

Developing a Knowledge Based Economy through Enhancing Management of Vocational and Technical Education in Nigeria

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Abstract

The need to enhance management of Vocational and Technical Education (VTE) and developing a knowledge based economy in Nigeria need not be over-emphasised. A knowledge based economy has four (4) key elements namely; economic and institutional regimes, education and skills, innovation system and Information and Communication Technology (ICT). This paper brings to the fore a realization of the fact that the performance of the products (outputs) of the education system is an index of the inputs into the system. For students to have enterprising and innovative mindset, it is important to expose them early enough to practical development in transiting towards a knowledge based economy in order to adapt to the upgrading of the educational system while in school, this is directed towards achieving a nation that is duly informed about the benefits of providing needed skill training for employment and self-reliance. Moreso, this paper examined those things which are necessary for the achievement of well established technical and vocational education in order to advance to a more knowledge based economy and the development of manpower for easy productivity in the vocational and technical education sphere. With all these in focus and practiced, the Nigerian economy will stand a chance of fighting unemployment and poverty to the barest minimum. Also, the strategies to adopt in enhancing management of vocational and technical education were discussed, and some recommendations were made.

Keywords: Knowledge Based Economy, Management, Vocational and Technical Education (VTE)

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Introduction

The need to ensure that technical and vocational education for transition to a knowledge based economy is to uplift or form a generation that has variety of skills. It is not only in technical skills and knowledge but in producing future leaders for proper management perspectives in upgrading the necessary avenues for a knowledge - based economy. (Umeh and Ikwueze, 2015). As a result of this, technical and vocational education helps to guarantee or develop groups in the sector of the society which will sustain vocational training in different fields of human endeavour.

With adequate implementation of vocational and technical training, one can easily fit into the labour market immediately after studies. This is on the premise that the labour market will be saturated with those who can meet the employers' needs and expectations as well as their access to increase knowledge based economy. No wonder Suriana (2012) defined technical and vocational education and training as "Education and training that prepares individuals for gainful employment ...". This suffices that it refers to deliberate interventions to bring about learning which would make people more productive (or simply adequately productive) in designated areas of economic activity. One can say that technical education has the potential to enhance human capabilities and enlarge peoples' choices in different fields of employment. In line with this, it could be adjudged that people need to be oriented on how best to use vocational and technical education to carry out all sorts of changes which will guarantee a knowledge based economy.

Evolving Concept of the Knowledge Based Economy

There is no universally accepted definition of the knowledge based economy. As a concept, it is very loosely employed and embraces a number of quite different visions of the economy and society. One view, most evident in Organization for Economic Co-operation and Development (OECD) publications, sees it as very much bound up with the high skills/high performance/high value added scenario as the only way for firms to compete in a globalised economy. Another view, found principally in the scientific and technical community tends to view it more narrowly as applying to knowledge intensive industries where knowledge itself is the core competence. The latter is typically found in software and internet companies, computer hardware and chip manufacturers, computer and electronic equipment sectors and health care technology.

Knowledge is seen as a potential generator of productivity improvements in areas as diverse as quality, customer service, variety, speed and technical improvements as well as innovation in products, processes, organizational structure and behaviour. As companies alter the way their organisations are structured (flatter, non-hierarchical, team based, multi-skilled) in order to compete more effectively, so too, workers have need to obtain more complex range of cognitive and intellectual resources. At a general level, there are difficulties in establishing a causal link at firm level between skills and competitive performance. This has been recognised by commentators such as Keep and Mayhew (1999), writing in respect of UK VET policy. The problem with linking training to economic success suggests that a single model of competitive advantage based solely on skill may not accord with present day reality in Britain.

In fact, companies are faced with the choice of product market strategy and with a variety of means of securing competitive advantage in the short, medium and long term. Some of these can be pursued in parallel with attempts to upgrade skills, but others are less incompatible with a high skilled, high wage, high value added approach. The paradigm of the knowledge based economy however, appears to reflect a growing consensus about the nature of wealth-generating enterprises of the future, but nations, and in fact cities and regions, must identify the response to the emerging economy that is most appropriate to them. There is need to look at knowledge, knowledge production and training of workers in new ways. An improved understanding of how the knowledge economy is developing will clarify the role of vocational and technical education and its relationship to the learning need of individual workers, companies, industry clusters and regions (Emezue, Attah, Ogbonna, Iwuagu and Oragwa, 2015).

Malhotra (1998) submits that knowledge management caters to the critical issues of organisational adaptation, survival and competence in the face of increasingly discontinuous environmental change. Essentially, it embodies organisational processes that seek synergistic combination of data and information-processing capacity or information technologies, and the creative and innovative capacity of human beings. The major key concepts of the definition are

- (a) Knowledge – a useful definition is familiarity gained by research and experience. It can include “know what” (knowledge about fact) ‘know why’ (scientific knowledge of the principles and laws of nature) ‘know how’ (skills or the capability to do something) ‘ know who’ (information about who knows what and how to do what)
- (b) Knowledge economy – the economy at the core of a knowledge society, i.e. an economy which revolves around creating, sharing and using knowledge and information to create wealth and improve the quality of life.
- (c) Knowledge Worker – a person who provides value by generating, sharing or applying ideas. It can equally apply to an eminent scientist, the skilled craftsman or to a receptionist or secretary with an expert knowledge of who’s who in the organization and where all the useful information can be found. (Umeh, 2015).

Developing a Knowledge Based Economy

The term Knowledge Economy was coined to reflect the critical role played by knowledge and innovation in economic development. The four essential pillars for the development of a knowledge based economy include: Economic and Institutional regime operating in the country, Education and Skills, ICT Infrastructure and the system for promoting innovation. Countries pursuing a knowledge economy based development strategy must act simultaneously on these four fronts.

Table 1: The four pillars of knowledge economy

Pillar 1	Pillar 2	Pillar 3	Pillar 4
Economic and Institutional Regime	Education and Skill	Innovation System	ICT Infrastructure
The country's economic and institutional regime must provide incentives for the efficient use of knowledge and the application of both to economic development.	The country's people need education and skills that enable them to create and share knowledge and to use it well.	The country's innovation system firms, research centres, universities and other organizations must be capable of tapping the growing stock of global knowledge.	A dynamic information infrastructure is needed to facilitate the effective communication, dissemination and processing of information.

Source: World Bank, 2014

Pillar 1: Economic and Institutional Regime

The first pillar of a country's knowledge economy framework is the economic and institutional regime of a country. The economic and institutional regime of a country needs to provide incentives for the efficient use and creation of knowledge and should therefore have sound macroeconomic competition and regulatory policies. Knowledge - conducive economic regime should be open to international trade and be free from various protectionist policies and price distortions in order to foster competition, which will in turn encourage entrepreneurship, efficiency and innovation.

Pillar 2: Education and Skill

The second pillar of the knowledge economy is the education and skill that the workforce needs to create, adapt and utilize. Knowledge driven economics demand higher level skills in the workforce. The diffusion of ICT is further increasing the demand for skills, particularly those of the highest quality. Importantly, they demand a large number of scientists, engineers, financial analyst and numerous specialised professionals. This pillar of the knowledge economy is clearly not receiving sufficient attention in Africa, particularly in Nigeria. In the face of competition from South and East Asia, a more skill - intensive route to development could provide both resource rich and resource poor countries an avenue for economic growth. This will require dramatic increase in the quality of education at all levels and particularly in vocational skills training and in tertiary education. Nigeria for example will ensure that all her institutions of higher learning are world class. (World Bank, 2014).

Pillar 3: Innovation System

The third pillar of the knowledge economy is the country's innovation system which embraces firms, research centres, universities, think tanks, consultants and other organizations. This system must be capable of tapping the growing stock of global knowledge, assimilating and adapting it to local needs, and creating new technology that underpins the development of new competitive products and processes.

Some of the key actions for the development of such a system are:

- Establishing an enabling policy environment that supports the creation of new knowledge, the diffusion and absorption of existing knowledge, and the commercialization of both competitions among enterprises is key to making innovation pervasive.
- Increase private and public research and development (R&D) and commercialization efforts.
- Increasing openness to trade and foreign direct investment (FDI) as well as leveraging the talent of the diaspora.
- Promoting 'inclusive' innovation - for the needs of the power segments of the population through more creative efforts at the grass root level and supporting the absorption of technology by the informal sector.
- Strengthening higher education and vocational skills training across sectors.
- Upgrading the ICT infrastructure to reach even the rural areas.
- Improving finance/funding for innovation and small and medium scale enterprises.(SMEs)

Pillar 4: ICT Infrastructure

The final pillar addressed in somewhat greater depth, is that of ICT infrastructure which is required for efficient dissemination and processing of knowledge and information. In the development context and in recognition of the importance of ICT, many countries view ICT as a production sector and include policies that focus on the development and/or strengthening of ICT related industries such as computer hardware, software, telecommunication equipment and ICT services. They also recognise ICT as an enabler of socio-economic development and growth.

Concept and Nature of Vocational Technical Education

Vocational technical education comprises more or less organised or structured activities that aim at providing people with the knowledge, skills and competencies necessary to perform a job or a set of jobs whether or not they lead to a formal qualification (Manfred and Jennifer, 2004). Also, Federal Republic of Nigeria (2004) opined that vocational technical education is an aspect of the 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 relative to occupations in various sectors of economic and social life. Technically, vocational technical education refers to studies in areas of technology, applied sciences, agriculture, business studies, industrial studies and visual arts. Its major justification is to provide occupational skills for employment.

However, Pucel (1990) submits that this keeps changing and vocational technical education has been assuming different meanings and purposes due to global, demographic, social, technological, economic and political development. These developments put pressure on government and policy makers to keep expanding the purpose and expectations of vocational technical education. Emezue, Attah, Ogbonna, Iwuagwu and Oragwa (2015) reported that, there are now five justifications for governments worldwide to invest in vocational technical education. These are:

1. To increase relevance of schooling by imparting individuals with skills and knowledge necessary for making the individual a productive member of the society.
2. To reduce unemployment as a result of provision of employable skills especially to the youths and those who cannot succeed academically.
3. To increase economic development due to the fact that it improves the quality and skill level of the working population.
4. To reduce poverty by giving the individuals who participate access to higher income occupations.
5. To transform the attitude of people to favour occupations where there are occupational prospects or future.

Challenges to Vocational Technical Education (VTE) In Nigeria

Although Vocational Technical Education has been seen as a key element in the changing world economic order, nevertheless, VTE in Nigeria like in many other countries still face a lot of challenges. (Manfred and Jennifer, 2004).

For VTE in Nigeria to compete with their world counterparts in the changing economic order, they must address the following key challenges:

1. Putting in place workable policies and strategies.
2. Advocating VTE as a key element in the education industry.
3. Learning in authentic and real world environments.
4. Encouraging continuity in vocational technical education and training.
5. Putting in place coherent guidance and counselling system which will help to put students in proper career path.
6. Encouraging the development and usage of qualified trainees.
7. Creating awareness through image building, vocational attractiveness and participation in VTE in Nigeria.
8. Setting up ambitions and realistic goals that will enable Nigeria to be the most competitive and knowledge based economy.
9. Creating and sensitising the Nigerian populace in the need and vision of VTE.
10. Maintaining approved school age and exit in order to pave way for physical and mental maturity required for the acquisition of vocational skills.
11. Tackling the issues of insufficient and lack of up to date data for assessment of progress in VTE.
12. Adopting stringent measures for proper and efficient execution of policies regarding VTE.
13. Adopting uniform standards and certification in VTE at all levels. (Emezue, Attah, Ogbonna, Iwuegwu and Oragwa, 2015),

Strategies for Developing Knowledge Driven Economy in Nigeria

For knowledge based economy to be achieved, Oguntoye (2011) in Igboanugo, Aguezeoma, Eneze, Onoh and Chukwu (2015), submits that the following will be in place:

- a. Reforming of Curriculum: This reform will involve all the stakeholders (government, education ministers, commissioners, administrators, teachers,

etc) should put heads together to change the curriculum to technical and vocational based so that human resources (knowledge) can be utilised, so that we live like the Americans, Asians and Europeans in this dynamic world of globalization.

- b. Project Implementation, Monitoring and Evaluation: Implementation is also bound to suffer when reform are based solely on technocratic assumption. So the National Board for Technical and Vocational Education should ensure that VTE should be implemented effectively, monitored and evaluated from time to time so that it will help to build up our nation to that 'Knowledge Based Driven Economy'.
- c. Ensuring high quality and appropriate skilled Vocational Profession: For VTE to meet the economic, social and political trend of the time, the nation must use qualified vocational training professionals/teachers in implementing vocational technical educational programmes. These professionals are pivotal in promoting VTE policies/reforms and strategies in Nigeria. The professionals have all necessary skills, abilities and capabilities for carrying out the programme since the quality of VTE depends mainly on the quality of its teachers.

Implications for Higher Education Institutions

Higher education institutions have specific and vital roles across all the elements of knowledge based economy framework. Hence, Nwaogu (2016) submits as follows:

1. Higher education institutions can partner with governments in developing the required strategy for transformation towards a knowledge based economy and also in developing the policy and institutional framework.
2. There is the imperative of dramatically scaling up the quantity and quality of higher education across different disciplines and striving to become world class. Within that context, in addition to the disciplines of science, engineering, entrepreneurship should be promoted. There is very little consensus on the precise contours of entrepreneurial education. The many facets of entrepreneurial education include raising awareness of the central concepts about entrepreneurship by teaching students about entrepreneurs and their individual experiences. Higher education institutions have the potential not only to teach about entrepreneurship, but also to nurture the qualities of entrepreneurship.
3. A critical role that can be played by institutions of higher education is to promote innovation by supporting academic and research activities. The emphasis on a knowledge based economy has brought to fore the role of institutions of higher education with respect to economic development. The roles of Massachusetts Institute of Technology in the growth of industries in greater Boston area and Stanford University in the Silicon Valley area are frequently cited examples. The impact of institutions of higher education on development is often bigger than their immediate environments and has historical antecedents. Germany was the pioneer country where university industry relationship helped create the pharmaceutical industry in the early 19th century. A more Knowledge-Intensive approach to development is clearly a viable option for many developing countries and possibly the only route that permit sustained, outward oriented development. Even recently University of

Nigeria, Nsukka (UNN) developed a 100KVA Refuse Derived Fuel (RDF) gasification plant for the generation of electricity for the institution. It is a breakthrough which is yearning for commercialization which will spiral into economic development.

Conclusion

The success of knowledge based driven economy will only come to reality when government and other stakeholders in education stand to reform our education curriculum with much emphasis on VTE, funding it appropriately and also through changing Nigerians' mindset on formal education certificate culture as against what you can do with your skills and abilities. Educational reform of VTE would also aid knowledge based driven economy as it will help reduce importation of foreign goods, encourage spirit of entrepreneurship, create platform for foreign investments and as well reduce migration and brain drain from our country to other countries.

Recommendations

Based on the foregoing, the following recommendations are made:

1. Higher education institutions can partner with the governments in developing the required strategy for fostering knowledge based economy.
2. The government should offer incentives that foster knowledge economy. Numerous examples indicate that access to reliable and steady sources of funding is essential to ICT and technological growth and sustainability.
3. The government should create an enabling environment for technological innovation and entrepreneurship. The very nature of innovation means that entrepreneurs will either take advantage of existing gaps or forge into new territories. Either way, creating an enabling environment that lowers the barriers to market entry will certainly spur technological development.
4. The policy environment needs to be one that will foster the growth of information and Communication Technology (ICT) as it is the bedrock for technological development.
5. Technical and Vocational education should be introduced at all levels of educational program in Nigeria.
6. Technical and Vocational schools should be adequately equipped with modern tools and equipment for effective teaching and learning to take place.
7. There is need for complete review of the educational curriculum of all educational levels in Nigeria with a view of incorporating VTE in them.

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