RE-ENGINEERING TECHNOLOGY EDUCATION FOR CREATIVITY AND JOB SECURITY IN POST COVID-19 ERA

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Abstract
The paper centres on re-engineering technology education for creativity and job security in post covid-19 era. It was an era in which there was out-break of corona virus that ravaged the world; and there was lockdown resulting to economic hardship, poverty, hunger, unemployment and economic recession. An area that can quickly revamp the economy is technology education which has the skills for creativity and productive economy. This paper explored the concepts and objectives of technology education. It examined the concepts of entrepreneurship and entrepreneurship education, unemployment and the various types. It discussed technology education for job creativity and job security in post covid-19 era. It outlined and discussed the strategies for improving technology education for creativity, wealth generation and self-economic sustainability. One of the recommendations is that the government should provide adequate quantities of materials, equipment, ICT resources, digital technologies and e-learning resources needed for 21st century technology education in order to enhance creativity.

Key words: Re-engineering, Technology education, Creativity, Job security, Post Covid-19 era.

Introduction
The need for Nigerian citizens to become self-reliant, self-sustaining and self-employed has become more urgent in this Covid-19 era than ever. Prior to the Covid-19 era, Nigeria has witnessed rising cases of unemployment. For instance, Thisday Newspaper had a title "Graduates as Office Cleaners" (Sept 9, 2008:10). This points to the high rate of unemployment in the country. To tackle the problem of unemployment, Nigeria in her National Policy on Education (FRN, 2014) introduced technology education; and defined it as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. A skill is a specific intellect for doing practical works or for performing tasks in practical terms. The New Lexicon Webster's Dictionary

2015 defined skill as the ability to do something well especially as a result of long practical experience.

In addition to technology education, Nigeria has made some economic-oriented reforms to enhance skill acquisition and creativity so as to shun unemployment. A reform is a change for the better, a change to correct inadequacies, deficiencies, shortcomings and imperfections in a system. Some of the reforms are:

- National Economic Empowerment and Development Strategy (NEEDS)
- National Directorate of Employment (NDE)
- Privatization
- Deregulation
- Bank of Industry (BOI)
- Bank of Agriculture (BOA)
- Entrepreneur Development Programme (EDP)

The NEEDS is a home-grown programme to reform the Nigeria economy into a sustainable, modern, competitive and progressive one. The National Directorate of Employment (NDE) is to handle unemployment among the youths especially graduate unemployment. Privatisation is a reform which deals with divesting sate-ownership of commercial-oriented establishments and leaving them in the hands of the organized private sector effective management and control. Deregulation is a reform aimed at breaking government monopoly in some sectors of the economy such as the oil sector so as to reactivate the down-trodden economy. The Bank of Industry was established to give soft loans especially to the small and medium Business Enterprises (SMBES). The Bank of Agriculture was introduced to give soft loans to farmers in order to keep their employment. The Entrepreneurship Development Programme (EDA) is geared towards setting small and medium scale enterprises to generate employment in a given locality.

Inspite of the series of the aforementioned socio-economic reforms, the economic life of the people has not significantly improved. Self-reliance, self-employment or self-economic sustainability has not been attained. Unemployment and joblessness seem on the increase. Worse still, entrepreneurship seem not be thriving and surviving. It is against this background that the present study focuses on re-engineering technology education for creativity and job security in Covid-19 era.

What is Technology Education?

Technology education is the education for the production of manpower needs of the society. It is the education that is practical-work oriented. It is the education geared towards translation of scientific ideas into concrete realities. It is the education which provides the entrepreneurial skills for labour and productivity with emphasis on

eradication of unemployment, poverty, hunger, and for enhancing job creation and wealth generation to mention but a few. The National policy on Education (FRN, 2014 P) defined technology education as that aspect of education that leads to acquisition of practical and applied skills and basic scientific knowledge.

Objectives of Technology Education

The objectives of technology education as outlined in the National Policy on Education (FRN, 2014 p) are as follows:

1. To provide trained manpower in applied science, technology and commerce particularly at sub-professional level.
2. To provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development.
3. To provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of men.
4. To give an introduction to professional studies in engineering and other technologies.
5. To give training and impart the necessary skills leading to the production of craftsman, technicians and other skilled personal who will be enterprising and self-reliant.
6. To enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

Technology Education and Entrepreneurship for Job Creation

Entrepreneurship

Entrepreneurship is the art of being entrepreneurial in nature. That is one being creative and managing his business for self-reliance. An entrepreneur is a business manager, an inventor and adventurist in business who takes risks, decisions and initiatives in combining the resources of land, capital and labour for the production and distribution of goods and services. Entrepreneurship as defined by Mc Connel (1981) and cited by Nwana (2010) is that form of human input in small-scale enterprise which ranks superior and differently to labour and is therefore of special significant in human resource development. To ensure human resource development for job creation and self-sustainability, there was the introduction of entrepreneurship education.

Entrepreneurship Education

Entrepreneurship education is the type of education which equips an individual with the necessary knowledge, skills, abilities and competencies needed for successful business management on self-reliant basis. It was introduced as a course of study in Nigeria tertiary institutions in the 2006/2007 academic session to curb increasing rate of graduate

unemployment. Ahmadu (2005) defined entrepreneurship education as the broad scope of behavioral modification plans aimed at preparing, training, developing and upgrading the operational efforts and other competencies required for effective self-reliance and self-employment practices especially in the formal school setting. The Finland Ministry of Education 2009 defined entrepreneurship education as the education aimed at equipping the individual with knowledge and skills that enhance the individual's ability as a risk-bearer.

It is understood that entrepreneurship education is for skill development, skill acquisition, creativity, innovations, resources management, risk management, wealth generation, poverty alleviation and for self-employment. Yet, small and medium enterprises (SMES) seem challenged with business failure leading to unemployment.

Unemployment

Unemployment is a situation which arises where qualified and able-bodies persons who have the abilities, capabilities and competencies to do a given job for a wage do not find employment opportunities to do the job. Drighton (2016) defined unemployment as a situation where those who have no employment are available for work and have engaged in job-seeking activities for four consecutive weeks. Seldom (2015) stated that unemployment is the involuntariness of a person willing to work at a prevailing rate of pay but unable to find it. There are various types of unemployment but the two major ones are: voluntary and involuntary unemployment. Voluntary unemployment arises where there is a job available at a given wage but the unemployed person was not willing to accept the job. Involuntary unemployment occurs where qualified and able-bodied persons seeking for job do not find the job hence, joblessness.

Types of Unemployment

i. Voluntary involuntary unemployment
ii. Seasonal unemployment
iii. Frictional unemployment
iv. Cyclical unemployment
v. Structural unemployment
vi. Mass unemployment (strikes, lock-outs, lockdown as in covid -19 era)
vii. Casual unemployment
viii. Disguised unemployment
ix. Geographical unemployment (statism, tribalism, quota system)
x. Disability unemployment (mental/physical challenge)

Technology Education, Creativity and Job Security in Covid-19 Era

Covid-19 means corona virus disease. It is a virus infection which to pandemic world-wide. The frontiers in public health online stated that on December, 21, 2019, mysterious cases of pneumonia were detected in the city of Wulan in China's Hubei Province; on January 7, 2020, the causative agent was identified as a new corona virus (2019- covid) by the World Health Organization (WHO); and it has gained entry to over 210 countries and territories. The Covid-19 as reported spread to various countries of the world including Nigeria.

To curb the spread of the virus, there was lock-down all over the world; and it led to economic recession worldwide. Various business, industries organizations, education and allied institutions were affected. Unemployment and joblessness became on the increase. Small and medium enterprises (SMES) were highly affected. For instance, the Vanguard Newspaper (August 10, 2020 P.1) reported that twenty-two million (22m) small business have been affected and are gasping for breath. This stresses that there was no job security.

It was not that businesses were closed but that there was high rate of the infection and deaths. For instance, the Guardian Newspaper (August 17, 2020 P.1) reported that Nigeria has 49, 068 confirmed cases, 975 deaths and 36, 497 discharged. When the situation was getting out of hand, vaccines such as BioNtech-Pfizer vaccine, Johnson & Johnson Vaccine, Moderna vaccine, Oxford-AstraZeneca vaccine, Sputnik V Vaccine among others were produced to curb the spread. The Guardian Newspaper 9March 19, 2021 P.1) reported that the Governors back use of Astrazeneca vaccine while the Vanguard Newspaper (March 2, 2021 P.9) had it that the Federal Government was to adopt immunization strategy in vaccinating the citizens. However, the Guardian Newspaper (March 8, 2021 p.1) reported of anxiety over fake covid-19 vaccines, that the Interpol-police in China and South Africa have seized thousands of false doses of the covid-19 vaccine. This made many people reluctant to take the vaccine. They preferred staying indoors and obeying the lockdown rules for the situation to improve. The resultant effect was loss of creativity, loss of entrepreneurial skills, loss of job, economic recession and mass unemployment following the lockdown.

Strategies for improving technology education for creativity and job security.

They are

1. Adequate funding of technology education
2. Improving curriculum of technology education
3. Emphasis on entrepreneurial skills acquisition
4. Acquisition of computer literacy and skills
5. Establishment of trade centers and technical institutions
6. Provision of adequate materials and equipment
7. Value re-orientation on technology education

1) Adequate funding of technology education:

There is need for adequate funding of technology education in order to enhance creativity and job security through the programme. This is because it requires a lot of equipment, gadgets and materials. A programme without adequate budget will not make a head-way. It will crawl and may stagnate. It is fund that determines the quality and number of staff to be employed, the quality and quantity of learning materials, equipment, laboratory, infrastructures and facilities to be provided. Money is also needed for evolving strategies, new techniques and innovations for a more appropriate and effective result-oriented technology education. In this age of information and Communications Technology (ICT), there is the need for adequate funds to procure computers, software packages, internet and e-mail devices as necessary concomitants for technology education. Fund is also needed for programme review, update, accreditation and programme evaluation of technology education.

2. Improving curriculum of technology education

To make technology education vibrant for creativity, wealth generation and job security, the curriculum should be revised and update from time to time to enable its improvement. Curriculum is a plan for action, a programme of activities; and intended learning experiences under the guidance, auspices or supervision of the school (Tanner and Tanner, 2015). A well designed curriculum will help to develop in the students the technical skills, ideas, knowledge, values, attitudes, managerial abilities and risk management skills needed for job creation and entrepreneurship. Nwana and Chukwuka (2021) pointed out that new technology resources such as the computer, internet, e-mail, e-readers and e-books among others are needed for curriculum delivery in this age of ICT; and that the students need to learn with the new technologies. The need for a well-designed curriculum is on the increase especially in this covid-19 era in which there is economic recession due to the lockdown that affected the world. The National Board for Technical Education (NBTE) should be involved in the curriculum improvement.

3. Emphasis on Entrepreneurship Skill Acquisition

Entrepreneurship skills are to be developed and acquired through technology education. This will lead to job creation, wealth generation, profit maximization and sustained self-economic reliance. The students are to acquire the relevant skills such as entrepreneurial communication skills, technical skills, financial management skills and risk management skills to mention but a few. The acquisition the skills increase the productive power of a person and makes the person a productive member of the society rather than a parasitic consumer. With adequate entrepreneurial skills, he sets up a business and becomes a successful entrepreneur. With the increasing number of emergent technologies in the ICT age, human resources with ICT skills, abilities and competencies are required for successful entrepreneurship in this covid-19 era which has witnessed economic downtrodden.

4. Acquisition of Computer Literary and Skills

For effective technology education that will lead to job creation and job security the covid-19 era, there is need for computer literary and skills. Computer literacy is not just typing and printing of documents, it involves reading computer pamphlets, textbooks, journals, magazines, discussing, computer with friends, joining computer clubs and associations, attending computer seminars, workshops, consequences, attending computer hardware, software and book exhibitions. This is very important since the students are trained for self-reliance, self-employment and sell-economic sustainability. Nwana, Ofoegbu and Egbe (2017) stated that the acquisition of computer literacy and skills are needed in all facets of human life in the 21st century. For instance, networking skills, uploading and downloading, skills, browsing skills, teleconferencing skills, videoconferencing and multimedia system operative skills are needed for job creation and wealth generation in the covid-19 era in order to survive the hardship created by it.

5. Establishment of trade centers and technical institutions

To use technology education to create employment and to reduce joblessness to the barest minimum, trade centers and technical institutions should be established in various parts of the country. This will enable the acquisition of requisite knowledge and skills needed for job creation and self-economic sustainability. For instance, the following courses should form part of the curriculum: building technology, wood works and furniture, leather works, shoe making, cloth making, dye and polish, making, phone repair, home economics and agriculture among others. These subjects have a lot of entrepreneurial skills for labour and productivity. They go a long way to create job opportunities and wealth generation which can eradicate poverty and hunger in the covid-19 era. The National Board for Technical Education (NBTE) has a lot to do in the establishment of Trade centres and technical institutions.

6. Provision of adequate materials and equipment

The provision of adequate materials and equipment will tremendously improve technology education for creativity. Technology-related subjects require facilities, infrastructures, laboratories and workshops. Intro-tech laboratory for instance, require so many machines, tools and safety gadgets and shields, for welding, sinks and special waste bins, respirations for gas and chemical-fumes. Others are safety boots and hand gloves for handling toxic materials and chemicals, fire extinguishers, water hydrants and first aid kits. In addition to the listed materials are the new electronic technologies such as the computer, internet, intranet, e-mail, e-reader, e-book, e-board, e-portfolio, video chips, robots and digital recorder among others. There are also software such as the CD-ROM, diskettes, flash drives, slides, modem and memory cards among others. Nwana, Egbe and Ugwuda (2017) pointed out that the new electronic technologies viz: the computer, internet, e-mail, projectors, multimedia systems etc should be provided in large quantities for learning.

7. Value Re-orientation on technology Education

To use technology education for job creativity, there is need for value re-orientation. This is because some people have wrong notion about technology education; and the misconception is still there. It has been described as the education for school drop-outs, the under-privileged, never-do-wells, social deviants, mentally and physically retarded. There is need to correct the erroneous misconceptions through value re-orientation of the people on technology education. The need to emphasize that technology education is the education which provides the requisite knowledge and skills for productivity in every sector of the economy is on the increase in this covid-19 era, which is an era of economic recession world-wide. Greater emphasis should be placed on the aspects of job creation, wealth generation and self-employment which provides income for eradication of poverty and hunger. To do this effectively, the 21st century pedagogical resources such as the ICT resources should be involved; and teacher-centered instruction de-emphasized. Nwana and Ofomata (2021) pointed out that there is the need to change from teacher-centered to learner-centered instruction which demands that the learners use various ICT resources in the 21st century classroom.

Conclusion

Technology education is the education for the acquisition of practical skills for creativity and for production of goods and services. It is the education which makes a person to be creative producer rather than parasitic consumer. It is the education that creates job, employment, self-reliance and self-economic sustainability. One of the objectives of technology education in Nigeria is to provide trained manpower in applied sciences, technology and commerce. To meet up with the objectives, some reforms were carried out such as the National Economic Employment and Development Strategy (NEEDS), which is a programme for sustained development and self-employment. In this substratum, self-employment stresses entrepreneurship. That is a person being creative and able to manage his own business. This is to avoid unemployment especially the voluntary type of unemployment particularly in this covid-19 era in which the world economy was ravaged. Various businesses, small and medium enterprises (SMEs), industries, organizations, education and allied institutions were affected. There was lockdown which vitiated job security hence, joblessness, poverty and hunger which technology education is to remedy.

Recommendations

With respect to re-engineering technology education for creativity and job security in covid-19 era, it is recommended as follows:

1. The government should provide adequate funds for effective implementation of technology.

2. The government should provide adequate quantities of materials, equipment, ICT resources, digital technologies and e-learning resources needed for 21st century technology education in order to enhance creativity.
3. There should be training and re-training of teachers through in-service training, seminars, workshops and conferences for updates on technology education.
4. The government should improve the curriculum of technology education- using curriculum planners that will revise and update it from time to time.
5. To revamp the bartered economy in covid-19 era through technology education which imparts the productive skills for creativity and job security, there should be regular power supply for handling of materials, machines and production equipment.
6. Since the global economy is driven by Information and Communication Technology (ICT), the government should encourage the acquisition of ICT skills through technology education.
7. The National Board for Technical Education (NBTE) should be more functional than ever in promoting technology education.

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