would be admitted and enrolled into tertiary education but the number of admissions yearly is not directly proportional to the number of candidates that applied. In consequence, many of them roam about waiting for admission, while some engage in criminal activities while waiting, and even continue with that afterwards. Hence, to ensure active and responsible engagement of secondary school leavers is to prepare them for employment opportunities.

The era of grammar school is over in Nigeria. Students are expected to come out of school equipped with specific skills. Employers can only employ school leavers with appropriate skills and only those with skills in specific fields can be employed either by self or employed by other employers. However, Nigeria is in dire need of development. Development according to Shah (2017) is the improvement in a country's economic and social growth in order to create wealth and improve people's lives. The economy of Nigeria needs recovery and people that have specific skills can meaningfully participate actively in doing that. The social problems of armed robbery, kidnapping, cybercrimes and others need to be eradicated. The desire to move abroad for a better life needs to be curtailed. Many youths nowadays die when passing through the desert and Mediterranean Sea to Europe. Education is an instrument for effective national development and an instrument for realizing the national goals (FRN, 2013). If students are turned out year on year from schools and yet they lack the skills to actively and effectively participate in development, then the purpose of education may have been defeated.

The way science is studied in secondary schools in Nigeria is inadequate. The curricula are structured in a manner that students are exposed to the concepts and principles of science without acquiring any form of trade or practical skills. Students are

prepared to pass examinations for onward admission into tertiary institutions for further studies in science and technology. Unfortunately, admission spaces are scarce. The governments no longer provide jobs to people but the private sectors are left to do that. So there is a gap between the study of science in secondary schools in Nigeria and employment opportunities. The paper discussed, ‘Building bridges between the studies of science in secondary schools in Nigeria and employment opportunities.

### **What is Unemployment**

Unemployment was defined by many authors in different ways. Unemployment is the state of being without work for an educated and uneducated person to earn a living. It is also defined as a situation where some of the working age is not able to get a job but would like to be in full-time employment (Economics Help, 2016). On the other hand, International Labor Organization (ILO) sees unemployment as that that covers persons (15-64) who during the reference period were without work (National Bureau of Statistics, NBS, 2016). According to the NBS (2016), unemployment is that proportion of those in the labourforce who is actively looking for work but could not find work at all nor did something but less than twenty-four (24) hours during the reference week. It is discernable from the above definitions that one can be educated and possessing all the necessary certificates but yet could not find any job to do. Possession of certificate is not a guarantee for job opportunities. What surely guarantees job opportunities is possession of specific and relevant practical skills. Such persons may not necessarily go about looking for a job to do but better equipped to be self-employed. The education that guarantees skill acquisition is what the author of this paper is advocating for secondary education recipients where the study of science is intimately married to skill acquisition. It is this type of education that will guarantee employment for secondary school leavers in Nigeria. Every person is not potentially equipped to embark on tertiary education and of course, admission spaces in the tertiary institutions cannot accommodate all that seek tertiary education in Nigeria.

### **Types of Unemployment**

Economics Help (2016) explained different overlapping types of unemployment as follows:

**Cyclical unemployment:** Cyclical unemployment can also be called Keynesian or demand-deficient unemployment. This type of unemployment occurs when the economy is not viable enough to provide jobs for everyone who wants to work. It is found during periods of economic recession or very low growth. In such periods, industries cut back on their output and employ fewer workers or lay-off workers. With this type of unemployment, the number of unemployed persons is well above the number of job vacancies available, so that even if the employment is achieved and all the job vacancies filled some individuals would still remain unemployed. It is true that

Nigeria is technically out of recession but social and economic indications suggest that Nigeria is not completely out of recession. The unemployment rate is still high (18.8%), the standard of living of people is below expectation, job vacancies are scarce, industrial activities have not adequately picked up not to talk of booming and household incomes are still low.

**Structural unemployment:** This type of unemployment arises when the labour market cannot provide jobs for all that seek to have one because there is a mismatch between skills of the unemployed workers and the skills needed for the available jobs. Job opportunities are scarce in Nigeria. Again, secondary school leavers acquired the knowledge of the subjects they were exposed to at school but lack the abilities or skills needed by employers. According to Uddinand Uddin (2013), due to the low standard of education, the average Nigerian graduate is not employable and therefore, does not possess the skills needed by the employers of labour for a formal employment.

**Frictional unemployment:** Frictional unemployment occurs between the time an individual is searching for a job and the time he/she finds one. In Nigeria, school leavers take too much time to find a job after leaving school due to the scarcity of job vacancies. As a result majority of them engage in menial jobs and other illegal activities to earn a living. Many secondary school leavers hawk articles on the streets to make ends meet. It is, therefore, necessary to restructure the study of science in secondary schools in Nigeria so that school leavers can be job creators rather than job or admission seekers.

**Classical unemployment or real wage unemployment:** This type of unemployment takes place when real wages for a job are kept above the equilibrium or market clearing level. When the real wage is kept above the equilibrium the number of job seekers tend to exceed the available job vacancies. The minimum wage in Nigeria cannot be described as a livable wage. Thus, unemployment in Nigeria cannot be described as real wage unemployment. Currently, the trade unions are negotiating with the federal government for a new national minimum wage.

**Voluntary unemployment:** This type of unemployment is attributed to an individual's decision not to take a job. An individual may decide not to take a job at the prevailing wage rate. Secondary school leavers in Nigeria, in most cases, reject jobs because of low wages for the job. Many of them would offer to remain unemployed until they find a suitable one.

**Involuntary unemployment:** Involuntary unemployment exists because of the socio-economic environment prevailing in a country. When Nigeria was in a recession many industries could not sustain the wages of their workers and they ended up sacking

workers. Many workers lost their jobs because of the outright closure of industries. Even though Nigeria is technically out of recession school leavers are still unemployed.

### **Causes of Unemployment among Secondary School Leavers in Nigeria**

Unemployment among school leavers of secondary school extraction is caused by certain factors such as:

- **Lack of entrepreneurship education:** Entrepreneurship education is a type of education that is given to students or trainees to acquire skills, ideas, managerial abilities and capabilities for self-employment than being employed by other employers for pay (Adebayo & Kolawole, 2013). According to Adeniyi (2012), entrepreneurship education contributes significantly towards job and wealth creation, poverty reduction as well as income generation. Entrepreneurship education is part of the studies in a tertiary institution in Nigeria, but yet to be introduced and made a core subject in secondary schools. Secondary school leavers lack the entrepreneurial abilities to create jobs and as such many of them are unemployed.

- **A large number of secondary school leavers:** The number of people that graduate from secondary schools in Nigeria is large and ever increasing, yet job vacancies are scarce. The compulsory basic education contributed so much to the large entrants that have been recorded in secondary schools. Again, many private institutions have recently been granted licenses to operate. The proliferation of secondary schools in Nigeria has contributed so immensely in large turn-outs of secondary school leavers. A major cause of unemployment is lack of production and marketable skills by the unemployed (Akpan & Udo, 2014). According to Anaele, Adalokun, Dem, and Barfa (2014), the high unemployment rate in Nigeria can be accounted for by large student's turn-out that employers regard as unemployable because they lack the technical, vocational and entrepreneurship skills. Employers of labour want people that have acquired specific skills, and persons without specific skills cannot create jobs. Secondary education in Nigeria does not involve, *per se*, the learning and acquisition of practical skills as obtained in technical and vocational colleges. Specifically, the studies of science in secondary schools in Nigeria mainly involve the study of the principles and concepts of science without the acquisition of practical skills that are important in job creation, employment, and active participation in economic activities.

### **Secondary School Science and Employment Opportunities**

In order to create employment, individuals must involve in economic activities. They must participate in activities that involve the production or distribution of goods and services. Most importantly, the production of goods and services are very essential in employment creation. The practice of science involves enquiry that results in laws, theories and principles that constitute scientific knowledge. Most industrial processes

whether in large, medium or small-scales involve the application of scientific knowledge.

- **Fermentation, Distillation, and Fractional Distillation:** Fermentation, distillation and fractional distillation are concepts that are studied in secondary science. Fermentation is a chemical process by which carbohydrates are converted to alcohols and carbon dioxide or organic acids using yeasts or bacteria, or a combination thereof, under anaerobic conditions. Distillation is a scientific technique of vaporizing a liquid and condensing the vapour to a liquid. On the other hand, fractional distillation is a special form of distillation that is applied when two or more liquids in a mixture have boiling points very close to one another. Fermentation requires a sugar source which could be ripe fruits or any other carbohydrates such as cane sugar, cellulose, maize, sorghum, cassava, rice or barley. The common beer is produced from barley with maize or any other carbohydrate added as an adjunct. Wine is produced from grape juice which contains glucose. Cassava can be used to produce ethanol primarily for industries. The local beverage called burukutu is produced from sorghum. Similarly, yoghurt is produced by fermenting milk. Again bread is associated with the fermentation process. Alcohol produced from sugar or carbohydrate source can be distilled to increase the alcohol content. Palm wine contains sugar, ethanol and yeast, thus it can be fermented to allow the yeast to act on the sugar to produce more alcohol. Upon distillation, spirits are obtained. Palm wine fermentation is a common practice in most communities in Nigeria, where it is one of the major occupations of the people in those areas. The practical and technical skills involved in these fermentation products can be incorporated in the study of fermentation in secondary schools. These are skills that are associated with production, employment creation, trade and occupation, and which can engage many science students in secondary schools in Nigeria after leaving school to earn a living.

- **Saponification:** Saponification is a scientific process whereby a vegetable oil is boiled with an alkali such as sodium hydroxide and potassium hydroxide solutions to give rise to a salt known as soap. At the same time detergents are prepared from vegetable oils or from hydrocarbons. The black soap that is used in many homes is prepared by boiling palm oil with the ash obtained by burning the dried calyx and corolla of palm fruits. Saponification is studied in secondary science, especially Chemistry. The ingredients required for the preparation of soap and detergents are readily available in school laboratories and cheap in the market. Soap and detergent production are household processes and it has provided sources of employment and income to most people. Saponification is taught in most schools orally without laboratory demonstration, and therefore not enabling the students to acquire the necessary practical and technical skills involved in their production. If the right instructional strategies are applied in the teaching and learning of saponification students will come out of school with the skills that can make them successful entrepreneurs.

- **Acquisition of Technical Skills:** Technical abilities such as radio, television and electrical work, automobile engineering practice, welding and fabrication among others constitute the application of scientific knowledge. The introduction of introductory technology in the senior basic education has not succeeded, and most importantly none was planned for senior secondary schools. Senior secondary schools have been mere grammar schools. Hence, practical application of scientific knowledge abound, but hardly are students made to acquire them in secondary schools. Practical application of scientific knowledge is the most important aspect of science, and that is what makes a nation develop. The inability of the sciences curricular for secondary schools to define the acquisition of practical and technical skills is a set back to the study of science in secondary schools and the fight against unemployment in Nigeria.

- **Acquisition of the Skills of Innovation and Creativity:** Innovation and creativity are ingredients of entrepreneurship and engagement in economic activities. Innovation and creativity are acquired in doing science in the laboratory, which is during the process of investigations in the laboratory. In other words, the study of science equips the students with the ability to be creative and innovative that is essential in identifying and solving the problems of the society. Again, innovation and creativity are essential in job creation. A person can add value to a material if he/she is creative and innovative. However, qualified science teachers are needed to teach students the art of doing science as well as practical skills. Most of the teachers that handle science subjects in secondary schools in Nigeria are deficient in the art of doing science and practical skills. This is partly why introductory technology introduced in senior basic education did not succeed. Secondly, most of the schools do not have well-equipped laboratories where laws and theories of science can be investigated and applied. Thirdly, the majority of the secondary schools, if not all, do not have workshops for technical works. Workshops are necessary for technical or technological practices. The study of science encompasses the study of technology. Hence, the study of science in secondary schools should not be isolated from the study and practice of technology. After all, the education of the learner involves training the hands, mind and attitude.

**Conclusion:**

Unemployment is a serious economic and social problem facing Nigeria today. Unemployment has led most Nigerian youths to engage in crimes or elope to foreign countries in search of green pasture. Science is embodied with knowledge and skills that students who acquired them cannot be unemployed. Students that study science in secondary schools can acquire this knowledge and skills if the study of science in secondary school in Nigeria is repositioned.

### **Recommendations**

Based on the foregoing the researcher proffers the following recommendations:

1. Teachers with good knowledge of science and practical skills in specific areas should be employed to teach science in secondary schools. Secondly, those that are already in the system should be retrained especially in specific practical skills.
2. Science laboratories should be more equipped to encourage the doing of science and acquisition of scientific knowledge.
3. Workshops should be established in the schools with the appropriate tools and machines to facilitate the acquisition of practical skills.
4. Entrepreneurship education should be entrenched in the science subjects studied in secondary schools to encourage entrepreneurship and job creation among secondary school leavers.
5. The sciences curricular should be reviewed to include the acquisition of specific practical skills.

### **References**

- Adebayo, O. & Kolawole, J.A. (2013). The historical background of entrepreneurial development in Nigeria: its shortcomings and needful. *Journal of Emerging Trends in Economics and Management Science (JETEMS)*, 4(5), 493-500.
- Adeniyi, B.A. (2014). The role of entrepreneurship in Vocational and technical education. *Adeniyi Consult*, 1-15.
- Akpan, E.O. & Udoh, O.A. (2014). Wealth creation in Nigeria: the need for science, vocational, technical, and technology education. *International Journal of Vocational and Technical Education*, 3(1), 9-15.
- Anaele, E.O., Adedokun, O.A., Dem, I.I. & Barfa, I. (2014). Strategies for revitalizing the implementation of entrepreneurship education in technical, vocational education and training (TVET) to enhance self-employment in Nigeria. *British Journal of Education*, 2(4), 50-62.
- Economics Help (2016). Definition of unemployment. Retrieved on December 27, 2016, from <http://www.economicshelp.org/>
- Federal Republic of Nigeria (2013). *National Policy on Education*. Yaba: NEDRDC press.



Kolawole .Y. (2017, June 6). Unemployment inches up to 14.2% in Q4-NBS. *Vanguard*. Retrieved from <file:///E:/unemployment inches up to 14.2% in Q4-NBS-Vanguard News.html>

National Bureau of Statistics (NBS) (2017, December). Labour force statistics vol.1:Unemployment and underemployment report Q1-Q3. *Proshare*, 1-88.

Uddin, P. S. O. & Uddin, O. O. (2013). Causes, effects, and solutions to youth unemployment problems in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 4(4), 397-402.

Vanguard (2017, December 23). Nigeria's unemployment rate rise from 14.25 to 18.8%. Retrieved on 24 March 2018 from <https://www.vanguardngr.com/2017/12/nigeria-u>