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THE NEED FOR INTEGRATION OF ICT RESOURCES IN ENTREPRENEURSHIP EDUCATION FOR SUSTAINABLE DEVELOPMENT

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Abstract

The study centred on the integration and use of information and communication Technology (ICT) resources in the teaching of entrepreneurship education for sustainable development. It explored the concepts of entrepreneur, entrepreneurship and entrepreneurship education. It outlined the objectives of entrepreneurship education and the challenges facing it. The programmes and strategies of the government towards promoting entrepreneurship were enumerated. The concept of sustainable development was explained and the seventeen goals of SDGs were listed. ICT was conceptualized. Some ICT resources for teaching entrepreneurship education were identified namely: computer, e-board, e-books, e-readers, video clips, multimedia projector, digital library and artificial intelligent devices (AID). Some of the challenges facing entrepreneurship education were identified. They are: inadequate funds, insufficient ICT resources and lack of trained personnel in the area among others. It was recommended among other things that the government should embark on the training and retraining of lecturers for entrepreneurship education through workshops, seminars and conferences for sustainable development in this age of technology revolution.

Key words: ICT, Integration, Entrepreneurship and Sustainable development.

Introduction

Nigeria as a British colony inherited liberal education from her master. It was the type of education characterized by reading, writing and arithmetic known as the three R^s or R^3. The curriculum then kept on producing subservient Nigerians who worked as gardeners, stewards, catechists etc. The graduates ended in white-collar jobs; and there was increasing graduate unemployment. This called for the need to overhaul the curriculum to reflect science and technology for self-reliance. Subsequently, there was the National Curriculum Conference of 1969; the National Policy on Education (1977), revised 1981, 1989, 1998, 2008 & 2014); and the 6-3-3-4 system of education. The National Policy on Education (FRN, 2014) places high premium on technology education as a veritable tool for technological development, self-reliance, job creation and wealth generation. The document defined technology education as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge.

The reformation of the curriculum to have scientific and technological base indicates that the government is worried about graduate unemployment which has been on the increase. For instance, This Day Newspaper (Sept 9, 2008: 10) has a title "Graduates as office cleaners". This points to the high rate of unemployment in the country. In view of this, the government has introduced some measures that would enhance entrepreneurship. Entrepreneurship is aptly defined as the ability of an individual to run an enterprise successfully. Some of the measures already taken by the government are: the establishment of Nigerian Industrial Development Bank. (NIDB), National Directorate of Employment (NDE), National Economic Empowerment Development Strategy (NEEDS), Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) among others.

Despite the series of economic reforms and strategies to boost entrepreneurship so as to attain self-reliance, self-employment or self-economic sustainability, joblessness and graduate unemployment are still on the increase. Based on this, the National Universities Commission (NUC) introduced Entrepreneurship as a course of study in Nigerian Universities in the 2006/2007 academic session to curb the increasing rate of graduate unemployment. For effective functioning of entrepreneurship education in this age of technology revolution, there is need for integration of information and communication technology (ICT) resources. Some of the ICT resources needed are: computer, scanner, printer, digital networks, multimedia projector, interactive whiteboard technology (IWBT), digital library, digital laboratory, e-readers, e-books, cd-rom, flash drives and modem among others.

Concept of Entrepreneur

An entrepreneur is somebody who ventures into a business enterprise, takes all risk and involves managerial competencies to ensure the success of the enterprise. Nwana (2010 P.72) defined an entrepreneur as "a self-employed person, a business manager, an inventor

and adventurist in business who take risks, decisions and initiatives in combining the resources of land, capital and labour for the production and distribution of goods and services". Histrich and Peter (2002) defined an entrepreneur as a person who brings resources, labour, materials and other assets into combinations that make their value greater than before; and introduces changes, innovations and a new order, we can deduce that an entrepreneur is a risk-bearer, organizer, master planner, takes initiatives, involves in creativity and innovations for the success of the enterprise.

Entrepreneurship

Entrepreneurship is the noun form of the verb "entrepreneur". It is the ability of a person to run an enterprise successfully. It involves self-confidence in setting up the business, risk-bearing, management skills, communication skills, abilities and competencies for the success of the business. Mc Connel (1981) defined entrepreneurship as that form of human input in small scale enterprise which ranks superior and differently to labour and is therefore of special significance in human resource development. Williams (2011) pointed out that entrepreneurship is a process whereby individuals seek to use their talents, efforts and resources to create and/or grow ventures that capitalize on business opportunities and thereby create values. The European Parliament and Commission (EPC, 2005) described entrepreneurship as an individual's ability to turn ideas into action, also, Bateman and Snell (2011) stated that entrepreneurship originated from economics and is associated with the management aspects of enterprises, business development and business management.

Programmes and Strategies of the Government towards Promoting Entrepreneurship.

The Federal Government of Nigeria (FGN) devised some programmes and strategies to promote entrepreneurship; to curb unemployment and for poverty alleviation.
They are as follows:
1. Industrial Development Centre (IDC).
2. Nigerian Industrial Development Bank (NIDB).
3. Nigerian Bank for Commerce and Industry (NBCI).
4. Agricultural Development Bank (ADB).
5. People's Bank and Community Bank (1985).
6. National Directorate of Employment (NDE, 1986).
7. Nigerian Enterprises Promotion Decree (now ACT) Promulgated in 1972.
8. Nigerian Enterprises Promotion Board (NEPB)
9. Entrepreneurship Development Programme (EDP.
10. Operation Feed the Nation (OFN, 1979)
11. Green Revolution (GR, 1982).
12. Mass Mobilization for Self-Reliance and Economic Recovery (MAMSER)
13. Raw Material Research and Development Council (RMRDC).
14. National Poverty eradication Programme (NAPEP, 2001).
15. National economic Empowerment Development Strategy (NEEDS).

16.   Millennium Development Goals (MDGs)
17.   Sustainable Development Goals (SDGs).

Also, the Federal Government of Nigeria (FGN)P has identified and collaborated with some international organizations viz:
-     United Nations Development Programme (UNDP)
-     World Bank
-     United States Agency for International Development (USAID).
-     International Labour Organization (ILO).
-     New Partnership for African Development (NEPAD) among others.

Entrepreneurship Education

It is the education aimed at the development of technical skills, managerial abilities and competencies for the success of the small business enterprise. It is the education that 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 by the National Universities Commission (NUC) 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 the effective self-reliance and self-employment practices especially on the formal school setting. The Finland Ministry of Education (2009) pointed out that it is the education aimed at equipping the individual with knowledge and skills that enhance the individual's ability as a risk-bearer. Also, entrepreneurship education is described as the education for effective skills acquisition, creativity, risk management, resources management, finding investment opportunities, innovations, self-employment, wealth generation and poverty alleviation (Cowter, 2006; Osuala 2004; & World Bank Development Report 2001).

Objectives of Entrepreneurship Education

Haines and Furtada (2001) outlined three main objectives of entrepreneurship education as follows:
1. To acquaint students with the career option of being an employer.
2. To assist students in developing basic entrepreneurship skills in order to become successful small business owners.
3. To help people understand the basic tenents of economic and free enterprise systems that depends on private rather than public investment.

Osuala (2004) listed seven objectives of entrepreneurship education as adapted from Durbam University Business School as follows:

i. To provide meaningful education for the youths leading to self-reliance and Self-independence.
ii. To provide small and medium sized companies the opportunity of recruiting and training graduates for business ventures.
iii. To provide graduates with the training and support for small business.
iv. To provide graduates with relevant skills for meeting up in the labour market.
v. To train graduates on risk management.
vi. To stimulate industrial and economic growth of rural areas.
vii. To train graduates to be creative and innovative in business.

Challenges to Entrepreneurship Education
In the words o Ojeifo (2012), entrepreneurship in Nigeria faces the following problems:
1. The Nigerian economy is significantly dependent.
2. Entrepreneurship has been described in many ways.
3. Rampant political and bureaucratic corruption.
4. Poor perception of vocational and technical education.
5. Absence of regulatory mechanisms for effective enterprise development activities.

Also, Shina, Simatupana and Gustomo (2015) outlined the challenges of entrepreneurship education as follows:
1. Dependency on the efforts of a limited number of people.
2. Academic staff members lack the time to engage in entrepreneurship education.
3. Educator's inadequate competence.
4. Lack of fund to support entrepreneurship education.
5. The opposition of academic staff members to the introduction of entrepreneurship education.
6. Lack of support for entrepreneurship education from the government.
7. Lack of good quality materials.
8. Lack of academic credibility.
9. Lack of recognition for excellent entrepreneurship education.
10. Lack of support from top management.

Sustainable Development
Sustainable development is the development which consistently meets up with the various dimensions of development namely: economic, socio-political, educational, health and medical; technological, environmental and ecosystems development among others.

Sustainable development could also be understood as the development which uses the past to reconstruct and sustain present development trends and projects effectively for future development.

The www.wikipedia (2018) defined it as a process that envisions a desirable future state for human societies in which living conditions and resources will continue to meet human needs without undermining the integrity, stability and beauty of the natural biotic systems.

The Brundtland Commission (1987 P. 43) stated that "sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Udeji (2013) aptly defined it as the development which has longer duration for the good of the society.

Sustainable Development Goals (SDGs)
On September 25th 2015, the one hundred and ninety-three (193) countries of the UN General Assembly adopted the 2030 Development agenda which was titled "transforming our world: the 2030 Agenda for Sustainable Development". The Agenda was articulated in a set of goals popularly known as the "Sustainable Development Goals (SDGs)". In this way, the SDGs smartly succeeded the millennium development goals (MDGs).

The Seventeen (17) goals of SDGs are as follows:
18. End poverty in all its forms everywhere.
19. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
20. Ensure healthy lives and promote well-being for all at all ages.
21. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
22. Achieve gender equality and empower all women and girls.
23. Ensure availability and sustainable management of water and sanitation for all.
24. Ensure access to affordable, reliable, sustainable and modern energy for all.
25. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
26. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
27. Reduce inequality within and among countries.
28. Make cities and human settlements inclusive, safe, resilient and sustainable.
29. Ensure sustainable consumption and production patterns.
30. Take urgent action to combat climate change and its impacts.
31. Conserve and sustianably use the oceans, seas and marine resources.
32. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
33. Promote peaceful and inclusive societies for sustainable development, provides access to justice for all and build effective, accountable and inclusive institutions at all levels.
34. Strengthen the meaning of implementation and revitalize the global partnership.

ICT Conceptualized

ICT means Information and Communication Technology. It is the use of electronic media e.g computer and terminals to collect, process, store, retrieve and disseminate information when the need arises. The National Policy on Education (FRN, 2014) recognizes ICT as product of technological change and as an innovation in education. The US Department of Trade and Industry (1991) defined ICT as the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information by a micro-electronic based combination of computing and telecommunication.

World Bank (2003) stated that ICT consists of hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information. Nwana (2008) defined ICT as the use of potentialities and capabilities of electronic computers and modern information systems for communication, connectivity and interconnectivity in the internet.

Also, Nwana, Egbe and Ugwuda (2017) identified some ICT resources for e-learning viz: computer, internet, e-mail, e-books, Cd-Rom, multimedia systems and educational robots.

Some ICT Resources for Entrepreneurship Education
Various ICT resources used in Entrepreneurship education are as follows:
1.   Computer
2.   Printer
3.   Scanner
4.   Software e,g CD-Rom and flash drive
5.   e-board
6.   e-reader
7.   e-books
8.   e-graphics board
9.   e-graphics pen/light pen/stylus
10.   Video chips
11.   Podcast
12.   personal Digital Assistants (PDAs)
13.   Teleconferencing systems
14.   Videophone systems
15.   Multimedia television
16.   Multimedia projector
17.   Digital camera
18.   Digital microscope
19.   Digital head-set/ear piece
20.   Digital tapes
21.   Digital spreadsheets
22.   Digital symbol table (DST)
23.   Digital beam balance

24. Digital watch/computer watch
25. Digital clock/timer
26. Digital calculator
27. Digital remote control
28. Digital spring balance
29. Digital glove
30. Digital recorder
31. Digital mimeograph machines
32. Digital library
33. Digital laboratory
34. Artificial Intellectual devices e.g robots
35. Universal serial bus (USB) cables etc.

Integration of ICT Resources in Entrepreneurship Education
Some ICT resources which are integrated in the instructional delivery of entrepreneurship education are discussed as follows:
1. Computer
A computer is an electronic device which has the capabilities of accepting information or data; processes at a high speed rate, stores and retrieves the information when the need arises. Computer is used in instructional delivery. Some of them that are used in teaching-learning process are: desktop computers, internet computers, laptops, palm tops, note book and pocket computers. Computer is used to deliver lectures on entrepreneurship such as in teaching entrepreneurial skills viz: communication, managerial, accounting and auditing skills. Again, it is used for delivery lectures on objectives and features of entrepreneurship, successful and failed entrepreneurship among others. The computer is also used to get successful entrepreneurs online; and they are invited as resource persons to come and speak with authority in entrepreneurship.
2. Printer
A printer is a device which produce hardcopies or print-outs. There are low speed printers e.g Ink-jet printers and high speed printers e.g laser and Xerographic printers. The laser is a page printer which can print over 50 copies per minute.It uses laser beam technology with an in-built minicomputer that controls the printing process. It uses photographic papers in printing. It is the latest in printing technology. Lectures delivered on entrepreneurship can be printed out and made available to the students. Questionnaire on entrepreneurship can also be printed out and given to the students to augment their learning. Again, a resource person in entrepreneurship found online can be printed out and given to the students. Also, workshop papers, seminars and conference papers on entrepreneurship can be printed and given to the students.
3. CD-ROM

The CD-ROM means Compact Disc Read Only Memory. It is a secondary storage disc. It has relatively permanent memory because its content are hardwired such that it is not affected by power failure. Also, the content of CD-ROM cannot be altered by any other instructions stored in the system. It is non-volatile. Its memory capacity is audio CD which stores audio information and the video CD which stores sounds and vision (Video). The CD-Rom can store huge volumes of lecture delivered on entrepreneurship e.g raising capital for entrepreneurship business, starting entrepreneurship business and wealth creation in entrepreneurship business. It can also be used for storage and retrieval of materials on seminar, conferences and workshops on entrepreneurship. In fact, it can digitally store anything on entrepreneurship.

4. Multimedia Projector

The multimedia projector has the capabilities of multi-screen learning. It accepts many applications such as the computer, scanner, printer, radio, radio-cassette, microphone, speaker, modem, memory card, flash drive and e-whiteboard among others. The MM projector is connected to the –whiteboard (Interactive whiteboard) using the computer and Universal Serial Bus (USB) cables. Entrepreneurship lectures programmed in the computer is connected to the MM projector. They appear in slides (Power-point slides) and are shown on the LCD projector screen. The students jot down the points, answer questions and make contributions. In this way, student's participation is enlisted in instructional delivery.

5. Artificial Intelligent Devices

Artificial Intelligent Devices are the electronic devices which have human-like intellectual faculties viz: common sense, memory thinking, reasoning and sensation etc. In this way, they are to functions as human beings. That is, making the computer e.g. robots to mimic human brain in thought processes. A robot is a product of Artificial Intelligence (AI). There are home robots, industrial robots, space robots and educational robots. A typical example of educational robot is Friendly Robot Educational Device (FRED). In entrepreneurship Instructional delivery, the robot can be used for demonstrations and experimentations. They can be used as simulators (simulated materials) to teach some topics as 'apprenticeship experience in entrepreneurship'; and 'internship programme in entrepreneurship'.

Conclusion

Entrepreneurship education is a new entrant in the Nigerian educational system. It was one of the strategies aimed at curbing graduate unemployment. It was introduced for job creation and wealth generation so that the graduates will not roam about in the streets after graduation. Rather, they should have something doing that will make them successful entrepreneurs and functional members of the society. This falls in line with the first objective of entrepreneurship education which is to acquaint students with the career option of being an employer. Information and Communication Technology (ICT) resources are used for teaching entrepreneurship education for sustainable development. Examples are: computer, e-board, e-readers, e-books, video clips, multimedia projectors and digital

library among others. Also, the government has mapped out some programmes and strategies to achieve industrial development. Examples are: the Industrial development Centre (IDC) and National Economic Empowerment Development Strategy (NEEDS).

Recommendations
The following recommendations are made:
1. The government should provide adequate ICT resources for the teaching of entrepreneurship education.
2. The government should provide entrepreneurship laboratory in every tertiary institutions for carrying out experiments and demonstrations on entrepreneurship. It is in the lab that robots should function effectively.
3. The government should embark on training and retraining of lecturers for entrepreneurship education through workshops, seminars and conferences.
4. The government should ensure regular supply of electricity for the use of ICT resources in the teaching of entrepreneurship education.,
5. There is need for the government to employ technicians for repair and maintenance of the ICT resources used in entrepreneurship education.

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