REFLECTIONS ON VOCATIONAL TECHNICAL EDUCATION IN THE 21ST CENTURY NIGERIA

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Abstract
Vocational /Technical education has been a proven bedrock of National development in the area of science and technology. It provides the necessary information and psychoproductive skills needed in the present day technological innovations and in reducing unemployment among the Nigerian youths. It is education for productive living, therefore, any stagnation in this form of education is a sure route to economic decay. In this paper the authors have, in the light of recent innovations reflected on the definitions, philosophy, goals and objectives, contents, methods and achievement of vocational education with respect to 21st century education in Nigeria. The reflections have led to the expression of what 21st century education should be in the operation of vocational technical education for national advancement. it is recommended, among other things that, the 21st century education in Nigeria should be as good as that of any other developed democrat.
Sequel to the running of formal vocational technical education programmes for nearly half of a century using rigid curricula (Matthew and Ede, 2010) it is only prudent to have reflections on vocational education practices in Nigeria.

The Federal Republic of Nigeria (FRN, 2004) defined technical and vocational education as 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. The definition covers general education and the four aspects of work behaviour which are of primary importance to employers.

Osisioma (1993) however appears to lay emphasis only on the psychomotor aspect of vocational education while ignoring the cognitive, affective and perceptual aspects of training in vocational education. A balanced work behaviour must of necessity reflect all the domains. The goals of vocational education are to provide manpower in applied sciences, technology and business; provide technical knowledge and vocational skills for agricultural, commercial and economic development and to impart the necessary skills to individuals for economic self-reliance (FRN, 2004) Technical and Vocational educational is categorized into five types: pre-vocational and vocational at the secondary level; technical colleges; college of education (technical); polytechnics/colleges of technology and universities at post secondary level. The aim of categorization is to facilitate the pursuit of the above goals. Still in the pursuit of the stated goals Technical and Vocational Education is taught at three basic levels in the education system – lower post-primary (JSS), upper basic or junior secondary schools, senior secondary schools (SSS/Tech. College) and at the post-secondary level (tertiary institutions). It begins at the JS level with the introduction of prevocational electives such as Agriculture, Business Studies, Home Economics, Local crafts, Computer Education, Fine Arts, Applied Music and Introductory Technology. The process continues at the senior secondary and technical colleges with vocational electives. Technical and vocational education is offered at the colleges of education (Technical), polytechnics, monotechnics and universities of technology Madumere,(1999). Technical and vocational education is delivered as either formal or non-formal. The formal mode of delivery features in the formal institutions where the curriculum is structurally arranged from primary to tertiary levels of education. The non-formal mode of instruction is the apprenticeship scheme, custom and tailor-made programmes designed to impart occupational skills for gainful employment.

Under the informal approach to TVE, a self-directed individual acquires the required attitudes, values, skills and knowledge for learning and doing the work as part of living experience. Ogbuanya (2006) cited in Ike, Nwamuo, and Ojukwu (2010) enumerated agricultural and related trades; building and woodwork trades, commercial
and related studies, electrical, mechanical engineering, textile as well as hospitality trades as constituents of vocational training.

Equipping the technical and vocational training laboratories to meet rapidly emerging technological innovations in all service areas of vocational education is the desire of 21st century education in Nigeria.

**Reflections on Vocational Technical Education In The 21st Century Nigeria**

A careful consideration of the definition, goals categories and levels at which vocational education is taught clearly shows the philosophy of vocational education. This philosophy actually is an expression of Nigeria’s belief in what vocational education can offer for self and national development.

Reflections on the achievements of vocational education on the bases of its definition, goals and philosophy indicate that, vocational education has fallen short of public expectations vis-à-vis the problems of implementation. Also, the emerging innovations in almost all the service areas of vocational education have rendered the said aspects outmoded (Matthew, and Ede, 2010, Wyman, 2011). The definition, goals and philosophy of vocational education in face of emerging technological innovations must be revisited for the 21st century training of Nigeria’s manpower for national development.

The method of instruction in vocational education is expected to assist the learners at all levels to develop balanced prevocational skills or work behaviour in youths and adults. The basis for the identification of skills in the domains of work behaviour is currently lacking (Otu, Udo and Usoro, 2010) for the training of the youths. In the absence of the inventorised skills for guiding the learners to develop job survival skills, there is a tendency in pedagogy to emphasize cognitive development to the detriment of other equally important skills as noted by Okon, (2008) and Otu, Udo and Usoro (2010).

In addition to the above, Okon (2008) reported that many vocational courses like introductory technology are not taught in schools due to shortage of qualified teachers, improper learner-teacher ratio e.g. over 50 : 1, which is a high workload for teachers in prevocational subjects and poorly equipped laboratories. At higher levels of education teacher-student ratio in vocational education courses (except business and agricultural education) is a reversed order. This has created a challenge to be reflected upon. The 21st Century Vocational Education in Nigeria demands proper teacher-learner ratio of 1:20 or at most 1:50 by employing more teachers at secondary and post secondary levels and encouraging more youth to enroll in vocational-technical education programmes. This is achievable through bursary awards to the males and through enticing more females by giving them free books, scholarships and training more female teachers in vocational technical institutions. Research evidence indicates that female students prefer to be taught by female vocational teachers (Usoro, Usoro,
Ibritam and Udofia 2010). By adopting the foregoing approach the imbalance between enrolment figures of boys and girls is likely to be reduced as total eradication of the phenomenon involves a gradual process (Usoro, Usoro, Ibritam and Udofia, 2010). Female students’ enrolment in over 220 Nigerian technical / vocational colleges (Ajeyalemi, 1993) requires improvement as a matter of policy and urgency for manpower production in 21st century.

Reflections on instructional methods or modes of instructional delivery system point at the inadequacy of face-to-face method of training. Face-to-face method of instructional delivery is weakened by variable of access to hearing. The 21st century would welcome the integration of vocational – technical education and training and open and distance learning (ODL). This is a strategy for delivering skills training to the door steps of Nigerians (Idris, 2010). The open and distance learning is any process in which all or most of the teaching is conducted by someone removed in space or time from the learner, with the effect that all or most of the communication between teachers and learners is through artificial medium, either electronic or print (Idris, 2010).

The rationale for TVET and ODL integration is to open opportunity for learners to study regardless of geographic, socio-economic or other related constraints. ODL is cost-effective, provides independence of time, location, space and time as well as application in a variety of learning situations; basic tertiary, vocational and non-formal education (Perryton, 2000). It is on the basis of the potentials of ODL in overcoming barriers and constraints against learners’ access and success to quality, life long education that convinced Nigeria to establish the National Open University in 2002 (Idris, 2010). However ODL method was not extended to TVET.

Jegede (2010) stressed that about 2.196 million students out of a total of 8 million students have access to tertiary institutions. Again less than 17% of the candidates who applied for polytechnic education got admitted into these institutions. The foregoing situation has brought to the fore, the issues of integrating technical and vocational education and training and the open distance learning as an innovation and cost effective approach to the educational process in the 21st century.

Reflections on the achievements of vocational education point at below expectation phenomenon occasioned by implementation and other environmental variables. Let us first take a look at students’ performance in vocational – technical subjects in 1988-1990 WASC examinations presented in table1. The observation took place about twenty – two years ago yet the present has not painted a better picture.
Table 1: Student’s Performance in Technical Subjects in the WASC/GCE/MAY/JUNE Examinations: 1988-1990

<table>
<thead>
<tr>
<th>Subjects</th>
<th>1988 Entry</th>
<th>Pass no. %</th>
<th>1989 Entry</th>
<th>Pass no. %</th>
<th>1990 Entry</th>
<th>Pass no. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Drawing</td>
<td>7,407</td>
<td>1,450 (19.57)</td>
<td>7,815</td>
<td>1,811 (23.17)</td>
<td>5,991</td>
<td>1,508 (25.17)</td>
</tr>
<tr>
<td>Woodwork</td>
<td>1,120</td>
<td>110 (9.82)</td>
<td>1,325</td>
<td>239 (18.03)</td>
<td>718</td>
<td>75 (10.44)</td>
</tr>
<tr>
<td>Metalwork</td>
<td>689</td>
<td>101 (14.65)</td>
<td>857</td>
<td>191 (22.28)</td>
<td>458</td>
<td>131 (20.60)</td>
</tr>
<tr>
<td>Applied Electronic</td>
<td>966</td>
<td>287 (29.71)</td>
<td>1,120</td>
<td>178 (15.89)</td>
<td>606</td>
<td>390 (64.35)</td>
</tr>
<tr>
<td>Basic Electronics</td>
<td>164</td>
<td>66 (40.24)</td>
<td>195</td>
<td>93 (47.69)</td>
<td>119</td>
<td>49 (11.40)</td>
</tr>
<tr>
<td>Auto-Mechanics</td>
<td>5889</td>
<td>89 (14.88)</td>
<td>853</td>
<td>79 (14.28)</td>
<td>298</td>
<td>34 (11.40)</td>
</tr>
<tr>
<td>Clothing &amp; Textiles</td>
<td>630</td>
<td>187 (29.68)</td>
<td>705</td>
<td>79 (11.10)</td>
<td>420</td>
<td>14 (3.33)</td>
</tr>
<tr>
<td>Food &amp; Nutrition</td>
<td>9,094</td>
<td>4,311 (47.40)</td>
<td>11,834</td>
<td>2,663 (22.50)</td>
<td>8,565</td>
<td>2,450 (28.60)</td>
</tr>
<tr>
<td>Home Management</td>
<td>7,621</td>
<td>2,702 (35.45)</td>
<td>9,202</td>
<td>4,352 (47.29)</td>
<td>5,863</td>
<td>1,880 (32.06)</td>
</tr>
</tbody>
</table>

Students’ performance in vocational – technical examinations has not improved. Fafunwa (2010), talked about “comedy of failure in public examinations”. According to him classes are bid for failure before examination itself. Recently Dike and Adebayo (2011) reported the failure of one million students in WAEC examination which Daily Sun described as “National Shame”. It is as a national shame because out of 1.5 million students’ who wrote WAEC, one million failed. Only 31% passed while results of 81,573 were withheld. The responsibility for failure must be shifted to the administrator of the school either at local, state or federal level. Reflections on students’ performance in vocational technical examinations demand a pragmatic consideration of the challenges in order to achieve the desired performance in the 21st century. Fafunwa (2010) has provided the way out of the current problem.

Class size must not be more than 40. Nigeria needs dynamic leadership which will be committed and interested in education of the youth – tomorrow’s leaders. There is leadership failure which must not have a place in the 21st century education. Poor funding has been one of the offensive challenges. Fafunwa (2010) suggested that 30% of the national budget should be spent on education. Nigeria is financially capable of funding vocational education with its technological innovations for a prosperous 21st century. The money is there, but what is lacking is the will to use it judiciously.
Fafunwa (2010) the most successful minister of education in Nigeria muted Nigeria’s ability to afford free education at primary and secondary levels. If this happens then the 21st century education in Nigeria is likely to wear a smile of liberation from knowledge deterioration to messianic status in the global context. How can the foregoing occur when “individuals are holding our money and we are not paying enough attention to education” (Fafunwa, 2010).

Reflections on the Nigerian education also points at the ugly rate of corruption plaguing our educational endeavours. Anti corruption agencies must be further encouraged and strengthened to do what they know how to do best. These wishes of the 21st century cannot materialize unless appropriate conditions are allowed to prevail.

Further reflections on vocational education and identified challenges have been reported by Wolansky (1981), Towe (1989), Usoro and Ogenye, (2002) and Dike (2009) as follows:

1. There is the lack of public understanding of this type of education. The image of vocational technical education is still unclear to people in the society. Legalizing vocational education by the government is an unavoidable approach to popularization of the programme in the 21st century.

2. There is absence of aptitude scale for identifying youths who are likely to excel in the acquisition of skills in vocational technical education for national development. The 21st century calls for use of appropriate aptitude scale for selection and admission of students into vocational institutions. The present aptitude measure sequel to JAMB exercise is grossly inadequate for use in students admission into vocational technical institutions in 21st century.

3. No adequate and ready capital or seed money for graduates who wish to self-employ themselves upon programme completion. The 21st century education demands that such programme graduates be sufficiently equipped for entrepreneurial living.

4. Lack of life insurance policy. Life insurance must to be statutorily established for the safety coverage of both the students and teachers in their laboratory practice in the 21st century education in Nigeria.

5. Greater government emphasis on other programmes than on vocational technical education is detrimental to the latter. A new and better direction in favour of vocational education is a worthy goal of the 21st century.

6. There are no indigenous Books and Guides on Vocational Technical Education. Almost all or most of the available texts are foreign and lack the familiar...
background upon which students’ learning should be based. The 21st century expectation is that the indigenes must be funded to produce books and curriculum guides to facilitate students’ skills acquisition within a familiar environment.

7. Unreliable Source of Power. Skills acquisition in vocational technical education depends on machines and tools that operate on electrical power. When these equipment remain unused as a consequence of erratic or absence of power supply, they become atrophied. The problems associated with repairing or maintaining foreign equipment do hinder efforts in skills acquisition. The 21st century education in Nigeria must operate on reliable and constant power supply as observed in the developed democrats.

8. Non-Involvement of Industries. The greater percentage of technical manpower available in Nigeria hangs on employees of industries. It is unfortunate that industrialists stand aloof in technical manpower development instead of contributing substantial funds in technical training. They only wait as watchdogs, much poised to smartly absorb any qualified technical personnel. Oranu (1994), emphatically stated that technical educators and industrialists should work closely together in order to understand and evaluate the developmental needs and problems in the area of industrial technology. Above all, government should involve the industries in designing technical education curriculum to entice financial supports from industries.

Conclusions
On the basis of the foregoing write-up, the following conclusions may be drawn:
1. Without proper control and prudent management of the challenges of vocational education today, the expected 21st century education in Nigeria is bound to be a mirage
2. The 21st century education in Nigeria is that education which incorporates technological innovations for a brighter and more prosperous future for all Nigerians.

Recommendations
On the bases of the presentation and conclusions of this paper the following recommendations are proffered:
- Technical and vocational training laboratories should be provided with necessary functional and infrastructures for the promotion of ICT at all levels as entrenched in the National Policy on Education (FRN, 2004).
• There should be sincere and sustained government funding of technical and vocational education programmes. Such programmes should be well equipped in terms of ICT facilities that meet the world’s standards. More ICT facilities should be produced, procured and supplied for the sustenance of technical and vocational training.

• There is the need for total rehabilitation and improvement of equipment and facilities in the existing technical and vocational institutions in Nigeria.

• The scope of National Directorate of Employment (NDE) and Industrial Training Fund (ITF) should be broadened in order to accomplish the National Policy on Technical and Vocational education.

• Since education is on the concurrent list, governments at the three-tier levels, should invest in standard infrastructural facilities and provision of modern equipment for technical and vocational training laboratories

• All regulatory bodies (such as NCCE, NUC and NBTE) should be more active in policy formulation and implementation for appropriate feedbacks to the government on the activities of technical and vocational institutions.

• Practical aspects of technology should be given greater attention in curricula content of technical institutions and executed in appropriately equipped laboratories.

• Training and retraining of technical and vocational education teachers cannot be over-emphasized. This will make them well equipped to understand and prudently implement the VTE curriculum; use the computers, internet facilities and modern communication equipment. It is also not out of place to expose technical and vocational trainees to the use of computer and internet facilities to enable them to access the world’s current information sources for improvement of learning.

• Purchasing modern equipment for technical and vocational training laboratories is capital intensive. It is recommended that there must be appropriate legislation compelling corporate bodies to be proactive in their quest for social responsibilities towards technical and vocational education.

• There should be adequate awareness and orientation of the general public about the potentials of technical and vocational education graduates and contributions they can make towards national development.

• There should be regular and constant electric power supply for workshop equipment and their operation in executing demonstrations and practical projects in vocational/technical education.
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