Abstract

The paper revealed that creativity and innovation are the foundation and key factors of the economic strength and social stability of any nation. The means of inculcating creativity and innovative skills as a way of transforming the Nigerian economy has been discussed. Probable factors that facilitate the transformation of Nigerian economy such as entrepreneurship and self-sufficiency in agricultural products have also been identified. Some problems militating against transformation of the Nigerian economy such as corruption, shortage of infrastructural facilities, unguided and unrestricted importation of goods and services into the country and inadequacy of the agricultural sector were also highlighted. Several suggestions were put forward as the way forward for bringing about rapid transformation of the Nigerian economy.

The Nigerian educational system has its origin from the traditional system of the pre–colonial era, where learning was characterized by apprenticeship. In this type of learning much of unexplained science and technology were practiced. People
at this time were self-sufficient and the economy of the country at that time was stable. Though no formal curriculum was developed, the training was relevant to the needs of the society (Garuba, Agweda and Abumere, 2012).

This type of learning met the needs of the society in that it encouraged creativity and innovation in various fields, which could be seen in pot making, weaving, and blacksmithing among others. In support of this, Garuba, Agweda and Abumere (2012) documented that the unexplained science practiced at that time was stimulating, informative and useful. The authors further stressed that the purpose of science is to transform the environment towards improving the general quality of life and the general economy of the nation.

The science studied today is a formal science which involves a systemic study of the natural world, and its study allows students to experience the richness and the excitement of the natural world, as they engage in inquiry, critical thinking and the demonstration of skills (Garuba, Agweda & Abumere, 2012). This type of learning encourages creativity and innovation among students in science education. This creative knowledge acquired in science education facilitates and enhances industrial progress among the people.

One may ask what creativity is. Creativity therefore, is using your initiatives by thinking up new things. It involves turning new and imaginative ideas into reality. Burrus (2013) defined creativity as a function of knowledge, curiosity, imaginations and evaluation. Creativity is all about generating new ideas. The greater your knowledge base and level of curiosity, the more ideas, patterns and combinations you can achieve, which then correlates to creating new and innovative products and services (Burrus, 2013).

For Nigeria to be transformed economically, her citizens (students) must be creative and innovative. As stated by Burrus (2013), for one to be creative he/she must understand the three important levels of creativity; discovery, invention and creation. Creative people always think and produce.

Innovation means improving on what has already been invented. It generally involves renewing, changing or creating more effective processes that create values for business, government products or ways of doing things (Online). Innovation demands creative individuals who can dream new ideas and turn them into reality. Creativity and innovation are the foundation of economic strength and social stability of any nation. Nigeria lacks this foundation, because the Nigerian economy is founded on unproductive, unemployable manpower and on import-based economy.
Actually, Nigeria is in need of an economic transformation. This is because when a country possesses the extensive human and capital resources as Nigeria possesses and her poverty rate is growing higher on daily basis it means there is something wrong about the conduct of her economic affairs which needs transformation.

**Science Education as a Way of Transforming the Nigeria Economy**

Science is considered as a major source of discovery and economic development. Dehaan (2009) rightly reported that to maintain our country’s competitiveness in the twenty-first century, we must cultivate the skilled scientists, and engineers needed to create tomorrow’s innovations. According to National Research Council (NRC) (2007), the vitality of the nation is derived largely from the productivity of well-trained people and the steady stream of scientific and technical innovations they produce.

Science education has contributed in no small measure in the transformation of the Nigeria economy. It is generally accepted that in the 21st century, science and technology have transformed our world into a global village through the emergence of instant communication (Akporokodje, 2010). Science education has a link to most or all sectors of the Nigerian economy. Consequently, economic transformation should be the result of advancing science education (Micaiah, 2012). The knowledge gained through science education can help to diversify the economy from oil sector by improving productivity in agriculture and Information and Communication Technology (ICT). This can be observed in the invention and use of mobile phones and internet, which is strongly associated with economic growth and transformation.

The use of mobile phones in the country and high-speed internet connections will increase the gross domestic product (GDP). The benefit of telecommunication has transformed Nigerian business into mobile and global enterprise (Awase, 2013). With telecommunication, traders have the opportunity to place their product and services in a more competitive global market comprising similar companies around the world. For the transformation of Nigeria’s economy to be successful in the 21st century, the knowledge of science education and technology is paramount and must be incorporated into the improvement process.

There are some factors that may facilitate the transformation of Nigerian economy in the 21st century. These include the following;

1. **Entrepreneurship**
   Entrepreneurship development has been considered as a means of stimulating economic growth of any nation through the generation of greater employment opportunities, the development of local technological base and conservation of foreign exchange earnings of the national government (World Bank, 1995).
For the Nigerian economy to be transformed in the 21st century and beyond, entrepreneurial activities must be encouraged. This can be seen in the definition of an entrepreneur by Kuratko and Hoggetts (2001) as an innovator who recognizes and seizes opportunities and converts these opportunities into workable or market ideas. This therefore, means that entrepreneurs are people who are creative and innovative in nature. Entrepreneurs make things happen by transforming new ideas into reality. Entrepreneurs, having creativity and innovation as their main characteristics are the key factors of transforming Nigeria’s economy in the 21st century.

Entrepreneurs, according to Zimmerer and Scarborough (2006) lead the economic development of the Nigerian economy. This is largely because the profit made by entrepreneurs, payment for various factors of production by the entrepreneur flows as an increase into the national income and increases Gross Domestic Product (GDP), national income amongst others help in improving the standard of living of the citizens of Nigeria. The introduction of high quality goods and services can transform Nigeria’s economy. The innovative ideas of the entrepreneurs will help in transforming the much needed technology needed for the rapid transformation of the Nigerian economy.

2. Self – sufficiency in Agricultural Products

Agriculture is a branch of science which involves cultivation of crops, rearing of animals for man’s use, forestry, the production of fibre for industries, processing of farm produce, packaging and marketing of farm products (Ighodo, 1984). All these activities require creativity and innovation to achieve the desired outcome in order to avail the products to the final consumers.

Agriculture can facilitate the transformation of Nigeria’s economy in the 21st century because, it has been the main source of gainful employment from which the nation can feed its populace, providing the nation’s industries with raw materials and as a reliable source of government revenue (Anyanwu 1997).

Agricultural output can transform the level of income for farmers and other people. The transformation of Nigeria’s economy via the agricultural sector means increase in the production of export crops with an improvement in the quantity and quality of such export crops. Nigeria needs to have a transformation need to build a productive economy that can provide remunerative employment for most of her citizens. The Agricultural sector can aid transformation of Nigeria’s economy in the sense that it has the largest potential to diversify the economy, create jobs, secure food supply, lower inflation and expand foreign exchange earnings for the country (Usman, 2013). A viable Agricultural sector can engage a lot of Nigerians and many industries will be set up.
Problems Militating Against Transformation of the Nigerian Economy

The following are the problems militating against the Nigerian economy as compiled by Martins (2014).

1. Corruption

Nigeria appears to suffer the most form of corruption because most of her leaders and followers appear to believe that the nation has a culture of corruption that her citizens call it simply the “Nigerian factor” (Smith 2008). Martins (2014) reported that over the years Nigeria has earned large amounts of money from crude oil and gas which has gone down the drain created by corruption. Though Nigeria was described as a rich nation floating on oil wealth but almost none of it reaches to the people. Petroleum riches have not helped to lift the vast majority of Nigerians out of abject poverty. Top public servants are very rich because they harbor the nation’s wealth and have the notion that public money belongs to no one in particular. There is no circulation of money from the top public servants to the down trodden in the society. The brazen demand for gratification in form of bribes, coupled with double taxation has retarded the transformation of the Nigerian economy.

2. Shortage and Inadequacy of Infrastructural Facilities

This can be better observed in perennial shortage of electricity supply, which leads many Nigerian households and industries to have standby generators. It has been reported that through the years, many factories, companies and industries have folded up as a result of their inability to afford the high cost of providing power through the use of generators (Nnebe, 2013). When one quantifies the cost of diesel used in these generators, one might think of importing these products anywhere else instead of producing them in Nigeria.

Transportation is a critical factor in the economic transformation in Nigeria. Transportation plays a vital role in the growth and transformation of nations’ economy in that it provides adequate access to the regions where products are manufactured and distributed. The Nigerian transportation system is so bad that it has become difficult for Nigerians to utilize her natural resources, and distribute food items and other finished or manufactured goods. It has been observed by Muktar (2011) that bad roads and lack of security have succeeded in trimming down the transport system in Nigeria which has a negative effect on her economic growth.

3. Unguided and Unrestricted Importation of Goods Into the Country

Generally speaking, it appears most Nigerians are highly dependent on importation of goods to survive. As a result, the Nigerian economy is locked up in a vicious circle of import oriented economy which has an adverse effect on
economic transformation (Chinwe Oke, 2011). In support of this, it has been reported that Nigeria spent ₦98 Trillion on food importation like rice, tomato, wheat, sugar among others, between 2007 – 2010 (blog). Supposing this amount of money was used to produce and process these same food items locally in Nigeria, it would have transformed the lives of many Nigerians as well as the economy of the nation.

4. Agricultural Sector
The Agricultural sector is considered as the sector that is involved in the primary production of food and cash crops, livestock, forestry, fishery and marketing of processed or finished products.

In Nigeria, agriculture was the backbone of the country’s source of revenue, but later on in the 1970’s, the agricultural sector lost its dominant position to crude oil and natural gas in terms of contribution to GDP and foreign exchange earnings. The output of agriculture collapsed and became stagnated. The food security of the country became questionable to the extent that Nigeria that was one of the leading producers of some agricultural goods now became an importer of some of the same products like rice, wheat, tomato, among others. Up till today, agricultural production still remains low and is still lagging behind other sectors. In support of this, Anyanwu, Oyefusi, Oaikhenan & Dimowo (1997 p15), ascertained that food supply was still below the demand and the food import bill continues to rise. Thus, there is every need for examination and transformation in the agricultural sector, if the Nigerian economy is to be improved. Fertilizers and other farm inputs are not easily accessible to farmers. Nigeria has changed from being an exporter to an importer of food.

Conclusion
Creativity and innovation in science education are no doubt, the key to the transformation of the Nigerian economy. Factors that facilitate the transformation of the Nigerian economy such as entrepreneurship and self-sufficiency have been highlighted. Factors militating against the transformation of the Nigerian economy such as corruption, lack of infrastructural facilities among others have been pointed out. The way forward has been suggested to help put the Nigerian economy on a sound footing.

The Way Forward
1. Active measures should be taken to combat all forms of corruption in Nigeria. This can be done through encouraging the spirit of accountability and transparency, public information campaign against corruption and simplification of business processes.
As a result of the important place of agriculture in the nation’s economy, both domestic and global leaders should intensify discussion on the ongoing reforms in Nigeria’s agricultural sector, laying more emphasis on infrastructure, agro-processing zone, financing, attainment of food security, employment generation and wealth creation as asserted by the Honorable Minister of National Planning Commission (Usman, 2013). The modern system of farming which involves mechanization (use of tractors, harvesters, ridgers, etc) and chemicals should be encouraged, and made affordable and available to farmers.

Importation of goods into the country: The study which was conducted by Daramola and Olowofeso (2004) revealed that consumers have unfavorable attitude towards locally produced goods. This is largely because of the quality, standard and value of “made in Nigeria goods”. Based on this assertion, the Federal Government should try to restrict and guard the importation of goods into the country. The manufacturers are advised to check and increase the quality of their products to enable consumers derive full satisfaction from the locally produced goods. The process of transformation of the Nigerian economy should be encouraged to build on the locally produced goods.

Infrastructural facilities: Poor infrastructural facilities like transportation and electricity limit a nation’s ability to make use of her natural resources, especially in the distribution of food and other finished products. There is need to maintain and improve on the existing transportation system, for good roads are considered to be the backbone of any economic development. Bad roads contribute adversely to the growth of the Nigerian economy. The electric power sector should invest massively in the sector in order to achieve steady electricity supply like other developing countries such as Ghana who recently celebrated 10 years of uninterrupted electric power supply. To achieve this there should be laws governing the operations of the sector.

References


