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RE-ENGINEERING TECHNOLOGY AND VOCATIONAL EDUCATION TOWARDS ENHANCMENT OF CREATIVITY AND SECURITY FOR NATIONAL DEVELOPMENT IN COVID-19 PANDEMIC ERA

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ABSTRACT

The emergence of Covid-19 pandemic has evidently necessitated the quest for re-awakening and re-engineering of technical and vocational education (TVE) for effective learning, in order to stimulate the ailing economy for holistic national development. Apparently, the socio-economic and political situation in Nigeria appears discouraging as every sector of the economy inclusive of education seems to be collapsing at the altar of ill-governance and insecurity. Suffice that education, especially TVE which many schools of thought had globally ascribed a catalyst and a prime mover for technological advancement of nations, appears incapable of addressing sundry problems in Nigeria, including Covid-19 pandemic. Most prominent among such challenges are corruption, tribal jingoism, insecurity and unemployment. These challenges appeared to have defiled every available solution, thus making the future of the country seemingly bleak. Even the education system which ought to be spearheaded by intellectuals, are now under the dictates of uneducated and unpatriotic political jobbers intoxicated by the opium of power and vainglory, whom by their infamous actions fan the ember of underdevelopment, bad governance and terrorism currently ravaging the nation. Acknowledging the need to avert this situation, the paper advocates for a holistic overhauling of the polity and re-engineering TVE in order to save the economy from imminent collapse. Notably, no nation can advance beyond the quality of its education system, as no economy can progress significantly unless its educational framework encourages creativity. Against this backdrop,

the paper highlighted the potency of TVE in revamping the state using creativity amidst COVID-19 pandemic, and as well proffered some recommendations.

Keywords: Technical and Vocational Education, Creativity, Security, National Development, Covid-19 Pandemic

Introduction

Technology can be perceived as the way or process as well as the tool used in doing something with the aid of scientific knowledge. This implies that technology is multifaceted or multi-dimensional in approach. This suggests that technology could be viewed as a means through which an activity or work could be performed, and also an instrument or appliance which makes execution of task or job easier, accurate, faster and more convenient. As technology is widely used in all spheres of life, such as homes, schools, industries, one may however, be tempted to ponder what the world would have been, if there were no technological products like vehicles, airplanes, electrical appliances, computer devices and sophisticated machines. These are birthed by creativity and inventiveness.

Interestingly, the emergence of technological products have evidently redefined and reconfigured the trend, purpose and approaches to man's activities on earth, beneath and above the earth surface. However, an attempt to expand and optimize this body of knowledge using scientific principles to advance technologically necessitated the introduction of technology and vocational education (TVE).

Technology and vocational education can be defined as an aspect of educational programme designed to provide its recipients or learners with scientific principles, fundamental knowledge and skills pertaining to the ways and processes involved in doing things, in order to improve the behaviour, understanding, belief system and the overall activities of human persons (Federal Republic of Nigeria-FRN, 2013). TVE is also viewed as a field of study that focuses on the mastering and utilization of manufacturing and industrial methods/processes as well as the systematic application of knowledge to practical tasks in industry (Ogunyemi, 2018).

More so, technology education is perceived as educational programme that leads to the acquisition of scientific knowledge and practical skills required for scientific discoveries and industrial activities, such as nuclear technology, space-age technology, manufacturing technology, computer technology among others (Procter as cited in Ogunyemi, 2018). Sequel to the foregoing submissions that suggest that technology and vocational education is an imperative for human sustenance and national development, the need to re-engineer every facet of the programme so as to achieve the set objectives cannot be overemphasized. Substantiating the above viewpoint, FRN (2013) encapsulated the main objectives of technology and vocational education as follows:

(i) To address progressively more complex and sophisticated technological problems. (ii) Provide students with the opportunities to work with both individually and as members of a team. (iii) To encourage students to identify technological needs. (iv) Provide students with opportunities to draw or exploit the knowledge gained in other subject areas. Involve students in producing a range of outcomes in a range of materials. (v) Stimulate the development of oral, written and graphical communication skills. (vi) To foster attitudes of curiosity, inquiry, initiative, ingenuity, resourcefulness and discrimination. (vii) To foster awareness, understanding and expertise in those areas of creative thinking that can be expressed through the process of designing and manufacturing. (viii) To foster technological awareness by encouraging students to view technological advancement or development in its social, historical and economic context rather as an end in itself. To engender the application of value judgment as regards aesthetic, technical, economic and moral nature.

The above submission therefore, suffices that technical and vocational education was wholly configured to prepare individuals for job opportunities. Such opportunities are specifically available for individuals who have not only chosen the career but also are ready and willing to advance in it (Okoye & Okoye, 2015). Thus, technical and vocational education is considered indispensable for technological advancement of any nation. As such, technological advancement propels modernization and globalization towards sustainable economic development and global competitiveness (Nzulumike, Onyeocha, & Oli, 2015). This is a clear indication that TVE is the bedrock of any advanced nation, and also suffices the need to boost the quality and capacity of teachers in the programme. However, the quality of teacher, content of instruction and method of instructional delivery largely influence the extent of attainment of the set educational goals of different specialties in the field. The specialties embedded in technical and vocational education include but not limited to the following: building construction, woodwork trades, bricklaying, block making and concrete; carpentry and joinery; furniture craft practice; painting and decorating; electrical trades-electrical installation and maintenance, radio, television and electronic work, instrument mechanism, domestic appliances repair; mechanical trades- fabrication and welding, foundry craft practice, mechanical engineering craft practice, motor vehicle mechanic works, plumbing and pipefitting, refrigeration and air conditioning inter alia (Ogunyemi, 2018). These trades are structured to avail learners ample opportunities to acquire requisite competencies and creativity to excel in their chosen occupations.

Creativity

As no nation can develop beyond the quality of its education system, no economy or nation can transform or advance significantly beyond the creative and innovative ability of its workforce. This indeed, implies that the level of impartation and optimization of creative prowess by the workforce, in providing the needs of the society vividly depicts the potency of the learning institutions. That is why Okoye and Okoye (2018) posited that we are in the generation that trades with the currency of creativity. Creativity can therefore be viewed as the dexterity or learned ability to do something or some works. Similarly, Okoye, Okoye, & Okwelle, (2015) affirmed that creativity encompasses the technical know-how or learnt skills required for carrying out tasks that could lead to the design, construction, fabrication, assemblage and production of devices, machines and appliances used for meeting the everyday needs of man and its environs. In a nutshell, creativity is the output or the manifestation of acquired skills that could be optimally deployed in bridging an existing gap. Thus, the level of acquisition, impartation and optimization of creative acumen explicitly defines how competent an individual is.

Taking cognizance of the fact that technology-based professions are replete with requisite skills that could spur learners and professionals to make great technological exploits in the vocation, and also contribute meaningfully to national development, a lot is required to set the programme on a sound footing. This stresses the need for re-engineering TVE to enhance learning, which would enable the learners acquire and creatively optimize their skills for their sustenance and national development.

Security

There is no gainsaying the fact that the whole world is being confronted by various security related issues, such as armed robbery, mindless killings, kidnapping, corruption, money ritual, insurgency among others. According to Kolo as cited in Mohammed (2015), security in any society is the guarantee that peace and tranquility for sustained human co-existence and safety of lives and properties. Mohammed further maintained that security anywhere is the product of the guarantee of the well-being of the people to their fundamental basic rights, human dignity and access to unfettered justice. But, that does not apply to the security situation in Nigeria today; where destruction of lives and properties has become the order of the day. The situation is not only overwhelming but also sacrilegious. This has put the peaceful coexistence of the people and their socio-economic activities in jeopardy; thus making the society unfriendly for any meaningful investments.

The anathema of insecurity is that it has led to wanton destruction of lives and properties, induced fear in people as well as fueled inter-ethnic divides and religious bigotry (Berman, Shapir&Felter, 2021). It has caused the loss of lots of precious valuables of people, and adversely threatened the unity and economic interests of nations. This kind of attacks on humanity, specifically in Nigeria calls for holistic approach to re-engineering the security

apparatus through intensive training, deployment of requisite know-hows and sophisticated technologies spearheaded by experts in TVE and affiliate institutions. The involvement of these professionals could help to rebuild and entrench peaceful coexistence, which is the recipe for competitively vibrant economy and national development (Anna& Bennett, 2017). It therefore calls to urgent actions to redress the insecurity in the country, as no sustainable success or significant transformation could be attained in the absence of security.

Coronavirus

The emergence of coronavirus otherwise known as covid-19 has unleashed unprecedented changes across the globe. Experts have described the disease as the most dreadful of all the diseases ever known in the history of human existence. This claim alludes to the fact that its mode of transmission and rapidity in killing is such that hardly allows the carrier a reasonable time to receive treatment from health professional (WHO, 2020). And through the observance of the laydown precautionary measures against the pandemic, the way and manner certain activities were performed abruptly changed; thus, giving room for artificial intelligence. Owing to the alleged number of lives lost and economies crippled, tension was heightened across the world. Based on that, schools were shut down, national boundaries were closed, industries and markets were lockdown. Consequently, people were confined in their homes, which induced an intractable fear in them that caused a lot of premature death notwithstanding the purported availability of vaccines.

Pathetically, the modus operandi adopted in the distribution and dispensation of the vaccines meant to control the virus became highly controversial and politicized even when it became obvious that taking the Covid-19 vaccines could neither reduce the severity of the virus on the patients nor prevents a healthy or vaccinated person from contracting the disease. In the same vein, a lot of people rejected the vaccines on the grounds that it was a calculated attempt to insert microchips on people, which was against their believe system. Amidst this hopeless situation, various agents of government and World Health Organization were aggressively striving to coerce the people to take the vaccine, even when many were confirmed dead while others were subjected to various degrees of health challenges after being vaccinated. Furthermore, in attempt to curtail or deescalate the rate of transmission of the virus, the use of masks, hand sanitizers, regular washing of hand cum no handshake and social distancing among other purported preventive measures were introduced. At the peak of this unfortunate scenario, life became so difficult and school activities were disrupted everywhere. Interestingly, only institutions that have integrated and entrenched online or e-learning platforms in their instructional modules/delivery were not affected. It is an eye opener or food for thought to most Nigerian institutions, who are still angling to queue in. It is therefore, expediently instructive that e-learning platforms be fully integrated to interface with school activities/programmes at all levels of education in

Nigeria. This would forestall any possible disruption of school calendar that may occur as a result of natural disaster or pandemic.

Re-engineering Technical and Vocational Education for enhancement of Creativity and Security

The benefits of TVE can only be appropriated if the institutions are viable and functional. This section underscores the imperative of that, and succinctly highlighted various measures for re-engineering TVE institutions in order to foster a sustainable security and resilient economy that could stimulate national development as follows:

Purpose-based or problem-based learning: Success is said to be predicated on setting realistic goals/plans as well as making appropriate efforts towards actualizing such goals. This corroborates to the axiom which posits that, “if one fails to plan, invariably, one has planned to fail. The foregoing assertion contends that Nigerian education system was neither configured to proffer solutions to myriads of socio-economic challenges besetting the nation nor to trigger its technological advancement. Also, the establishment and proliferation of technical colleges, polytechnics and universities of technology in all the states of the federation has not mitigated the overdependence on foreign products by Nigerians; while the country is rapidly retrogressing amidst the enormous natural resources in its soil (Ogbuanya & Okoye, 2015). It is worthy of mention at this juncture that, California, which is one of the leading counties in the United State of America, generates most solutions to her developmental projects from the knowledge and ideas processed in University of California while reverse is the case in Nigeria. Little wonder, those who rule Nigeria are ravenous and self-serving politicians who care less about the state.

Indeed, most developed nations attained their present status, because they prioritize their education system, and made it functional; whereas the state actors in Nigeria toy with theirs. This has resulted in various kinds of impediments to educational development including incessant strikes embarked upon by the Academic Staff Union of Universities (ASUU); which has adversely affected both the lecturers and the students. Unarguably, no responsible and responsive government can dare to undermine its education system. This is because no nation can develop beyond its level of education. Thus, the imperative to compel the government to urgently re-equip and reposition technical and vocational education institutions and affiliate institutions to foster creativity which could stimulate the polity for economic stability and technological advancement.

Result-oriented curriculum: There is no arguing the fact that when someone does a particular thing consistently the same way, the person would continue to obtain the same result irrespective of the number of times such attempt was made. The foregoing expression portrays the place of the curricula that guide and propel Nigerian education system.

According to Okwelle, Okoye and Okoye, (2015), the curricula of various programmes in Nigerian tertiary institutions, especially that of TVE are highly divergent, and the objectives are often disregarded in the course of implementation. Apparently, this scenario could be the reason a lot of engineering and technology-based professions in Nigeria, including TVE are not living up to their expectations (Okoye, 2018).

Cognizant of the above assertions, the researchers therefore, contend that TVE curricula should be reviewed to ensure optimal flexibility that could facilitate the re-engineering of the institutions to be able to produce competent professionals who would creatively utilize local contents to advance the industrial sector. Acknowledging that, the 21st century workplace skills demand a holistic overhauling and re-engineering of the curricula to make learning more impactful to learners, the need to adopt a practicable curriculum predicated on psychomotor ability (doing) instead of cognitive (talking) subsists. This approach could help to entrench and optimize creativity for industrial and technological breakthroughs. As such, result-oriented TVE curricula could spur the creative acumen of learners so as to progress in the profession, and well compete favourably with their counterparts across the globe.

Institution/industry partnership: The learning environment should be a replica of the working environment (Prosser as cited in Gilbert, (2014). The foregoing claim underscores the potency of the relationship between TVE institutions and industries towards impacting in learners the requisite skills and competences to perform proficiently and professionally. Such synergy, if properly managed, could greatly reduce the difficulties associated with hiring competent professionals and also makes identification of most suitable industries for employment so easy. According to Molokwu, Eze& Okoye, (2015), the efficacy of such partnership or collaboration hinges on its ability of bridging the employment gap, and also prepares learners to be able to execute tasks confidently prior to graduation. The materialization of this collaboration could make TVE institutions citadel of creative inventions and effective channels for grooming competent professionals that would pilot the industrial sector to an amiable height. This would in turn reduce the propensity for unemployment and insecurity among the teeming youths of Nigeria.

Equitable funding: Inequitable allocation of funds to critical sectors such as education sector is one the major problems to national development. Obviously, Nigerian government has not allocated adequate funds to education sector, especially TVE institutions, and the effect is quite glaring; because, any nation that cares less about its education system hardly develops technologically. In Nigeria, despite the facts that funds allotted to education sector are inadequate, unfortunately the little amount being provided is often mismanaged and misappropriated, thereby making it extremely difficult for the programme to run smoothly. Regrettably, despite all the entreaties and agreements signed between the federal

government and the Academic Staff Union of Universities (ASUU) to increase the budgetary allocation of education system to 26%, as recommended by ILO, government is still dragging feet. Certainly, but shamefully, no government or administration in the annals of Nigerian politics has dared to raise the allocation beyond 7%. This is quite unacceptable and unthinkable compared to what is obtainable in some developing nations in Africa, such as Ghana, Rwanda and Tanzania. Instead of funding education and other critical sectors to boost productivity, the self-serving and greedy leaders of Nigeria would prefer to allocate the greater proportion of the budget to themselves because they think that the commonwealth is their birthright. Similarly, even when certain projects are mapped out for construction, the bidding and awarding processes are usually contracted in Abuja without due process. This practice has precipitated into the construction of poor quality and abandoned/uncompleted projects, including roads and other basic infrastructures across the country.

It is really worrisome that the federal government of Nigeria could not address some critical issues affecting the education system despite the huge amounts of money it has borrowed and still borrowing. Amidst these challenges, the federal government has been establishing more tertiary institutions while the existing ones are grossly underfunded. Even in TVE institutions and technical colleges where students are supposed to acquire creative and innovative skills, their laboratories and workshops are bereft of basic tools and equipment. This situation requires urgent action to change the narrative. Else Nigerian education system, especially TVE institutions and affiliate institutions would continue to lose their value/relevance, which would invariably, compel the youths to seek for better education outside the shores of Nigeria.

Teachers' Care Center: The quality of learning in any field in any institution is largely dependent on the quality of teachers being used as agents of change. This implies that, the impartation of requisite skills and knowledge are also core mandates of teachers. Hence, the need for the institutionalization of Teachers' Care Center that would be charged with the responsibility of monitoring what, why and how teachers perform their duties as well as ensures that teachers' welfare is given utmost priority. This could help to sanitize teaching profession by eradicating mediocrity, truancy and other related offences and corrupt practices that usually threaten learning in all fronts, and ultimately boost teachers' capacity and enthusiasm for optimal performance. Incontrovertibly, there could be no meaningful learning without cascading a retinue of qualified and competent teachers who are eminently equipped with requisite skills to handle learners' personality traits and challenges. It would further, spark up learners' curiosity to learn and master concepts. The center would checkmate arbitrary recruitment of teachers as well as provide opportunities for extensive training and retraining of teachers who are passionate for teaching enterprise.

Deployment of emerging technologies: Deployment of emerging technological gadgets and e-learning applications has helped some IT-compliant institutions to sustain teaching and learning during Covid-19 pandemic period; whereas institutions that are technologically backward had their teaching and learning activities completely disrupted. This scenario has justified the clamour for the adoption of emerging technologies that are digitally-driven in teaching, especially in post-covid-19 pandemic era, in order to achieve comprehensive, undisrupted and seamless learning irrespective of the prevailing conditions. This therefore, suggests that embracing e-learning platforms optimally could enhance learning if the schools are sufficiently provided with appropriate tools. This attempt would entrench the adoption and extensive deployment of requisite technologies in schools so as to engender a sustainable and cutting-edge learning space akin to 21st century learning environment.

Conclusion

The age long negligence and disdainful lip service by Nigerian government has been considered a serious threat to the implementation and advancement of the curriculum of TVE programmes. This practice has attracted a lot of criticisms and condemnations from varied schools of thought, well-meaning individuals and reputable intellectuals who blamed the government for dereliction and negligence of the sector. Incidentally, the emergence of Covid-19 pandemic and prevalent insecurity besetting the nation has revealed the lacuna in our education system, especially in TVE, which ought to stimulate the economy towards global competitiveness. Conclusively, the paper therefore, highlights the need for a holistic approach towards re-engineering TVE programmes, in order to instill in learners creativity and requisite technical know-hows to stem the tide of insecurity and other societal ills in the country through employment generation which could in turn foster national development.

Recommendations

Based on the above submissions, the following recommendations were made:

1. Government should inject more funds into education sector and also ensure optimal utilization of such funds in revamping the sector in order to foster creativity and innovative mindset that would trigger technological advancement of the nation.
2. The TVE experts should in collaboration with the curriculum planners holistically review the TVE curriculum and also ensure its smooth and effective implementation in order to produce competent human capital who would employ their creative potentials to optimize and commercialize local contents advantageously. This would not only make the graduates entrepreneurially creative, but also douse their propensity of indulging in criminality.
3. Ministry of Education should in collaboration with school administrators provide schools with sufficient technologies compatible with various e-learning techniques

and platforms so as to prevent disruptions of learning during Covid-19 pandemic or natural disasters and other epidemics.

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