

Strengthening Vocational Technical Education Pedagogy for Knowledge Economy

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Abstract

The study determined the implications of knowledge economy on pedagogy, learning process and enhancement of VTE programmes in Nigeria. It adopted descriptive survey research design. The study was conducted in universities, in south eastern Nigeria. The population for the study consisted of 127 lecturers in vocational technical education in the Universities. A 43-item questionnaire was used for data collection. Out of 127 copies of the questionnaire administered, 118 copies were returned and analyzed using mean and standard deviation. The study found that educators should make adequate use of ICT, simulation and experiential facilities/exercises in instructional delivery while learning should be based on knowledge creation and application. It was also found from the study that collegiality and collaborative exchange between VTE institutions should be promoted for programme enhancement.

Keywords: Knowledge, Knowledge Economy, Education, Vocational Technical Education, and Human Capital Development

Introduction

Knowledge economy is the creation, dissemination and usage of knowledge for production, processing, distribution and marketing of goods and services more effectively by organizations as well as countries for greater and sustainable development. Drucker (1969) referred to knowledge economy as the application of knowledge from any field or source, new or old to spur

economic development. The emergence of knowledge-based economies has spawned a new notion for workplace literacy and the changing relationship between employees and employers (Mba, 2011). The term knowledge economy also connotes the rise in knowledge intensity of economic affairs and the increasing globalization of economic activities (Velez, 2006). Guile (2010) emphasized that a knowledge-

based economy is one in which the generation and exploitation of knowledge play the predominant part in the creation of wealth.

Education and human capital development are paramount for a knowledge-based economy with knowledge replacing physical and natural resources as the key ingredient in economic development. Human capital development, according to Onah (2008), is the formal, informal and semi-formal education, training and on-the-job learning embodied in the workforce of a nation. Education is generally aimed at equipping individuals with knowledge, skills, values and attitudes that will help them to solve their social, economic and political problems. Since knowledge economy is driven by information, skill and know how, nations are better off when they possess adequate pool of skilled labour and leadership with special skill in distilling information (Nweze, 2009). Island Business (2003) emphasized that the world is already globalized and knowledge intensive, and that countries that are doing well economically are those that have high levels of higher education where industries are being driven more by knowledge and brain power than natural resources. Eaglesland Technologies (2012) also maintained that the economic growth of a country largely depends on technological improvements, and on the scientific and technical skills of its manpower. Education, especially vocational technical education plays a key role in the ability of a country to absorb modern technologies and to

develop the human capacity for sustainable growth and development (Todaro and Smith, 2009).

Vocational technical education is the aspect of general education which trains an individual in technologies and related sciences for the acquisition of practical skills, attitudes, understanding and knowledge related to occupations in various sectors of the economy (Federal Republic of Nigeria (FRN), 2004). Vocational technical education programme develops in a learner the practical skills, knowledge, attitudes and habits that make the recipient creative, innovative and resourceful for self-reliance. Osuala (2009) posited that the need to create, develop and apply knowledge and skills for sustainable national economy is the major driving force for vocational technical education. Eneyoh, Thomas and Ekeng (2012) stated that vocational technical education leads to human capital development by empowering people with knowledge and skills, and strengthening them for economic prosperity.

The capacity of a developing country to take advantage of the knowledge- economy depends largely on how quick it can become a learning economy. Nigeria as a developing nation should build her strength for competitiveness and plan for appropriate investments in human capital development by developing effective institutions, relevant technologies, innovative and competitive enterprises through functional vocational technical education programmes. Barney (1995)

described human capital as all the experiences, skills, judgment, abilities, knowledge, contacts, risk-taking and wisdom of individuals within an organization or a nation. The implications of knowledge economy for Nigeria is, therefore, for its education and training programmes to undergo substantial transformation by investing proactively in human capital development to produce graduates with relevant knowledge, critical skills and proper attitudes for globalized activities. This is because only countries with optimal investment in education in the 21st century can be globally competitive and sustainably developed (Ekpu, 2009). The challenge for developing countries including Nigeria is to provide the appropriate structures and incentives for higher education to create cultures that support the further spilling-over of extant epistemic cultures into more sections of the economy (Guile, 2010). The promotion and reorganization of vocational technical education for industrialization, economic development, wealth creation and poverty eradication, according to Eaglesland Technologies (2012), demands for policies and strategies that would address the cross-cutting issues of quality and relevance of training, employability, collaboration between training institutions and employers. However, because of ineffective and inadequately equipped vocational technical education institutions and programmes, Nigeria suffers from low productivity (Dike, 2005). Vocational technical education curricula in Nigeria as Eneyoh, *et al* (2012) posited, is yet to

emphasize entrepreneurial training, and Information and Communication Technology (ICT) as courses to prepare the youths for the current technological needs of society. It is, therefore, imperative to determine the implications of knowledge economy on vocational technical education programme for human capital development in Nigeria.

Purpose of the Study

The major purpose of the study was to determine the implications of knowledge economy on vocational technical education (VTE) programme for human capital development in Nigeria. Specifically, the study sought to ascertain the learning, pedagogy and enhancement implications of knowledge economy on VTE programmes for human capital development in Nigeria.

Research Questions

The following research questions guided the study:

What are the implications of knowledge economy on

1. Pedagogy of vocational technical education for human capital development in contemporary Nigeria?
2. Learning process of vocational technical education for human capital development in contemporary Nigeria?
3. Enhancement of vocational technical education programmes for human capital development in contemporary Nigeria?

Methodology

Design and area of the Study:

Descriptive survey design was adopted for this study. Area of study was Southeastern Nigeria.

Population of the Study: The population for the study consists of 127 Vocational Technical Education lecturers in the universities used for the study in South Eastern Nigeria. The entire population was studied because it was manageable

Instrument for Data Collection: A 43-item structured questionnaire was developed and used for the study. It had a five-point scale of "Strongly Agree", "Agree", "Slightly Agree", "Disagree" and "Strongly Disagree", with values of 5, 4, 3, 2 and 1 respectively. The questionnaire was subjected to face-validation by three experts from the Department of Vocational Teacher

Education, University of Nigeria, Nsukka. A reliability coefficient of 0.78 was obtained from Cronbach Alpha reliability technique to ascertain the internal consistency of the items of the questionnaire.

Method of Data Collection: One hundred and twenty-seven (127) copies of the questionnaire were administered to the respondents by the researchers with the help of three research assistants. However, 118 copies of the questionnaire were returned and analyzed.

Method of Data Analysis: Mean and standard deviation of responses were used to answer the research questions. The real limit of the Mean was applied in answering the research questions.

Result

Table 1: Mean Ratings and Standard Deviation of Responses on Implications of Knowledge Economy on Pedagogy of Vocational Technical Education for Human Capital Development.

S/N	Implications for Pedagogy	\bar{X}	SD	Remarks
1.	Adequate use of ICT in instructional service delivery	4.24	0.89	Agree
2.	Use of face-to-face, distance, mixed and blended delivery model for instruction	4.15	0.76	Agree
3.	Use of simulation and experiential exercises for teaching	4.08	0.92	Agree
4.	Demand and supply factors to guide teaching and delivery systems	3.79	0.68	Agree
5.	Educators to collaborate with colleagues to increase their knowledge, expertise and share insight for teaching and strategies.	4.16	0.84	Agree
6.	Use of individualized and graded instructional method for special students and slow learners	4.35	0.97	Agree
7.	Use of online and offline delivery methods to teach students	3.88	0.58	Agree
8.	Use of standard-based assessment strategies to evaluate student learning	3.64	0.76	Agree
9.	Creation of virtual classrooms to aid teaching and learning	4.06	0.81	Agree

10.	Sufficient use of real and improvised resources in instructional delivery	4.11	0.90	Agree
11.	Use of online resources for course remediation, enrichment and credit recovery	4.27	0.83	Agree
12.	Tracking and monitoring students' progress online	3.92	0.65	Agree
13.	Provision of justified feedback on learners online performances	4.05	0.89	Agree
14.	Regular analysis, review and update of instructional methods in line with new technologies	4.36	0.78	Agree
*	Overall	4.08	0.80	Agree

\bar{X} = Mean, SD = Standard Deviation

Table 1 above revealed that all the items are necessary implications of knowledge economy on pedagogy of vocational technical education programmes for human capital development in Nigeria. The Mean of the items ranged from 3.64 to 4.36. The standard deviation of responses ranged from 0.58 - 0.97 which implied that all the respondents were similar in their opinions that all the items are important implications for pedagogy of vocational technical education programmes in a knowledge-based economy.

Table 2: Mean Ratings and Standard Deviation of Responses of Lecturers on the implication of knowledge Economy on the Learning Process of Vocational Technical Education Programmes for Human Capital Development

S/N	Implications for Learning Process	\bar{X}	SD	Remarks
1	Learning should be based on knowledge creation and application	4.33	0.87	Agree
2	Individual learning plans as well as teamwork and collaborative learning should be encouraged	4.37	0.66	Agree
3	Just -in - time learning opportunities and approaches should be provided	3.98	0.91	Agree
4	Students to learn with a variety of learning models	4.01	0.78	Agree
5	Learning should be initiative-based	4.18	0.88	Agree
6	Students' learning should be adequately motivated with incentives	4.36	0.72	Agree
7	Life-long learning activities and opportunities to be encouraged	4.22	0.69	Agree
8	Course learning materials and contents to be standard-based	4.20	0.81	Agree
9	Sufficient time and resources to be made available for learning	4.25	0.84	Agree
10	Assessment of students learning to be based on set standards	4.06	0.77	Agree
*	Overall	4.20	0.79	Agree

\bar{X} = Mean, SD = Standard Deviation

The Mean of each item listed in Table 2 as well as the overall Mean ranged from 3.98 to 4.37 which implied that all the respondents agreed on each of the items. The low standard deviation of the responses which ranged from 0.66 to 0.91 also implied that the respondents have similar opinions about the items in the Table.

Table 3: Mean Ratings and Standard Deviation of Respondents on the Implications of Knowledge Economy on Enhancement of Vocational Technical education Programmes for Human Capital Development

S/N	Implications for Enhancement	\bar{X}	SD	Remarks
1	Enhancing the efficiency and quality of VTE programmes through input - output analysis and curriculum evaluation	3.86	0.59	Agree
2	Spurling vocational training by providing more incentives such as tax credits, individual accounts and part-time study to staff and students	2.73	0.64	Agree
3	Implementing the occupational standards and qualification systems by which work skills and training can be tested and certified	3.94	0.89	Agree
4	Establishing and strengthening linkages between training supply and market through employers' participation in course design and training.	4.17	0.68	Agree
5	Increasing the role of the private sector in the financing of vocational technical education	4.14	0.93	Agree
6	Cross - sectional coordination of relevant agencies in vocational education	4.08	0.95	Agree
7	Harnessing the power of e-learning and distance learning in programme service delivery.	4.12	0.73	Agree
8	Empowering educators for research and development			
9	Strengthening students industrial work experience scheme (SIWES)	4.21	0.71	Agree
10	Aligning programme curricula with the objectives of knowledge economy	3.96	0.84	Agree
11	Creation and use of opportunities for creative, innovative and entrepreneurship systems in VTE	4.29	0.80	Agree
12	Promotion of collegiality and collaborative exchange between VTE institutions	3.99	0.75	Agree
13	Basing conferences and workshops on research evidence	4.22	0.56	Agree
14	Education faculty to collaborate with other faculties from arts and sciences to align learning contents with general standard	4.03	0.81	Agree
15	Curriculum inclusion of new types of knowledge and skills required for standard-based reforms	4.42	0.72	Agree
16	Evaluating programme activities with standard based data	3.88	0.84	Agree

17	Adequate provision and renewal of infrastructural facilities	4.35	0.90	Agree
18	Periodic organization of capacity building programmes for educators.	4.05	0.68	Agree
19	Creation of institutional regimes to promote the use of existing and new knowledge for entrepreneurship development	4.33	0.87	Agree
*	Overall	3.88	0.73	Agree

The Mean of all the items in Table 3 above ranged from 3.73 - 4.42 which implied that all the respondents agreed that all the items are the necessary requirements for the enhancement of vocational technical education programmes for human capital development in Nigeria. The low standard deviation of responses which ranged from 0.56 to 0.95 showed that the respondents were similar in their opinions that all the strategies listed in the Table would assist VTE programmes to develop the human capital that are congruent for a knowledge-based economy.

Discussion of Result

The result of the study revealed that educators should facilitate and improve their pedagogies in vocational technical education to produce the needed human capital that will be competitive and knowledgeable in this period of globalization and ICT. The educators' pedagogies should improve to include: the use of ICT, simulation and experimental activities in instructional delivery as well as the adoption of graded instructional methods for special students. The instructional methods of educators/facilitators should be guided by the demand and supply factors in vocational technical educational and by

their collaborating with colleagues to share insights and increase their knowledge. This result is in line with Chen and Magaji (2011) that educators/facilitators should increase and create more opportunities for modern VTE through networking with colleagues.

The result of the study further revealed that the learning process of vocational technical education should be based on knowledge creation and application, and that lifelong learning activities with variety of learning models should be provided for students. Learning should also be collaborative and initiative-based with just-in-time learning opportunities made available to all students. This result is in consonance with UNESCO (2004) that technologies provide open learning environment where students collaborate in a team to increase their knowledge through lifelong learning activities.

The findings of the study also showed that knowledge economy has a lot of implications for the enhancement of vocational technical education in the development of human capital that is indispensable for global competition and productivity. The implications include that VTE should be enhanced through input and output analysis, curriculum evaluation, creation and

strengthening of the linkages between training, supply and market (Onah,2008). Cross-sectional coordination of relevant agencies in vocational technical education is also important for the promotion of the role of outside sectors in financing development and promotion of vocational technical education. The creation of collegiality and collaborative exchange between VTE institutions would also help to enhance vocational technical education for human capital development. This result support the assertion that education faculty should collaborate with other faculties from arts and sciences to align learning contents with general standard (Lauer, Dean, Martin and Asenio; 2005).

Conclusions

The creation and application of knowledge powered by technologies and globalization have changed the focus of nations from resource to knowledge-based economy. Knowledge economy implies that countries of the world and productive institutions should be restructured to transform towards the creation and use of new knowledge that would lead to creative, innovative, competitive and entrepreneurship systems. The implications of knowledge economy on vocational technical education programmes for human capital development in Nigeria include that the pedagogy and learning process of the programme should be redirected to match with the standards and objectives of knowledge economy.

Recommendations

The following recommendations were made based on the findings of the study:

- Government and administrators of vocational technical education institutions should regularly organize capacity-building programmes for educators and instructors to improve their knowledge and skills.
- Authorities of vocational technical education institutions in collaboration with employers should regularly review and update their curriculum to include the skills, knowledge and attitudes which are expected of graduates by industries in this era of globalization, knowledge creation and application.
- Government in consultation with managers of education and employers of labour should formulate policies and strategies that will enhance the quality of training of graduates of vocational technical education for their employability and entrepreneurship.
- Government in linkage with educational administrators, managers of industries, non-governmental organizations and other good spirited individuals in the society should provide adequate facilities, materials, equipment and infrastructures required for teaching and learning of vocational technical education to match with the demands of knowledge economy.
- Educators should be sufficiently empowered for practical research and development that are creative and innovative for new knowledge and skills which are imperatives for global

competitiveness in a knowledge-based economy.

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