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Technical Vocational Education and Training and Local Technologies: A Panacea for Sustainable Entrepreneurship Skills Development

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ABSTRACT

The technological ability of citizens of a nation determines the efficiency at which the nation harnesses her natural resources or utilizes resources acquired from other nations. Abundance of natural resources will not naturally transform into wealth. Transforming the nations' natural resources requires knowledge and skills which has to do with local technologies. Developing and adapting technology indigenously for harnessing local natural resources is more sustainable than importing finished products. Technological vocational education and training (TVET) has remained one of the effective means through which advance technology can be achieved. The paper examined the vital role TVET plays in developing required quality human knowledge and skills that stimulate economic growth and development of a nation. The paper concluded that the local technology if well harnessed through TVET will provide entrepreneurial skills development for the Nigerian youth and in the long run economic stability for the country. It was recommended among others that educational institutions offering TVET programme should intensify efforts in carrying out local technologies related research that will aid artisans and technicians in the job market to increase their level of skill development on local technologies.

Key words: Local technologies, Sustainable entrepreneurship, Skills development.

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INTRODUCTION

When poverty and unemployment prevail in a system, there is bound to be unrest leading to conflict, arm robbery, insurgency and other social vices. The way forward is to educate the citizenry with skills that will adequately engage them to be productive thus tending for themselves and families. TVET can readily provide such service. Individual competencies in TVET skills are designed to lead the beneficiaries to entrepreneurial skills development, self-employment, economic self-sufficiency, and employment generation through short or long-term training. This will enhance economic growth and development of the nation. TVET is necessary to alleviate poverty through skill acquisition. TVET is concerned with the acquisition of knowledge and skills for the world of work to increase opportunities for productive work, sustainable livelihoods, personal empowerment and socio economic development in knowledge economies and rapidly changing work environment (Wilson in Aladetan, 2014).

Nigeria is endowed with a huge and vast array of natural resources such as petroleum and natural gas, solid minerals, agro materials, forest and wild life species and

extensive water bodies. With the abundance of natural and human resources in Nigeria it therefore becomes imperative to develop and enhance the country's local technologies for proper harnessing of the local natural and human resources as this will reduce waste and ensure sustainable future of the country and entrepreneurship skills of the individual. Beside it will create vast opportunity and potentials to adequately harness the local resource in a manner that will sustain the future to unlock the doors of sustainable development.

TECHNICAL VOCATIONAL EDUCATION AND TRAINING

TVET is all about technological advancement and aims to fit new manpower for employment and provide continuing training for those already qualified, so that they can keep pace with modern and emerging work environment. Technical Vocational Education and Training is result oriented (Maigida et al., 2013). TVET is by design intend to develop skills that can be used in specific occupation or job. The objectives and content of the curricula of TVET according to the World Bank are derived from occupational standards or more directly from analysis of the task are to be carried out on the job. The effectiveness of these curricula can thus be measured by the extent to which trained beneficiaries can use their skills in employment. The Federal Republic of Nigeria (2004) in the national policy on education explained the purpose of TVET as: (1) To enable individuals acquire vocational and technical skills (2) To expose the individuals to create awareness by exposing usable options in the world of work (3) To enable youth acquire an intelligent understanding of the increasing complexity of technology, and (4) To stimulate creativity. These highlight the Nigeria's desire to achieve national goal through quality education, hence the need for acquisition of appropriate skills and competence both mental and physical so as to equip the individual for life and to also contribute to growth of the society. Thus, no society can develop to appreciable level without relevant functional and technological based TEVT programme.

TVET provides various opportunities for discovering and developing the individual's potentials for work. Oziengbe (2009) opined that TVET has a broadening effect, which motivates learners to be more exploratory, realize their capability and develop their potentials for success in the workplace. In TVET, the individual undoubtedly would have the opportunity of being productive and become useful to themselves and the society. Succinctly, TVET is the education for those who need it, those who want it, and those who want to progress in it. It is a result oriented from education. It is not education for the demands or educationally disadvantaged persons.

TECHNICAL VOCATIONAL EDUCATION AND TRAINING AND LOCAL TECHNOLOGIES

It is common knowledge that Nigeria lacks the productive human capital to tap its abundant resources and translate such to sustainable economic development. There is therefore great need to build up the nation's local technologies that will enhance healthy harnessing and utilization of the natural resources such that the future will be sustained. The word local simply means native or indigenous. It could be used to something that originates within and unique to the locality (Okorafor, 2014). Technology on the other hand can be referred to the art and science of applying knowledge to meet man's needs. Putting the two words together, local technology can be defined as locally developed art and science that is unique to a given culture or society, which is applied to meet man's need. Eionet (2012) defined it as the technology employed by native inhabitants of a country and which constitutes an important part of its cultural heritage and should therefore be protected against exploitation by industrialized countries. World Bank (2013) acknowledged that indigenous knowledge is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management and a host of other activities in rural communities. It is part of the lives of the community; their livelihood depends almost entirely on specific skills and knowledge essential for survival especially when they are tied technical vocational education and training.

Domestication of a significant portion of TVET will transform the sector into the economic engine for job creation and national growth by developing in country capacity and indigenous capabilities. Thus, a greater portion of the work will be done in Nigeria with active participation of all artisans, craftsmen and technicians, who were born, live and tried their hands on the local technologies. Ultimately, Okorafor (2014) observe that Nigeria will be positioned as the hub for service delivery within the West African Sub-region and beyond. It will also promote value addition in Nigeria through the utilization of local raw materials, products and services in order to stimulate growth in indigenous capacity. Presently, Nigeria is crowded with many educated unemployed; whereas there are enormous potential opportunities in harnessing the abundant human and natural resources. For instance, in the metal fabrication industry the local technology has taken a good dimension where artisans, craftsmen are technicians are doing wonderfully well in the construction of building textures such as doors and windows of different designs and shapes that will meet the demands of their clients. In doing this, new skills are acquired which are peculiar to the practice. Similarly, the ceramics and aluminum artisans have developed the use of local technologies in the production of assorted plates, cups, pots and other

household utensils.

These technologies have led to skill development peculiar to Nigeria which is relevant to trade. Furthermore in building industry the use of locally designed and manufactured bricks in Nigeria popularly called burnt bricks with different models have change the face of the building profession in the country. In the power generation industry where Nigeria as a nation is experiencing dark days, technicians have develop several ways of generating electricity at domestic and commercial levels, it is common place to see locally generated power set around a welders shop where mechanical engine separately acquired and coupled to run an armature that generates power. All these and other local technologies so developed are geared towards getting the individual in TVET industrial to entrepreneurial skill development.

LOCAL TECHNOLOGIES FOR SUSTAINABLE ENTREPRENEURSHIP SKILLS DEVELOPMENTS

Technology is the product of creativity and innovation, Man in his ingenuity is in constant research to proffer solution to environmental challenges and live a better live. The result of which culminates to technology through minor or incremental technical change. The process of training cannot be separated from the process of applying it. In an attempt to arrive at a local technology the artisans, craftsmen are artisans, technologist, or the engineer apply their hands on different aspects of skills acquisition to achieve efficiency and sustainability in design and development of such technology. These skills and dexterities become in-built once acquired which takes permanency in the individual and may be transferred to a willing learner. Indigenous technology development is enhanced through technology importation and transfer. Onwualu (2008) observed that technological capacity development of India and other identified three levels of indigenous technology development process. These are:

i. Basic Level: Ability to operate and maintain a new production plant base on imported technology.

ii. Intermediate Level: Ability to duplicate and adapt the design for an imported plant and techniques elsewhere in the country or abroad.

iii. Advanced Level: Capability to undertake new designs and develop new production systems and components

Technologies have to be developed through a gradual learning process, resulting from purposive effort to assimilate, adapt and modify the new technology. Thus technology has to be developed in close collaboration with the prospective users through a process in which the user can take significant control over the direction of the project and equipment procedure.

Romijn (2000) observed that technologies are rarely perfect as they are newly introduced. Several rounds of forward and backward feedback of information between developers and users are needed to improve and adapt them in iterative fashion; many of these efforts take the form of improvements. Making a mechanical lathe available to a woodworking shop or introducing an improved cooking stove model for low-income household to local metal workers who are to manufacture it, obviously constitute developmentally beneficial policy interventions in their own right. Okorafor (2014) opined that rather than viewing the supply of these products as final project objectives, the process of their introduction into a local business community should also be seen as a means through which artisans and technicians can master new technical and organizational skills and knowledge through the production of these products.

This will strengthen the capacity to introduce other products and process innovations on their own initiatives at a later stage. The technological capability of a nation determines the efficiency at which that nation harnesses her natural resources or utilizes resources acquired from other nations. Abundance of natural resources means nothing if not transformed to generate wealth. Transforming them to optimum economic wealth requires knowledge and skills, particularly indigenous knowledge. Developing and adapting technology ingenuously for harnessing local natural resources is more sustainable than importing finished products. Furthermore, the locally sourced materials used for boards' production are classified as local technologies. The local technologies need to be embraced as a way of providing job opportunity for the unemployed Nigerians. This can be done through entrepreneurial skill acquisition. The skills acquired, therefore, will be a source of employment opportunity for the youths and adults in quest of which collar jobs that are not available in the job market.

TVET AND LOCAL TECHNOLOGIES FOR SUSTAINABLE ENTREPRENEURSHIP SKILLS DEVELOPMENT

Presently, the technology driven economy requires particularly job ethics in which persons are rated on what they can practically do. In other words, the labour market currently finds no place for individuals who cannot perform, rather interested in and curious about what individual s can afford practically and profinatically. For an individual, therefore to be relevant in the labour market, he must sufficiently be oriented to show aptitude in skills and practical performance. This informs that sound education in TVET is paramount to whatever one finds to do for a living in the current dispensation which demands labour productivity of high magnitude. Unfortunately, education on technical and

vocational training for skills acquisition suffers utter neglect (Aladetan, 2014). This sector is underfunded and the basic infrastructure needed to enhance teaching and learning is virtually lacking in every institution offering technical vocational education and training program. There are grose lack of machine shops and where these exist, the machines, equipment and facilities therein are obsolete and most cases housed in dilapidated buildings the prevailing curriculum on TVET is outdated and without novel issues.

It is parttic to note that there is acute dearth of experienced technology teachers in the country and most of the available few do not possess the necessary skills for practical activities. There is neither retraining scheme to keep teachers of technology in the country abreast of the rapidly changing labour market nor do institutions offering technology education conduct production based activities where TVET teachers could undertake practical orientation on research and development (Aladetan, 2014) maintained. Regrettably, these indicators of neglect, poor and inadequate provisions for skills acquisition through TVET program make it extremely difficult to attain the goal on marketable labour force in the country. It is obvious that there is structural shift of worldwide economy as a result of innovations in science and technology (Bukit, 2006). This policy shift has transformed and affected the characteristics of labour market which prescutly seeks for labour force with saleable entrepreneurial skills. It is a belief that if students are adequately provided for in knowledge and skills, these learners will not only secure paid employment but could as well become self-employed and economically productive.

In this deposition, it is possible that most Nigerians will begin to develop new capacities to deal with the impact of changes in the society. With obvious necessities, the need to incest in TVET by the Nigerian governments (federal, State and Local) cannot be over emphasized. Hence in the national transformation agenda, no progress will be made without adequate and enabling environment created for a paradigm shift from the transitional emphasis on rhetoric knowledge to the more modern and holistic TVET delivery system. This will be achieved only if the neglect indicator practices against effective education in TVET system in the country are ameliorated.

Conclusion

It is obvious that knowledge is wealth. If Nigeria cannot create its technology and continues to consume the technological product of other developed countries, then it is bound to remain poor and undeveloped; and the sustainability of its future will be endangered. TVET as means of providing the individual with the needed skills that will enable him/her to live a useful life is capable of projecting the Nigeria's local resource into the local technology that can work for the nation. The local technology if well harness will provide entrepreneurial skills development for the Nigerian youth and in the long run economic stability for the country.

RECOMMENDATIONS

1. Educational institutions offering TVET programme should intensify efforts in carrying out local technologies related research that will aid artisans and technicians in the job market to increase their level of skill development on local technologies.
2. Technologies employed by the native inhabitants of a country and which constitute an important part of its cultural heritage should be protected against exploitation by industrialized countries.
3. Training and retraining packages should be made available for the technology teachers to keep them abreast of new technological development world over.
4. It is imperative for artisans and technicians in TVET to show more commitment in the improvement of local technologies to enable them gain and attract patronage thereby increasing the country's gross domestic product.
5. Government at all levels should maintain consistency in policies to allow for long-term planning and investment by parties involve in the promotion of local technologies.
6. Government should discourage the scourge of multiple taxations by the three tiers of government to enable practitioners in local technologies gain geometric growth in their investment.

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