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TRENDS IN THE IMPLEMENTATION OF NIGERIA'S NATIONAL POLICY ON TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING: 1977-2014

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ABSTRACT

Technical and Vocational Education Training (TVET) was not accorded prominence in Nigeria's educational system in the colonial period. It became a policy thrust in the post-colonial period particularly with the evolution of the National Policy on Education (NPE) in 1977 where it became part of the curriculum of the two-tier secondary school system that emerged. Trade and vocational centers were to be established to cater to the teeming population from the Universal Primary Education (UPE) programme that commenced in 1976. Importantly, the Junior Secondary school had pre-vocational subjects as part of its curriculum in order to provide wider access to students in both liberal arts, science, technical and vocational education. From available literature (primary and secondary sources) it was discovered that the revised editions of the NPE in 1981, 1998, 2004 and 2013 had provisions for TVET and thus reinforced the programme. However, as statistics have shown in the study, there are few TVET schools established by the Federal, State Governments and even individuals. Consequently, enrolment is also poor vis-à-vis secondary schools and their enrolment in Nigeria. The idea of making secondary schools to provide comprehensive education so that each student fits into a career according to his/her ability has not yet been achieved. Beyond mere revision of the NPE and well-articulated programmes as well as curriculum review to project TVET is the problem of funding and implementation. TVET is capital intensive and so needs political will for funding, development of teachers, facilities and equipment needed. Nigeria is in dire need of indigenous middle manpower in technical and vocational disciplines in and outside the industries and for the development of other African countries. The wide gap in the number of TVET institutions and those for Liberal Arts and Science disciplines at the secondary school level should be balanced hence there is also the need to re-orientate the larger citizenry to study Technical and Vocational Education as well as have individuals to establish schools for this type of education.

KEYWORDS: *Trends, Implementation, National Policy on Education, Technical and Vocational Education and Training*

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INTRODUCTION

Technical and vocational education, have their roots in traditional education that was prevalent in all societies and is still practiced in non-formal education. Through technical education, the youth acquired technical skills needed in pottery making, canoe building, cloth weaving, construction of wooden bridges and mud houses, fishing and fish processing, local gin production, dying of materials (fabrics), leather processing, blacksmithing, bronze, brass and copper

works and so on. These skills were fundamental to the development of vocations that they engaged in as cloth weavers, gin manufacturers, craftsmen and women in clay and iron works respectively.

The development of formal education in Nigeria did not incorporate technical and vocational education into its curriculum in the colonial period and the first decade after independence. The colonial rule did not encourage industrialization neither did the neo-colonial period of early post-colonial Nigeria. The change in attitude towards an education curriculum that would make the citizens functional within Nigeria and contributing to the development of the nation in the areas of technical and vocational needs was instrumental to the development of a National Policy on Education (NPE) in 1977 that reflected the type of curriculum that should serve Nigeria's needs.

This paper seeks to examine the provisions of the 1977 NPE and other revised editions with the view of examining the trends for changes that have occurred over the years and that have influenced Technical and Vocational Education Training (TVET) curriculum from 1977 to 2014. Beyond curriculum review is the need for adequate implementation which is another thrust to this discourse. What are the successes and challenges in achieving TVET in Nigeria? How can TVET be sustained so that a majority of the citizens would embrace it? How would TVET be structured and implemented to meet national needs and thereby satisfy the yearnings of Nigerians?

DEFINITION OF TERMS

Technical and Vocational Education: Technical education is defined as "that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge" (Federal Republic of Nigeria, 1977:19). Again, the Federal Republic of Nigeria (FRN) in the 1998 third edition review of the National Policy on Education (NPE) defined vocational education as that form of education which is obtainable at the technical colleges and is equivalent to the senior secondary education but designed to prepare individuals to acquire practical skills, basic and scientific knowledge and attitude required as craftsmen and technicians at sub-professional level (FRN, 1998:25).

Technical and Vocational Education and Training (TVET) emphasize practical experience for expertise in a particular discipline or vocation. NPE 1977 had provision for technical education but described vocational schools as a type of technical education institution at the post-primary level. In this regard, vocational education is acquired from technical schools. The 1998 NPE provides for vocational education and is obtainable at technical colleges. There does not seem to be a clear distinction from their areas of emphasis except that the trend in Nigeria makes technical education in colleges occupy a higher status than vocational education in related institutions as both offer different depth of curriculum content and certification.

Technical and Vocational Education as the National Policy on Education (2004:29 and 2013:36) stated is used as a comprehensive term referring to those aspects 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 relating to occupations in various sectors of economic and social life. Here, the content of TVET is occupation biased and with much emphasis on acquisition of practical expertise (Skills) for that occupation. In fact, this definition broadens TVET by including general education knowledge which was not the practice when after primary school the individual could gain admission into a technical college in the 19th century.

Conclusively, technical education equips an individual to specialize in acquiring expertise in activities that require the application of knowledge in applied sciences, technologies, trade and for career preparation. Therefore, it makes the

person acquire both theoretical and practical scientific knowledge and skills. Technical skill refers to techniques or knowledge and capabilities to perform specialized tasks.

Vocational education, on the other hand, is occupation or trade focused, that is, preparing an individual for a particular trade. The training advances the person's proficiency in that particular trade or occupation the person is engaged at present or will be engaged in the future. Here too, expertise is needed in the particular trade.

Aims, Relevance and Curriculum of Technical and Vocational Education

The aims and relevance of technical and vocational education influence the curriculum that should satisfy the nation's expectations and needs. For example, the NPE, 1977 Section 6, Article 48 criticised the course structure and content of technical education that relied mainly on a model based on foreign technical environment rather than on developing skills in basic fields such as food technology, clothes manufacture, service machines, etc that were needed by the nation's economy. It meant that there was the need for a review of the curriculum on technical education. Consequently, the following aims of technical education in the NPE, 1977 Article 49 of Section 6 was to:

- Provide trained manpower in applied science technology and commerce particularly at sub-professional grades;
- Provide the technical knowledge and vocational skills necessary for Agricultural, industrial, commercial and economic development;
- Provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;
- Give an introduction to professional studies in engineering and other technologies;
- Give training and impart the necessary skills leading to the production of craftsmen, technicians, and other skilled personnel who will be enterprising and self-reliant, and
- Enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

This policy did not specify the content of the curriculum for technical education and so existing technical secondary schools taught subjects that they could such as woodwork, metal work, motor mechanics, welding, electrical installation, and refrigeration. However, the government realized the need to broaden the curriculum and in Article 50(x) proposed to add subjects in food processing and preservation, clothing manufacture and the technology of service machines. The number of TVET secondary schools and student enrolment continued to grow slowly as shown in tables 1 and 2

Table 1

Number of Technical and Vocational Schools in Nigeria By State																			
S/N	STATE	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1	NIGER	Na	Na	na	na	2	3	3	3	5	6	8	12	12	12	8	14	14	na
2	SOKOTO	2	Na	4	5	1	2	2	3	11	11	18	18	na	4	4	6	n.a	na
3	KADUNA	2	2	2	3	3	4	4	4	5	5	5	5	5	5	n.a	10	57	na
4	KANO	2	2	2	3	3	4	4	3	3	8	15	21	22	13	13	13	16	na
5	BENUE	4	5	4	7	6	6	4	6	6	7	9	n.a	na	12	12	10	3	na
6	PLATEAU	Na	Na	na	na	4	3	3	3	3	3	3	3	3	4	4	1	2	na
7	BAUCHI	Na	Na	na	na	2	2	3	2	4	4	10	10	9	10	10	11	9	na
8	BORNO	4	5	6	6	2	2	6	6	6	7	16	n.a	na	n.a	n.a	12	11	na
9	GONGOLA	Na	Na	na	na	2	3	4	4	10	17	17	19	17	18	17	20	18	na
10	KWARA	3	3	2	2	6	7	7	7	7	7	9	9	9	9	10	9	7	na
11	OGUN	Na	Na	na	Na	3	3	2	2	5	7	8	8	8	8	8	8	7	na
12	ONDO	10	9	9	10	2	2	4	4	4	4	11	11	11	11	11	31	-	na
13	OYO	Na	Na	na	Na	4	4	4	4	6	6	6	36	36	36	6	6	6	na
14	BENDEL	14	12	12	5	5	5	10	10	11	11	11	13	13	13	21	86	9	na
15	LAGOS	2	2	2	2	4	4	4	4	-	-	1	1	na	n.a	20	28	3	na
16	ANAMBRA	Na	Na	na	Na	4	4	4	10	14	15	20	27	21	5	5	21	18	na
17	IMO	19	11	12	11	7	7	7	7	13	13	14	14	14	14	14	10	97	na
18	CROSS RIVER	6	7	10	9	9	10	12	16	23	23	23	23	23	23	23	8	2	na
19	RIVERS	3	4	4	9	9	9	4	5	5	5	5	5	5	5	5	5	4	na
	Total	71	64	70	72	78	84	91	103	141	159	209	235	208	202	190	309	283	na

Source: Annual Abstract of Statistics, and 1986 Federal Office of Statistic, Lagos, 1982/Editions.

Note: Up till 1972, the school year commenced in January and ended in December. The school year thereafter was from September to July.

N.A: Not Available

Table 2

Number of Students in Technical and Vocational Schools By State											
S/N	STATE	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1	NIGER	(387)	526	616	774	573	737	1,308	420	2,257	3,723
2	SOKOTO	Na	Na	Na	Na	141	736	811	1,089	3,297	5,526
3	KADUNA	(294)	612	(612)	1,448	1,566	2,896	3,513	3,441	3,075	3,168
4	KANO	594	559	575	676	1,090	1,253	1,895	1,439	1,790	3,162
5	BENUE	Na	Na	Na	Na	856	1,317	1,195	1,616	4,096	2,583
6	PLATEAU	616	739	748	1,360	369	840	1,246	1,264	1,264	1,326
7	BAUCHI	Na	Na	Na	Na	Na	Na	132	228	320	355
8	BORNO	664	768	911	50	228	228	522	1,409	4,630	4,630
9	GONGOLA	Na	Na	Na	Na	60	110	200	200	640	1,748
10	KWARA	744	768	605	524	554	901	1,770	2,504	3,460	4,658
11	OGUN	Na	Na	Na	Na	1,053	1,029	781	647	1,329	1,982
12	ONDO	1,863	1,569	1,715	3,101	510	623	960	1,230	1,489	2,394
13	OYO	Na	Na	Na	Na	1,973	1,933	960	1,661	2,183	2,404
14	BENDEL	4,558	3,731	(3,731)	(3,731)	4,226	3,758	1,114	5,845	7,195	8,444
15	LAGOS	872	1,064	1,378	1,868	1,770	1,923	4,349	767	-	-
16	ANAMBRA	Na	Na	Na	Na	2,315	2,257	2,428	4,709	5,959	8,217
17	IMO	3,996	3,727	4,718	5,764	1,515	2,349	4,905	5,031	6,158	6,158
18	CROSS RIVER	447	812	2,053	4,005	4,906	5,392	6,075	7,170	9,385	9,890
19	RIVERS	849	1,114	(1,114)	(1,114)	2,242	3,728	2,917	2,418	2,775	3,554
	Total	15,884	15,963	18,776	24,415	25,947	32,010	36,723	43,088	61,302	73,920

Note: Figure in brackets are previous years figures.
Source: Annual Abstract of Statistics, 1982 Edition, Federal office of Statistics Lagos.

Table 2: Contd

S/N	STATE	1981	1982/1983	1983/1984	1984/1985	1985/1986	1987	1989	1990
1	NIGER		4,655	4,978	2,890	6,280	5,934	11	10
2	SOKOTO		7,753	7,165	2,876	2,847	n.a	4	6
3	KADUNA		4,542	5,291	5,291	399	4,431	8	10
4	KANO		5,607	4,536	2,926	4,248	8,997	6	7
5	BENUE		n.a	n.a	4,432	3,334	870	36	20
6	PLATEAU		1,036	2,921	1,401	586	621	8	19
7	BAUCHI		1,186	1,626	1,433	1,303	2,146	15	12
8	BORNO		n.a	n.a	n.a	2,607	889	6	12
9	GONGOLA		2,986	4,575	3,981	6,845	6,758	26	19
10	KWARA		6,135	n.a	5,709	5,065	2,528	18	73
11	OGUN		2,950	2,904	2,574	2,663	2,698	7	7
12	ONDO		3,589	3,798	5,130	4,092	-	74	41
13	OYO		4,000	4,071	4,450	4,672	5,332	6	6
14	BENDEL		7,675	7,793	6,498	8,506	3,352	189	238
15	LAGOS		n.a	763	3,171	5,348	723	85	183
16	ANAMBRA		5,490	7,274	2,462	6,260	5,043	225	250
17	IMO		5,477	5,579	5,086	5,803	35,052	351	342
18	CROSS RIVER		12,321	10,810	10,112	3,900	357	29	29
19	RIVERS		n.a	2,921	1,714	1,676	1,764	54	15
	Total		**75,392**	**77,005**	**72,136**	**76,434**	**89,536**	**1,179**	**1,425**

Source: Annual Abstract of Statistics
1991 and 1993 Editions
Federal Office of Statistics
* n.a – not available

Table 2 contd

Number of Students in Vocational Schools 1996-2000					
STATE	**1996**	**1997**	**1998**	**1999**	**2000**
ABIA	999	1628	392	522	4051
ADAMAWA	655	658	-	993	1253
AKWA IBOM	2,024	2763	2056	2618	4246
ANAMBRA	320	454	640	1204	1506
BAUCHI	946	907	402	557	781
BAYELSA	-	-	-	-	409
BENUE	783	874	2716	3032	3212
BORNO	949	1197	539	591	694
CROSS RIVER	1213	1423	1266	1180	1826
DELTA	2702	2437	3458	3578	3709
EBONYI	216	611	428	502	1994
EDO	1226	1246	515	1581	1893
EKITI	794	789	741	9075	1061
ENUGU	1436	1917	2288	2973	3896
GOMBE	-	-	-	633	670
IMO	1493	1653	2154	2634	2961
JIGAWA	379	255	185	154	237
KADUNA	552	573	1068	1226	1571
KANO	1995	1871	1331	1327	1396
KATSINA	1263	1125	1036	1088	1733
KEBBI	727	763	1037	1256	1506
KOGI	555	748	452	479	461
KWARA	945	586	708	950	422
LAGOS	2856	2794	430	4685	5590
NASARAWA	73	263	208	-	367
NIGER	2304	2565	2594	2531	3451
OGUN	2799	2548	2876	4043	2203
ONDO	851	734	7931	1185	1769
OSUN	2251	2281	1915	2199	1536
OYO	1857	2068	2333	3066	3072
PLATEAU	150	1195	1237	1315	1313
RIVERS	2422	2648	835	745	3404
SOKOTO	623	633	762	758	1022
TARABA	454	519	2618	1538	2173
YOBE	382	404	1655	1465	2220
ZAMFARA	258	301	889	932	638
ABUJA	-	-	-	-	-
Total	**40352**	**43320**	**46906**	**62651**	**72246**

Source: Annual Abstract of Statistics 2006, National Bureau of Statistics Federal Republic of Nigeria December, 20006

The introduction of a two-tier secondary school education by the NPE 1977 for an duration of six years (three years at each level) was novel. Students were to offer pre-vocational subjects, viz, introductory technology, Local Crafts, Home Economics and Business Studies so that each person has the opportunity to acquire technical and vocational skills at the junior secondary school (JSS) level being the first tier for three years before either terminating secondary school education or continuing at the second tier at the senior secondary school (SSS) level for another three years. Thus, secondary school education by this new policy became both academic, technical and vocational oriented rather than the previous five-year programme that emphasized academic studies in humanities, science and in some schools the teaching of commercial subjects. However, the output of the Universal Primary Education (UPE) schools that commenced in 1976 was to commence this new two-tier secondary school in 1982.

Implementation of this policy implied that Trade and Vocational centers were to be increased to absorb JSS leavers who would not proceed to the SSS level and this was an opportunity for extending vocational education to more citizens at this lower level. The Implementation Committee on the NPE recommended and was approved by the National Council on Education that vocation centers be established in every Local Government Area (LGA) to offer artisan training course for primary school leavers who would be unable to proceed to JSS too. Their training was to make them self-employable and able to work as operators of machinery and in construction work as the basis for apprenticeship. The curriculum at these vocational centers was to focus on crafts and cottage industries within each locality in addition to woodwork, metal work and skills involved in building construction with whatever materials found in that locality. Others included courses in tailoring and dress-making, shoe-making, and repairing, agriculture, spinning and weaving, dyeing and pot making. Basic elements of book-keeping and management of small business were to be taught in every trade (Federal Ministry of Education (FME, 1988).

Similarly, the training of craftsmen was suggested by this Implementation Committee. The level of training should follow the JSS and entry should be based on evidence of aptitude shown in the technical courses and a reasonably good performance in Mathematics and Science. However, students who performed very well in the artisan training centers should be admitted for craftsmen training. This was another opportunity of providing access to technical education for a larger population of the citizenry. Here too, the range of subject craftsmen courses in technical schools and trade centers was to be widened to include the following:

(a)	Plumbing	(b)	Electrical installation
(c)	Painting and decorating	(d)	Carpentry and joinery
(e)	Motor vehicle mechanics work	(f)	Electronics radio and TV servicing
(g)	Dress-making	(h)	Printing
(i)	Signwriting	(j)	Shorthand
(k)	Spinning	(l)	Dyeing and Bleaching
(m)	Mechanical Engineering	(n)	Boat building
(o)	Block laying and concrete	(p)	Furniture making
(q)	Metal fabrication	(r)	Tailoring
(s)	Bakery	(t)	Shoe repairing and making
(u)	Printing	(v)	Typing
(w)	Accounts	(x)	Weaving
(y)	Brick Making	(z)	Agriculture

A courses in mechanical and electrical work to provide training in the maintenance and repair of domestic appliances, farm machinery, and laboratory equipment.

Introductory technology at the JSS level accordingly should be an integrated subject reflecting the following:

(a) Elements of woodwork

(b) Metalwork

(c) Elementary building technology

(d) Elementary mechanical and electrical appliances, bicycles etc

(e) Technical drawing

(f) Plastics

(g) Ceramics

(h) Simple agriculture (FME 1988)

At the SSS level, technical, commercial and other vocational courses were introduced in order to make school leavers employable and self-reliant. The commercial subjects were:

(a)	Typing	(b)	Commerce
(c)	Dress-making	(d)	Laundry and Dry cleaning
(e)	Shoe making and repair	(f)	Shorthand
(g)	Fishing	(h)	Accounts/Book-keeping
(i)	Tailoring	(j)	Institutional Housing
(k)	Hair dressing and Beauty-care	(l)	Catering

The technology-oriented courses were:

(a) Agriculture (b) Woodwork

(c) Metalwork and (d) Technical drawing (NPE, 1988)

The NPE of 1977 and 1981 as well as the Dr. J.A.O. Sofolahan led Implementation Committee on the 1977 National Policy on Education set the foundation for a properly co-ordinated technical and vocational education at the secondary school level in Nigeria and for a better recognition and status. Unfortunately, it would appear that the downturn of the nation's economy, lack of political will on the part of State Governors and poor awareness of the larger citizenry has negatively affected the development of technical and vocational education in the nation. Providing tuition-free TVET is capital intensive and that might also be the reason why there are few privately owned TVET secondary schools. Again, unlike Britain in the post second world war period of 1947 to 1954 when there was a swift rise in the number of persons employed in the manufacturing industry, Nigeria did not have this experience and need as such TVET was not strongly stimulated. In Britain, as Lowe (2012) wrote, the boom in the new industries within the period (throughout the late 1940s) created employment opportunities for large numbers of well-qualified school leavers. This is a typical example of how a

nation's economy influences educational development. As he also noted, the 1944 Education Act in Britain ushered in technical education largely because of the boom in industrialization. It is therefore instructive that Nigeria should develop its industrial sector in order to influence TVET and sustain them.

Trends in the 1980s and 1990s

Both 1981 and 1998 revised editions of the NPE reinforced the place of TVET in the educational system. Pre-vocational education would specifically equip students with the following:

(a) Technical skills;

(b) Career awareness by exploring usable options in the world of work; and

(c) An intelligent understanding of the increasing complexity of technology (the Federal Republic of Nigeria, 1998). All these points and the goals are part of the 1977 aims of Technical education except for (b) which is stated differently.

The Curriculum for each trade as categorized was to reflect these four components:

(a) General education

(b) Theory and related courses

(c) Workshop practice; and

(d) Industrial training/production work

This was a better classification and showed exactly the scope that TVET should reflect. In fact, the range of subjects to be taught was broadened to 32 instead of the previous 26. Specific trades and their components were also listed thereby showing a better organization (see appendix 1). Students therefore, had a wide variety of subjects to choose from and to specialize.

Trends in the New Millennium: 2000-2015

A fifth component in the curriculum was introduced and that is small business management and entrepreneurial training. This component is critical given the emphasis on individuals being self-reliant, employers of labor and managing business outfits. Therefore, knowledge in business management and entrepreneurship is necessary. The range of subjects increased from 32 in 1998 to 38 in 2004 with the following added:

(a)	Marine Engineering craft	(b)	Computer Maintenance Work
(c)	Appliances repairs	(d)	Graphic Arts
(e)	Ceramics and	(f)	Office Practice

The new millennium since the year 2000 has been globally driven by Information Communication Technology (ICT) through the use of computers and so a policy on computer education provision in secondary schools was in the right direction. This implies that each junior secondary school and technical and vocational schools should have a computer room or laboratory for the students. Electricity and personnel for teaching students should also be adequately available.

The sixth revised edition of the NPE of 2013 (The 5th of 2007 was not published and is not available) provided for

TVET to be taught in (a) Technical Colleges, Vocational Enterprise Institutions (VEIs) and National Vocational Qualifications Framework (NVQF). This is entirely different from the provisions of the 1998 edition which in Section 5 catered for only Vocational Education. TVET therefore emphasized:

(a) Training manpower in the applied sciences, technology and business at the craft, advanced craft, and technical levels;

(b) Providing the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and

(c) Training and imparting the necessary skills to individuals for self-reliance economically.

In order to produce quality middle man-power for the applied sciences, technology and business (agriculture and commerce) as well as other facets of economic development the curriculum that integrates general education, theory, workshop practice, industrial training/production work and entrepreneurial training would be provided and implemented. Given a teacher-student ratio of 1:20 each student would have close attention and would be guided according to individual ability. This ideal situation has not yet been attained in the country.

Each State and the Federal Capital Territory (FCT) is expected to offer advanced craft courses for the preparation of master craftsmen to serve as supervisors in industries and in teaching. At the end of this one year course, successful students would be awarded the Advanced National Technical Certificate (ANTC) or Advance National Business Certificate (ANBC). After three years in the Technical College, successful students in the national examination were awarded the National Technical Certificate (NTC) or the Nation Business Certificate (NBC).

Vocational Enterprise Institutions (VEIs) were to be established to cater for senior secondary school leavers who did not obtain five credit passes to qualify for tertiary education as well as post-basic education graduates. The thrust in this type of institution was basically vocational oriented in trades and crafts such as:

a) Motor Vehicle Repairs (Auto-Mechanical, panel Beating, Auto-Electrical, Vulcanizing etc)

b) Electrical Wiring – Domestic and Industrial

c) Construction (Plumbing, painting, Bricklaying etc)

d) Catering

(e) Hairdressing and beauty

f) Performing Arts (Dance, Drama, Film Production Media etc)

g) Art

h) Agriculture

i) Welding, Sheet metal work

j) Adire, Aso-Oke, Akwete and other indigenous fabrics and products

k) Gurado (local blanket) Mats, Drums.

Development of manpower for these trades and actual production of related goods would enable Nigeria to wield

a lot of influence in Africa if she is able to supply labor and expertise in technical and vocational disciplines. VEIs run three-year modular programmes that can be terminated at the end of any of the years. The modules equip the trainee with skills that enable him/her to find and create jobs. They leave with the National Vocational Certificate (NVC) Part I, Part 2 and final.

The NPE (2013) provision that VEIs operate in collaboration with appropriate industries, professional bodies, and establishments for the student practical training and experience should be backed by a law to enforce implementation. However, Innovation Enterprises Institutions (IEIs) another reform by the Federal Government to facilitate TVET acquisition initiated by the Federal Ministry of Education (FME) is operated by relevant trade based institutions. Students admitted into IEIs programmes have a minimum of five credit passes of the Senior Secondary School Certificate (NECO, WAEC etc). They qualify with a National Innovation Diploma (NID) after full-time (2 years) or part-time (3-4 yrs) duration. They are trained based on modules of employable skills in programmes such as Software Engineering, Film and T.V. production, Performing and Media Arts, Computer Hardware and Software Engineering Technology, Paralegal Studies, Building Construction technology, Networking and System Security, Petroleum Geo-Sciences, Multimedia Technology and so on. About ninety-nine of such institutions were approved in 2011 and are widespread in the country (Study and Scholarships, 2013).

The newly reviewed curriculum for secondary schools has many TVET subjects at the senior secondary school level (see appendix 2). By the new curriculum, JSS 1 to 3 offer the following TVET pre-vocational subjects:

(1) Basic Technology (2) Business Studies

(3) Entrepreneurship (4) Information Technology

The new curriculum structure for the 3-year senior secondary education has compulsory cross-cutting subjects which are: (1) English Language (2) General Mathematics (3) One Trade Entrepreneurship Studies (4) Computer Studies/ICT (5) Civic Education

These subjects are offered by all students irrespective of their field of study. There are four distinct fields of study:

(1) Senior Secondary Education (Science/Mathematics)

(2) Senior Secondary Education (Humanities)

(3) Senior Secondary Education (Technology)

(4) Senior Secondary Education (Business)

Each specialized field of study also has its core subjects. There are elective subjects and those for Trades and Entrepreneurship.

The emphasis at this point is that TVET ideally and in principle is provided at the SSS level as the new curriculum indicates. The challenge is in the implementation of the new curriculum. Are teachers, facilities, and equipment available for the curriculum delivery in rural, semi-urban, urban (public and private) secondary schools as well as in designated TVET secondary schools? (see appendix 3).

TVET secondary schools did not significantly increase in the new millennium despite the influence of and demand for technology in everyday life. Is it that more awareness is needed to convince a larger part of the citizenry on the

need for TVET? In the nearest future, only experts would be needed to work in most of the trade and entrepreneurial tasks in this country and they need TVET.

Table 3

Number of Technical Schools by State, 2006 – 2011							
S/N	STATE	2006	2007	2008	2009	2010	2011
1	ABIA	5	5	5	5	5	5
2	ADAMAWA	4	4	4	4	4	4
3	AKWA IBOM	5	5	5	5	5	5
4	ANAMBRA	2	2	2	2	2	2
5	BAUCHI	2	2	2	2	2	2
6	BAYELSA	2	2	2	2	2	2
7	BENUE	7	7	7	7	7	7
8	BORNO	3	3	3	3	3	3
9	CROSS RIVER	4	4	4	4	4	4
10	DELTA	6	6	6	6	6	6
11	EBONYI	3	3	3	3	3	3
12	EDO	6	6	6	6	6	6
13	EKITI	5	5	5	5	5	5
14	ENUGU	3	3	3	3	3	3
15	GOMBE	2	2	2	2	2	2
16	IMO	4	4	4	4	4	4
17	JIGAWA	2	2	2	2	2	2
18	KADUNA	5	5	5	5	5	5
19	KANO	5	5	5	5	5	5
20	KATSINA	5	5	5	4	4	4
21	KEBBI	3	3	3	3	3	3
22	KOGI	4	4	4	4	4	4
23	KWARA	5	5	5	5	5	5
24	LAGOS	6	6	6	6	6	6
25	NASARAWA	3	3	3	3	3	3
26	NIGER	7	7	7	7	7	7
27	OGUN	8	8	8	8	8	8
28	ONDO	6	6	6	6	6	6
29	OSUN	10	10	10	8	10	10
30	OYO	6	6	6	6	6	6
31	PLATEAU	1	1	1	1	1	1
32	RIVERS	5	5	5	5	5	5
33	SOKOTO	3	3	3	3	3	3
34	TARABA	8	8	8	8	8	8
35	YOBE	1	1	1	1	1	1
36	ZAMFARA	1	1	1	1	1	1
37	ABUJA	2	2	2	2	2	2
	Total	159	161	162	162	164	166

Source: Annual Abstract of Statistic, National Bureau of Statistics Abuja.

From table 3, Osun State has the highest number of schools (10), followed by Ogun and Taraba States which have (8) respectively. For Bayelsa State, two schools are recorded but at present, one of them at Ekowe has been upgraded to a Federal Polytechnic. The State government has not established another one because the next one that is functional is a Federal Government secondary school at Tungbo. Plateau, Yobe and Zamfara States each have only one TVET school while Anambra, Bauchi, Gombe, Jigawa States and the Federal Capital Territory (FCT) have 2 schools respectively. The two State-owned TVET schools in Rivers State do not function maximumly/maximally partly because they are ill-equipped and lack an adequate number of relevant teachers. With this dismal picture, it would be difficult to implement the new NERDC curriculum and achieve the goals of TVET in Nigeria.

Table 4

Technical and Vocational Education Subjects Examined for the West African Senior School Certificate, May/June 2006				
S/N	Subjects	Number of Candidates Who Entered	Number of Candidates Who Sat	Number of Candidates Absent
1	Commerce	508,583	484,493	24,090
2	Finance Accounting	213,583	202,861	10,736
3	Shorthand	512	238	274
4	Typewriting	2,988	2,347	641
5	Auto Mechanics	434	172	262
6	Building Construction	927	183	744
7	Electronics	3,892	365	3,527
8	Metal Work	883	683	200
9	Wood Work	726	644	82
10	Cloth and Textile	265	720	545
11	Food and Nutrition	29,737	24,963	4,774
12	Home Management	18,714	16,357	2,357
13	Visual Arts	7,307	5,663	1,644

Source: Annual Abstract of Statistic, National Bureau of Statistic Abuja, 2005-2009

Table 5

Technical and Vocational Education Subjects Examined for the West African Senior School Certificate, May/June 2007				
S/N	Subjects	Number of Candidates Who Entered	Number of Candidates Who Sat	Number of Candidates Absent
1	Commerce	544,500	513,258	31,242
2	Finance Accounting	225,507	214,127	11,380
3	Shorthand	553	363	200
4	Typewriting	2,522	1,933	589
5	Auto Mechanics	477	200	271
6	Building Construction	1,033	215	818
7	Electronics	2,765	336	2,429
8	Metal Work	903	732	171
9	Wood Work	1,265	734	531
10	Cloth and Textile	32,001	27,174	4,827
11	Food and Nutrition	19,733	17,080	2,653
12	Home Management	179	88	91
13	Visual Arts	8,222	6,435	1,787

Source: Annual Abstract of Statistic, National Bureau of Statistic Abuja, 2005-2009

Table 6

Technical and Vocational Education Subjects Examined for the West African Senior School Certificate, May/June 2008				
S/N	Subjects	Number of Candidates Who Entered	Number of Candidates Who Sat	Number of Candidates Absent
1	Commerce	577,150	542,615	34,535
2	Finance Accounting	234,173	220,557	13,616
3	Shorthand	570	421	149
4	Typewriting	2,398	1,960	438
5	Auto Mechanics	443	194	249
6	Building Construction	1,002	291	711
7	Electronics	2,121	281	1,840
8	Metal Work	751	645	106
9	Wood Work	1,293	959	334
10	Cloth and Textile	34,715	29,460	5,255
11	Food and Nutrition	20,602	17,860	2,742
12	Home Management	214	132	82
13	Visual Arts	9,138	7,203	1,935

Source: Annual Abstract of Statistic, National Bureau of Statistic Abuja, 2005-2009

Table 7

Technical and Vocational Education Subjects Examined for the West African Senior School Certificate, May/June 2009				
S/N	**Subjects**	**Number of Candidates Who Entered**	**Number of Candidates Who Sat**	**Number of Candidates Absent**
1	Commerce	564,240	537,953	26,287
2	Finance Accounting	227,449	215,528	11,921
3	Shorthand	316	195	121
4	Typewriting	2,091	1,672	419
5	Auto Mechanics	414	216	198
6	Building Construction	934	256	678
7	Electronics	1,913	338	1,575
8	Metal Work	797	692	105
9	Wood Work	813	743	70
10	Cloth and Textile	1,316	983	333
11	Food and Nutrition	38,179	33,236	4,943
12	Home Management	22,866	20,026	2,840
13	Music	239	157	82
14	Visual Arts	9,602	7,812	1,790

Source: Annual Abstract of Statistic, National Bureau of Statistic Abuja, 2005-2009

Tables 4, 5, 6 and 7 show the number of candidates who sat for Technical and Vocational education subjects at the West African Senior Schools Certificate Examinations (WASSCE) from 2006 to 2009. Few students sat for Shorthand, Auto Mechanics, Building Construction, Typewriting, Electronics, Metal Work, Wood Work, Cloth and Textile and Music. Several thousands of students sat for Commerce, Finance Accounting, Food and Nutrition and Home Management. This trend shows low patronage to core technical subjects in particular. High patronage of Commerce and Finance Accounting is partly because students who study Management Science courses need credit passes in them as pre-requisite for admission into tertiary educational institutions.

Challenges

The seeming apathy to TVET in Nigeria has been of concern to many people especially as there are many advantages to its implementation. For example, it is a source for employment generation for the ever-increasing population of secondary school leavers and university graduates. It provides a wide base for manpower for industrialization and entrepreneurship.

Idialu (2007) and Lawal (2013) among others have identified shortage of qualified personnel, lack of facilities and equipment for teaching and learning, poor funding, poor attitude of members of the society towards TVET, poor administration and supervision of TVET programmes and schools, poor assessment methods, weak government enforcement/implementation of the NPE provisions for TVET and the influence of politics on TVET programme. The major challenge it would appear is to change the perception of most Nigerian's towards TVET. More emphasis should be on massively providing the needed facilities and equipment in all secondary schools but with the first phase in TVET schools.

There is also a problem of planning and guiding students in their choice of careers and trades in TVET so that there is no excess production of one trade group above the other as is reflected on table 4, 5, 6 and 7. Planning should reflect the general trend in Nigeria's labor and economic development. In fact the development of technology should also drive TVET so that their graduates can cope with the challenges in technology-based industries and outfits as well as in manufacturing new forms of machines that would address Nigeria's needs. This makes the development of indigenous equipment and crafts another big challenge. There is a need to look inwards and utilize the abundant resources available to

produce goods that will make Nigerians less dependent on imported foreign products and substitute those imported goods. This can be achieved in the hospitality area, dressmaking, decoration furniture making, cosmetology, etc. Again, the development and wider distribution of power (electricity) is at the core of TVET in this twenty-first century and should be addressed. With electrically operated machines in workshops (where available) there would be practical exercises, storage of materials/ingredients for learning etc.

CONCLUSIONS

TVET is critical for industrialization in Nigeria, job creation, employment and individual self-fulfillment. The NPE and the 2013 New Curriculum eloquently address TVET needs for Nigeria but implementation should be enforced and if possible backed by law to ensure that middle manpower is developed in this area. There should be an increased pace in industrialization to drive TVET as other European countries experienced. A great deal of effort depends on government to drive TVET in changing the status of the few existing institutions into model TVET secondary schools. Similarly, a phased plan for funding, equipping, provision of facilities and sustained teacher development should be undertaken so that all tiers of government should participate in achieving this level/quality and type of education.

An enviable quality TVET would give the desired leverage for an increase in the number of schools, enrollment, and participation of private individuals in this area. There is no strong link between industries and TVET schools except for the recently approved IEIs where the students train in the companies, industries or outfits for the skills offered. Consequently, a well-organized linkage should be initiated by the Federal and State Ministries of Education for the more practical experience. At present and sadly TVET is still in its infancy which is very embarrassing for Nigeria in the twenty-first century.

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APPENDIX 1

A List of Subjects taught in Technical and Vocational Secondary Schools

1	Agricultural Implements and equipment mechanics work.
2	Automobile Engineering Practice; Auto-body Repair and Spray painting.
3	Automobile Engineering Practice; Auto-body Mechanic Work.
4	Automobile Engineering Practice; Auto-body Mechanics Work.
5	Automobile Engineering Practice; Auto-body Building.
6	Auto Engineering Practice; Part merchandising.
7	Air-conditioning and Refrigeration mechanics.
8	Mechanical Engineering Craft Practice.
9	Welding and Fabrication Engineering Craft Practice.
10	Foundry Craft Practice.
11	Instrument Mechanics Work
12	**Electrical Engineering Trades** Electrical Installation and Maintenance Work.
13	Radio, Television and Electrical Work.
14	**Building Trades** Block laying, Bricklaying and Concrete Work.
15	Painting and Decorating.
16	Plumbing and Pipe-fitting.
17	**Wood Trades** Machine Woodworking.
18	Carpentry and Joinery.
19	Furniture Making.
20	Upholstery.
21	**Hospitality** Catering craft practice.
22	**Textile Trades** Garment making (Ladies/Men Dressing).
23	Textile Trade.
24	Dyeing and Bleaching.
25	**Printing Trades** Printing Craft Practice.
26	**Beauty Culture Trades** Cosmetology.
27	**Other Trades** Leather Goods manufacture shoe making and repair.
28	**Business Trades** Stenography.
29	Typewriting.
30	Data Processing.
31	Store Keeping.
32	Book Keeping.

Source: FRN (1998)

APPENDIX 2

A List of Subjects to be taught the Senior Secondary School Level (SSS 1-3)

1.	Agricultural Science	2.	An Conditioning and Refrigeration**
3.	Animal Husbandry**	4.	Arabic
5.	Auto-body repair and Spray Painting**	6.	Auto electrical works**
7.	Auto Mechanical Works**	8.	Auto mechanics*
9.	Automobile Parts Merchandising**	10.	Basic Electricity*
11.	Basic Electronics*	12.	Biology
13.	Block laying, Brick laying and Concrete Works**	14.	Book keeping*
15.	Building Construction*	16.	Carpentry and Joinery**
17.	Catering and Craft Practice**	18.	Chemistry
19.	Christian Religious Studies	20.	Civic Education
21.	Clothing and Textiles*	22.	Commerce
23.	Computer and IT*	24.	Cosmetology**
25.	Data Processing**	26.	Dyeing and Bleaching**
27.	Economics	28.	Electrical Installation and Maintenance Works**
29.	English Language	30.	Fisheries**
31.	Feeds and Nutrition*	32.	French Language
33.	Furniture making**	34.	Further mathematics
35.	Garment making**	36.	General Mathematics
37.	Geography	38.	Government
39.	GSM Maintenance and Repairs**	40.	Health Education
41.	History	42.	Home Management*
43.	Igbo Language	44.	Insurance*
45.	Islamic Studies	46.	Keyboarding**
47.	Leather Goods**	48.	Literature-in-English
49.	Machine Woodworking*	50.	Marketing**
51.	Metal work*	52.	Mining**
53.	Office Practices*	54.	Painting and Decoration**
55.	Photography**	56.	Physical Education

57.	Physics	58.	Plumbing and Pipe fitting**
59.	Printing Craft Practice**	60.	Radio Television and Electrical work**
61.	Radio Television and Repairs*	62.	Salesmanship**
63.	Store Keeping**	64.	Store Management**
65.	Technical Drawing*	66.	Textile Trade**
67.	Tie and Dye Craft*	68.	Tourism**
69.	Upholstery**	70.	Visual Art*
71.	Welding and Fabrication**	72.	Yoruba

***** TVET Subjects are marked with asterisk

***** Trades Subjects/Entrepreneurship are marked with double asterisk.

Source: NERDC (2012-2014)

APPENDIX 3

A List of Core Subjects in Specialized Fields of Study

Humanities

1.	Nigerian Language	7.	History
2.	Literature-in-English	8.	Visual Arts
3.	Geography	9.	Music
4.	Government	10.	French
5.	Christian Religious Knowledge	11.	Arabic
6.	Islamic Studies	12.	Economics

Science and Mathematics

1.	Biology	5.	Agriculture
2.	Chemistry	6.	Physical Education
3.	Physics	7.	Health Education
4.	Further Mathematics		

Technology

1.	Technical Drawing	6.	Building Construction
2.	General Metal Work	7.	Wood work
3.	Basic Electricity	8.	Home Management
4.	Electronics	9.	Foods and Nutrition

5.	Auto mechanics	10.	Clothing and Textiles.

Business Studies

1.	Accounting	4.	Insurance
2.	Store management	5.	Commerce
3.	Office practice		

Electives

Electives are subjects chosen outside the students specialized field study. For example, a science student may choose music as an elective, whereas a humanities student may choose commerce as elective.

Trade Subjects/Entrepreneurship

Please see Appendix 2 for the list of subjects and they are marked with double asterisk.

Source: NERDC (2013-2014)