COMPUTER EDUCATION AS AN ASPECT OF VOCATIONAL EDUCATION: A TOOL FOR NATIONAL DEVELOPMENT

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Abstract

The inclusion of computer education in the family of vocational education has become a topical issue in vocational and non-vocational practitioners. The purpose of this discourse is to examine the potential benefits of computer education that warrants its inclusion in the family of vocational education. This discoursetherefore addresses the need for its membership in the family of vocational education, concepts of vocational and computer education; characteristics of vocational education vis-à-vis computer education are examined in this paper. The rationale for including computer education as an option in vocational education, similarities between computer education and vocational education, requirements of the option (computer education) for membership in vocational education are tersely covered. This discourse ends with recommended strategies for making computer education a worthy member of the family of vocational education as well as an enabling tool for meeting the goals and aspirations of its stakeholders and the world of vocational-technical education careers.

Keywords: Vocational education, computer education, national development

Introduction

Vocational education is the type of education that prepares people for entry into and growth in occupation. It equips the students with the necessary skills knowledge and attitude for employment in the industry either as a paid employee or for entrepreneurial exploits. According to the Federal Republic of Nigeria in the National Policy on Education (FRN, 2013) technical and vocational education is a comprehensive term which refers to those aspects of educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life.

From the foregoing definitions, one can reason on that any education which is necessary for effective employment in a given occupation is vocational. Vocational education programme according to Osuala (2004) consists of the following service areas: agricultural education, business education, home economics education, distributive education, trade and industrial education, health occupations, technical education and computer education (the newest member in the family of vocational).

Practical experience has clearly shown the importance of computer application to all the service areas of the vocational education. Computer application has revolutionizedtraining methods in technical business, health occupation, agricultural, trade, and industrial, home economic and distributive options of vocational education. Computer application has been particularly useful in the problem solving aspects of vocational technical training. Infact there is no novel situation in technology which is isolated from computer application (Learnovation, 2008).

Indeed computer education has become a driving force in the creation of employment and development of skills required for self-employment and manpower

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production for the world of work. The inclusion of computer education as an option in vocational education family (TVET) is apparently backed up by the evidence of its practical importance n the world of vocational occupations and in other disciplines which prepare individuals for employment or entrepreneurship.

The Concept of Vocational Education

Vocational Education is any form of education designed to prepare persons for employmentin recognized occupations, provide skills, knowledge and attitudes necessary for effective employmentin special occupations (Etuk and Usoro, 2016). Vocational education is education designed to equip individuals with skill for gainful employment in recognized occupations and for independent living (Osuala, 2004).

In the light of the foregoing definitions, the concept of vocational education is rooted in man and work.Vocational education is a workshop/laboratory-based education. Any education that equips an individual for a job technical/non-technical is vocational education. This foregoing definition of vocational education is based on the United Nations Educational, Scientific and Cultural Organization (UNESCO) recommendation (UNESCO, 2001).According to the source, technical and vocational education is further understood to be:

a) An integral part of general education
b) A means of preparing for occupational fields and for effective participation in the world of work.
c) An aspect of life-long learning and preparation for responsible citizenship.
d) An instrument for promoting environmentally sound and sustainable development.
e) A method of facilitating poverty alleviation.

Characteristics of Vocational Education

(1) **It is the Objective of all Education**: Vocational Education is an integral part of everyone's basic education in the form of initiation into technology, the world of work and human values and standards of responsible citizenship (UNESCO General Conference, 2001). It has the potentials of vocationalising all school subject. The Federal Republic of Nigeria (FRN, 2013) in the National Policy on Education defined vocational education as referring to those aspects of educational process involving in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic and social life. The above definition points out that vocational education is an integral part of general education and that all other professions medicine, law, engineering, pharmacy etc. are all forms of vocational education which prepares manpower for the said professions.

(2) **It is very responsive to the emerging technologies**: Emerging technology is viewed as innovations resulting from efforts of individuals or group of experts in technological innovations. It is an innovative technology that is reshaping the nature of vocational education. Computer and network based technologies now hold great promise for increasing the access to information as well as a

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means of promoting learning. Schools and classrooms never before have had such universal access to information in almost all disciplines including education.

(3) **It is occupationally oriented**: Vocational education is a generic term embracing all the experiences an individual needs to prepare for some useful occupation.Osuala (1999) define vocational education as vocational or technical/retraining, which refers to systematic learning experiences which are designed to train individual for gainful employment in recognized occupation as semi-skilled workers or technicians or sub-professionals.

(4) **It is education for work and what work involves**: Vocational education has been the education concerned with work especially in its traditional stage. Today it is concerned with just more than work. Its concern has extended to include man, his vocational development and education about work and what work involves.

(5) **It focuses more on individual development than do other programmes**:The primary concern of vocational education programmes is the development of skills, attitudes and knowledge in people for gainful employment in the world of work and its attendant changes occasioned by the emerging technologies.

(6) **It involves the use of tools, materials, equipment and process inculcating skills.It is a workshop based education**: The uniqueness of vocational education (TVET) requires that the learning, setting in which the learner may experiment, test, construct, disassemble, repair, design, create, imagine and study is necessary (Ezeji, 1998).In other words, active workshop/laboratory experiences are essential to the study of technical vocational education.

(7) **It utilizes demonstration as the chief means of imparting skills**: As it involves the use of tools, equipment, materials, process inculcating skill and workshop based, it utilizes demonstration (practical) method of teaching.

(8) **It focuses on the development of all the aspects of workbehavior (cognitive, affective, psycho productive)**: Winner (2000) sees vocational education as a formal learning experience thatshapes the technical, skills, humanabilities, cognitive understanding attitudes and work habits, cognitive understanding, attitudes and work habits of learners in orderto fit into work place and enhance steady progress in employment.

(9) **It is rooted in education and vocation or works:**One of themost important features of vocational education is its orientation towards the word of works and the emphasis of the curriculum on the acquisition of employable skills (Oni, 2017).

(10) **It has the potentials of vocationalising all school subjects**: Osuala (2004) outlined the following occupational or service areas – trade/industrial education, technical education, business/office education, distributive education, agricultural education, home economics education, health occupations and computer education.

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Characteristics of Computer Education

The adoption of computer education in vocational education is based on its characteristics which are akin to most of those of vocational education. These characteristics are:

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The Adaptation of computer education in vocational education is based on the characteristics which are akin to most of that vocational education.

1) It is occupationally oriented:- Vocational education is any form of education designed to prepare persons for employment in recognized occupation to provide skills, Knowledge and attitudes necessary for effective employment in specific occupations (Okoro 1999). Computer/ ICT education which is an aspect of vocational education is directed towards the acquisition of practical ICT skills which help the individual to have employment in specific occupations which abound in Information and Communication Technology Industry. Some immediate job opportunities in the field of computer/ICT Education are computer programmers, computer information system analyst, data communication analyst website developers, Wireless network technicians, computer graphic artist, software engines, computer education instructor/teacher.

2) It is rooted in education and vacation or work: One of the objectives of vocational education is to provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development. Computer education a service area in vocational education provides the technical knowledge and skills required in almost all areas of human Endeavour. It imparts knowledge and skills needed for gainful employment to do work or vocation in all field/disciplines.

3) It makes use of tools, material, equipment and processes in inculcating skills:- Computer education is directed toward the acquisition of practical skills which help the individual to develop himself and the society he belongs to. Therefore it makes use of tools materials and equipment in training individuals in special areas such as:- Computer graphic artist, Computer educators, Computer engineers and Technicians. These are ICT personnel's concerned with architectural design of component installations, maintenance and general repairs of computers.

4) It makes use of workshop or laboratories for skills development:- As practical oriented vocation, it uses workshop or laboratories in the training of its personnels such computer technicians, computer graphic artists, computer Aided Design (CAD) and manufacturing.

5) It is technologically driven:- Computer/ICT:- ICT which stands for Information and communication Technology. According to UNESCO ICT is described as consisting of Hardware, Software, Network and Media for the collation, storage, Processing, transmission and presentation of information. It is a diverse set of electronic technologies and technological tools and resources used to communicate, create, store and disseminate information. In

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Inculcating skill it uses ICT Gadgets such as Computers, Internet, Pager, Satellite, Personal Digital Assistants (PDAS), Fax machine which are technologically oriented and powered by electricity.

6) Its application cuts across all educational disciplines/Field of study. Computer education which is a service area in vocational education belongs to the area of ICT. ICT has revolutionized training features in technical, Home economics, agriculture, trade and industrial, business education and health occupations. In fact there is no field of education that does not involve the application of computer gadgets.

The Rationale for the Inclusion of Computer Education in Vocational Education

The inclusion **of** computer education as an option in vocational education is based on the similarities **of** characteristics in both areas. Computer education, as a service area in technical vocational education (TVE) belongs to the area of ICT. ICTs have revolutionalized training features in technical, home economics, agricultural, trade and industrial education, business education and health occupations. Infact, there is no novel situation in technology which is isolated from computer applications (Learnovation 2008). Computers are employed to execute programmes that give commands to machine designed for mechanical, electrical and other operations in the world of technology.

It supports alternative types of educational patterns for facilitating learning especially as it can be adopted and adapted to serve all types **of**educational institutions and interests (Nzewi, 2009).Computer performs a host of functions in teaching andlearning and many countries are adding computer literacy, reading and writing literacy as skills. At the instructional level, computers are used by learners to study reading, mathematics, music, art, stimulation and health practices (Saudu, 2010). Computer education has become a driving force in the creation of employment and development of skills required for economic self- reliance which is the basic goal of vocational education.

Computer Education potentials and Vocational Education

Vocational education has eight service areas namely agriculture, business, home economics trade and industrial education, technical education, distributive, health occupations and computer education a new member in the family of vocational education has great potentials for realizing some of the basic objectives of vocational education. According to the National Policy on Education (FRN, 2013) vocational/technical education has the following objective:

1. To provide trained manpower in applied science, technology and commerce especially at sub professional levels.
2. To provide the technique knowledge and vocational skills needed for agriculture, industry, commerce, and for economic development.
3. To produce people capable of applying scientific knowledge to improve and solve environmental problems for the benefit of man.
4. To provide an introduction to professional studies in engineering and related fields.

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5. To provide training for development of necessary skills for the production of crafts men, technicians and other smiled persons capable of being self- reliant economically.
6. To provide an opportunity for our youths to appreciate technology with its increased complexity.

A thorough review of the objectives above in relation to computer education shows that it has the potential of achieving some of the set objectives.

1. The use of ICT in education brings about electronic learning (E-learning). E-learning involves the use of ICT dev ices such as the internet, computers, mobile phones to facilitate learning. In e-learning students and teachers also use internet to get more information about learning. This is called computer Aided instruction (CAI) as skill acquired from computer education.

2. Computer education in commerce plays a major role as the art of buying and selling of goods and services involving transportation from place to place. **When**ICT is used in commerce; it is called e-commerce. It includes distribution, buying, selling and servicing products that are done electronically.

3. Computer application in vocational education is directed towards the acquisition of practical ICT skills which help the individual to develop himself/herself **and**the society. Such skills are in the area of computer communication, software **that**operates them, applications that run on them and systems that are built with them.

4. Computer education includes the training of individuals in the use computer/ICT gadgets to perform productive task as word processing, spread sheet, graphic design, data- based management and desktop publishing, web browsing and structural design with computer-aided design and computer-aided manufacturing (CAD/CAM).

5. Employment opportunities/skills to- economic self-reliance:- ICT education offers some of the fastest growing jobs in the modern labour market. Some of the immediate job opportunities for youths in the field of computer education are:- Computer information system analyst computer programmers, desktop application support specialist, website developers, computer graphic artist, computer educator instructor,computer operation, soft-ware engineers, data entry operator, cyber café assistant. The foregoing are the various areas of specialization in computer education in which individuals make a living by choosing one or two of them. Business education graduates can establish small scale businesses by operating computers.

The following are areas of small scale businesses in which computer graduates can be used to create jobs and thus reduce unemployment among the youths (Godwin, Edwin and Ekaenang, 2004).

- Computer business centre
- Cyber Cafe operation
- ICT consultancy services
- Sales of computer ware
- Data processing centre for statistical analysis

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- Computer training services
- Computer/phone repairs
- Photocopy business centre
- Printing press
- Website design/development.

Commonalities in Computer and Vocational Education

Computer education and vocational **education share** the following similarities in their areas of objectives/goals.

- They provide manpower in the applied sciences, technology and commerceespecially at sub profession levels.
- They provide knowledge and skills necessary for economic development. Theyuse demonstration as the basic means of imparting skills.
- They give training and impart necessaryskills leading to the production of craftsmen, technicians, and otherskilled personnel who will be enterprising and economically self-reliant.
- They increase the vocational options available to each student or learner.
- They focus on the training ofpeople for paidemploymentand entrepreneurship.
- They are rooted in education.

Requirements for Computer Education Programme in Institutions of Learning

- A comprehensive curriculum planned and developed for computer education.\
- Trained and qualified man-power (teachers) and to train students in the area ofcomputer education which shares certain commonalities with vocational education.
- Adequate funding to support the mission of manpower production for the worldof vocational and industrial occupations.
- Adequate provision of equipment workshop/laboratory facilities for trainingmanpower in an ever changing society occasioned by the emerging technologies.
- Power supply is a basic requirement as it is electronic- based study.
- Adoption and application **of**the emerging technologies in solving human andenvironment issues and challenges.

Conclusion

Computer education as an option of vocational education has become a driving force in the achievement of the mission of man power production for Nigeria's development. It shares many characteristics with vocational education. Due to environmental and technological challenges. Computer education requires more time to be fully and gainfully integrated into vocational, technical education for individual and national development.

Recommendations

For computer education to achieve its expected goals as a member of vocational education the following recommendations are proffered:

1. A well designed and comprehensive computer education curriculum should be incorporated in vocational education in line with the emerging

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technologies for the purpose of meeting the needs and aspirations of the students and employers.

2. The government should provide adequate funds for the development of computer education.
3. As much as practicable, the government should give equal attention to the training of teachers in the eight service areas of Vocational Technical Education.

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