

**TECHNICAL EDUCATION FOR JOB CREATION AND SUSTAINABLE
NATIONAL DEVELOPMENT IN NIGERIA**

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Abstract

This paper discusses the capability of technical education in creating jobs to reduce unemployment among the Nigerian youth. It also defines technical education within the provisions of the National Policy on Education. The philosophy of technical education is also defined to reflect the mind of technical education. The definition and philosophy of technical education constitute bases for the formulation of the objective/goals. Both goals and objectives guide skills training in the identified 8 options of technical education. Spectrum analyses of the 8 options yields over 180 job areas or careers in which technical education provides skills training for manpower production. To the extent that technical education provides manpower for paid employment or entrepreneurial exploits for self and others possessing the needed expertise, it has created jobs. The capability of technical education for job creation is not doubted but constrained by several challenges among which are funding and inadequacy of training personnel and facilities. A recommendation for handling the challenges is to utilize a strategy involving technical experts, governments and the business world for achieving the goal of job creation, poverty alleviation and sustainable national development.

Introduction

Technical (and vocational) education is a comprehensive term that refers to those aspects of the education 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 (FRN, 2004) This definition is adopted from the recommendation of the United Nations Education, Scientific and Cultural Organization (UNESCO) of May 1988.

The central concern in the definition of technical education as presented in the National Policy on Education (Federal Republic of Nigeria, 2004) anchors on: 1. general education, 2. study of technologies and related sciences, 3. Psychoproduative skills/vocational technical skills, 4. work attitudes/affective work behaviours, 5. cognitive skills in the subjects of concern.

Technical education has a philosophy which is a derivative type because it belongs to the area of vocational education (Usoro, 2006). The philosophy of technical education (the mind of technical education) has reflected the central concerns identified in the definition. Technical education philosophy believes in establishing an educational environment where students can achieve learning experiences in design and development, production operation or control, installation, maintenance and sales. The programme, in addition, must

provide sufficient coverage of basic fundamentals in mathematics and science

(general education) as well as practical laboratory manufacturing techniques (cognitive and psychoproduative skills) so the students can readily prepare themselves to assume specific responsibilities in a variety of industrial jobs for sustainable national development (Giachino and Gallington, 1974 and Straight and Hartzler, 1987).

The National Policy on Education and Technical (and vocational) Education.

According to the foregoing source, Technical and vocational education is understood to be:

- a. an integral part of general education
- b. a means of preparing for occupational fields and for effective participation in the world of work.
- c. An aspect of lifelong learning and a preparation for responsible citizenship.
- d. An instrument for promoting environmentally sound and sustainable development
- e. A method of alleviating poverty

To whet the students' appetite for further pursuit of higher skills in technical education, there is need to assist them acquire pretechnical (and prevocational) skills by:

- a. Introducing them to the world of technology and appreciation of technology in order to arouse their interest towards choice of a vocation at the end

of Junior Secondary School and professionalism later in life.

- b. Assisting them to acquire technical skills.
- c. Exposing students to career awareness through exploration of usable options in the world of work.
- d. Enabling them to have an intelligent understanding of the increasing complexity of technology.
(Federal Republic of Nigeria, 2004).

The foregoing objectives constitute the bases for preparation towards attainment of goals of technical education which include:

- a. provision of trained manpower in applied science, technology and business especially at craft, advanced craft and technical levels.
- b. provision of technical knowledge and vocational skills necessary for agricultural and economic development.
- c. giving training and imparting the necessary skills to individuals for self-reliance in economic sense.

(Giachino & Gallington, 1974 and Federal Republic of Nigeria, 2004).

A close examination of the objectives and goals of technical education (as reflected in the definition and philosophy) points at two outcomes of training namely:

- a.) Training for paid employment and

b.) Technical Education for Job Creation ..self employment.

The second training outcome clearly lays foundation entrepreneurial ventures in the world of work – employing one’s self and creating jobs for others. The impetus for success in the two training outcomes is effective capacity building in the trainees.

In the light of the above, a question may be raised: Is technical education capable of creating jobs to fulfill its objectives/goals in all its ramifications?

An approach towards providing answers to the foregoing question is to first look at the contents of technical education options and related jobs in which training can be offered.

Technical education options offered in the Nigerian School system include the following:

- 1.) Auto mechanics/ Automobile Technology
- 2.) Building Technology
- 3.) Drafting Technology/Technical Drawing
- 4.) Electrical/Electronics Technology
- 5.) Industrial Craft:- Ignorantly or erroneously referred to as “hand work” which terminates at elementary school level. It is yet to be recognized, appreciated and included in technical education curriculum.
- 6.) Metal work Technology
- 7.) Plastics Technology - This is yet to be included in the technical education programme in support of plastic industries in Nigeria
- 8.) Wood Technology

The potentials of technical education in creating jobs and enhancing sustainable development in Nigeria lies in identifying related jobs in the technical education options and offering skills training in them. A spectrum analysis of each technical education option leads to a pleasant and incredible revelation as shown later in this paper.

Technical Education and job creation

The central concern of technical education and job creation revolves around capacity building/entrepreneurial ventures by individuals in training. This concern is predicated upon the fact that productive work and employment are central elements of development. Sustained economic growth and sustainable development as well as the expansion of productive employment must go hand in hand.

Productive employment is strictly based on skills acquisition in jobs of great importance to the nation. In this regard, creating enough jobs and productive employment to break the vicious cycle of poverty remains one of Africa's most daunting development challenges (UNESCO, 1995). The region's economies have not achieved adequate employment creation or enough labour absorption capacity-to keep pace with population growth, urbanization and the rising expectation of their citizens.

In Nigeria, 80% of the youth are unemployed and 10% are underemployed (Dike, 2009). The solution to this problem lies in creating jobs for the Nigerian youth.

In this regard, technical (and vocational) education holds the key.

A close analysis of technical education programme options, is instructive. The analysis of the options indicates jobs in which skills are provided to produce the needed manpower for sustainable national development. Technical education options and related jobs are presented as follows:

A Automechncis and Related Jobs:

Engine cleaning, Lubricating auto systems, mechanical repair job, Engine tune-up, Brake system service and repair, Front end service job, Auto electricity job, Auto air conditioning job, Autobody repair, Autoshop management, Service station management, spray painting, Auto interior upholstery, Chassis repair job, Vulcanization, Radiator repair job, Crankshaft cutting, Mechanic driver, Engine building/Service, Wheel alignment and Tyre balancing, Instructing job and others.

B. Building Technology and Related jobs:

Block moulding, Brick making, metal mould construction, sale of concrete blocks, sale of bricks, wall construction, plastering job, concrete form construction, door and window frame construction, Roof construction, Tiling work, wall construction, septic tank construction, Toilet and bath tub installation, plumbing work, painting work, door and window installation, stairway construction, roofing

job, wiring installation, flooring job, building maintenance job and others.

C. Drafting Technology (Technical Drawing) and Related jobs:

Architecture, Civil engineering, Computer engineering, Craft design, Design education, Electronic engineering, Electrical engineering, Fashion design, Industrial design, Interior design, Naval architecture, Structural designing, Urban designing, City planning and others (Brown, 1978, Spencer, Dygdon and Novak, 2003).

D. Electrical/Electronic Technology and Related Jobs:

Radio and television repair, Auto wiring work, Electric motor repair, Battery charging, wiring installation, Electrical equipment installation, Armature winding/repair, Air-conditioning Installation, Air-conditioning service/repair, Generator repair/service, Electrical appliance repair, coil repair/rewinding, Transformer repair-light equipment, Transformer repair-heavy equipment, power tool repair, electroplating, refrigerator/freezer service/repair, maintenance work, Electrical/electronic instructor (U.S. Department of Labour, 1977).

E. Industrial Crafts Technology and Related jobs:

This is ignorantly or erroneously called "Hand work" in elementary education) Related jobs include: Leather craftwork, ceramic craftwork, woodcraft, metal craftwork, Bead weaving Raffia

craft, sheet metal craftwork, pottery, plastic craftwork, craft instructor and others (Lindbeck, Duenk, and Hansen, 1973).

F. Metal Work Technology and Related Jobs

All-round machining career, Tool making, Diemaking, Laying out career, Setting-up career, Technician job, industrial engineering, Mechanical engineering, Tool and manufacturing engineering, welder fitting job, welding analysis, welding technician, metallurgist, sales engineering, welding shop management, welding research engineering, technical writing and editing, foundry work, metal door, window and protector construction, welding instructor (walker, 1972, Giachino 1977, Althouse, 1980 and Johnson, 1973).

G. Plastics Technology and Related jobs

This option is yet to be included in the technical education programme. Plastic products are found in shops and markets in Nigeria, yet no education provisions have been made for training manpower in this area. Jobs in this option include: making nylon finishing line, melamine dinner ware, urea buttons, vinyl floor tiles, tool handle making, polyester fiber glass boats, Acrylic aircraft windows, toy manufacturing, plastic waste basket making, plastic spoon making, plastic basins, plastic tray making, plastic roofing sheet making etc (Lindbeck, 1972, Lindbeck, and Lathrop, 1972).

H. Woodwork Technology and Related Jobs

Furniture manufacturing, cabinet making, pattern making for foundry work, boat building, roof construction, door and window construction, floor and wall framing, wood flour-moulding, wood plasticization for modern construction, Furniture finishing, wood seasoning, Adhesive manufacturing, wood turning career, steam bending of wood, carpentry, Forestry management, wood interior designing and decoration, wood product engineering, Ladder construction, estimating in wood, marketing and distribution, Wood technologist, wood instructor and others (Feirer, 1979 and U.S. Department of Labour, 1977).

The summary of the foregoing presentation of technical education options and related jobs are illustrated in figure 1.

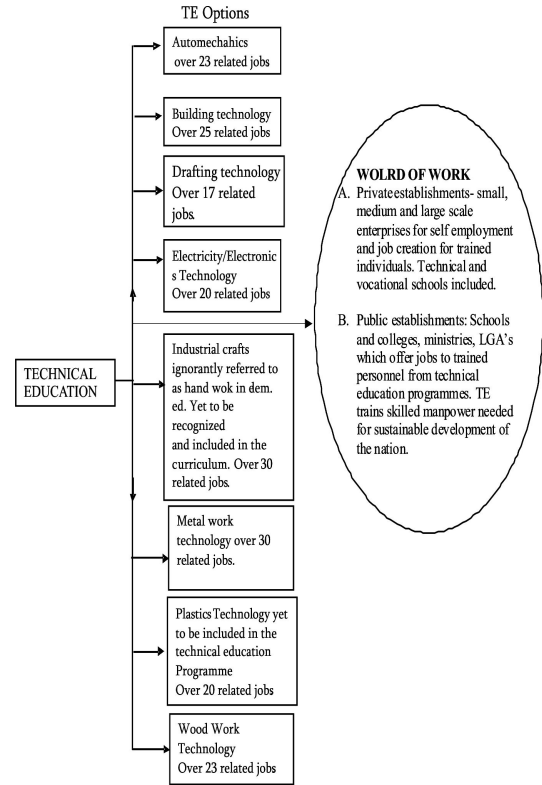


Figure 1: Technical Education options and Related Jobs.

As indicated in figure 1, over 180 related jobs have been identified in the eight technical education options available for manpower development. As observed earlier, there are two training outcomes in technical education—training for paid employment and training for self employment or self reliance which is the basis for entrepreneurial exploits. When technical education programmes prepare manpower in more than 180 job areas, it has created jobs for sustainable national development in two or three ways.

- a. Individuals with their skills can secure paid employment in the world of work. The jobs are already there and what technical education does is to provide manpower for the existence and continuity of those jobs. It is noteworthy that some individuals who hold paid jobs do establish enterprises on the basis of their skills and employ others.
- b. Where manpower is available, but there are no jobs to absorb same, societal needs and other economic pressures can cause government establishments and business enterprises to take care of the trained manpower.
- c. Not every graduate from technical education programme can secure paid employment. Since the graduates have been trained for self reliance, they can establish themselves as entrepreneurs (small, medium or large-scale) and become employers of labour.

To the extent that technical education trains manpower for any or all of the above situations, it has created jobs. Job creation for trained manpower is a healthy and welcome endeavour that is crucial to sustainable national development.

Attention is hereby drawn to the fact that technical education is expanding due to technological changes and societal needs. This expansion means creation of more jobs for which training must be provided. In other words technical (and vocational) education is responsive to technological changes which tend to increase the need for training manpower in the emerging job areas. Technical education for job creation is a constant vis-a-vis the dynamism of technology.

Technology Education for Job Creation and Challenges.

The capability of technical education for job creation is very clear and commendable. Within its capability to achieve the goal of job creation for thousands of Nigerian's who are jobless are some challenges which should be addressed in favour of sustainable national development. These challenges, in essence, are the problems affecting technical education in the pursuit and achievement of its objectives and goals. Usoro, Usoro, Akpan and Otu (2010) have reported some of the challenges or problems as follows:

1. **The power challenge:** Nigeria with a population of 140 million is experiencing inadequacy in power supply. The current supply is 200 MW

out of the 6000 MW expected. This is by far below what South Africa, U.S.A and other industrialized nations are producing. This inadequacy in power supply has caused factories (sources of employment) to close down and hindered the operation of machines and equipment for skills training in jobs of interest to the nation.

2. **The Challenge of unemployment among Nigerian Youth:** About 80% of Nigeria's youth are unemployed and 10% are underemployed due to improper education (Susu, 2010). This is a challenge technical education for job creation must face. To equip the Nigerian youth with skills in job areas for sustainable national development, technical education has the key but needs governmental support.
3. **The challenge of funding:** Technical education for job creation needs adequate funding which is not forthcoming. Nigeria allocates less than 10% of its national budget to education against the 26% recommended by UNESCO. Adequate funding is a very crucial factor in skills training and job creation.
4. **The challenge of difficult business environment:** Nigeria has one of the most difficult environments for doing business in the world (Ola, 2009). The foregoing view is based on actual observations. Most factories that are supposed to employ people are

folding up due to lack of power and the high cost of running generators. In spite of all the various ministries constituted to manage the Niger Delta issue, the region is still highly volatile with hostage taking occurring on a daily basis. Even the security agents that are supposed to ensure security are equally involved in armed robbery. The cost of doing business is the highest in sub-saharan Africa to which Nigeria belongs (Ola, 2009 and Dike 2009). In the light of the foregoing challenges, business enterprises in Nigeria face serious developmental problems. These prevailing challenges are inimical to skills development and job creation for sustainable national development. Sequel to skills training in job areas of technical education, there must be a stable and safe environment for entrepreneurial endeavours in the event of no paid employment.

More than 91 million Nigerians earn less than one dollar or N130.00 per day. Higher institutions in Nigeria lack training tools for equipping the students with skills for employment or for establishment of private enterprises for independent living. Wealth creation becomes an uphill task because efforts towards job creation are hindered by unconducive environment. Technical education for job creation has other challenges, outlined by Otu, Udo and Usoro (2010) to include: unclear image of technical education in the minds of people and society, lack of proper government support, greater government emphasis on

other programmes, than on technical education (and vocational) education, poor treatment of technical education educators, inadequacy of the number of qualified technical teachers, inadequate infrastructural facilities, expensive nature of technical education facilities and equipment, inappropriate teacher- student ratio for laboratory learning, non-involvement of industries in skills training for job creation, lack of dependable basis for identifying technical skills in job areas of need for individual and national development.

Technical education for job creation is a commendable venture, if it can circumvent the foregoing challenges. With the persistence of the said challenges, the role of technical education in creating jobs for the unemployed Nigerian youth is greatly subject to offensive delay. The delay in creating jobs means delay in individual and sustainable national growth and development. However, the capability of technical education in fulfilling the role of job creation, must be linked up with the business world which appears to connect directly or indirectly with the absorption of the manpower of various types.

Summary

Technical education is the education for skill development in its eight options for subsequent self-employment and or paid employment. The training of manpower in over 180 job areas means reduction of unemployment among the Nigerian youth and fostering sustainable national development. Within the

capability of technical education for job creation, there are challenges with short and long term effects. These challenges can be addressed with the combined efforts of technical education experts, the governments and the business world.

Recommendations

On the basis of the focus of this paper the following recommendations are proffered:

1. The government of Nigeria should devise strategies for handling the identified challenges facing technical education for job creation.
2. Computer services and other aspects of Information Communication Technology (ICT) should be integrated into training manpower in the eight technical education options.
3. The Federal Government of Nigeria should include industrial crafts (erroneously styled "handwork" in elementary education) and plastics technology in the technical education curriculum. This is likely complement the contributions of local industrial craft and plastics industry. The products of these two technical education options are seen almost everywhere in Nigeria. The two options will enhance the capacity of technical education in its job creation endeavour or mission.

References

- Althouse, A. D; Turnquist, C.H. & Bowditch, W.A (1980). *Modern Welding*. South Holland, Illinois: The Good Heart Willcox Inc. Publishers

- Brown, W. C. (1978) *Drafting for Industry*. South Holland, Illinois: The Goodheart Willcox Company Inc.
- Dike, V. E. (2009). *Technical and Vocational Education: key to Nigeria's development*. <http://www.triumphnewspapers.com/tech30320og.htm> Retrieved on 26-3-2010.
- Federal Republic of Nigeria (FRN), (2004). *National policy on education*, Lagos: NERDC Press.
- Feirer, J.L. (1979) . *Wood working for Industry: Technology and Practice*. Peoria, Illinois: Chas. A. Bennett Co. Inc.
- Giachino, J. W. & Gallington, R.O. (1974) *Course Construction in Industrial Arts, Vocational and Technical Education*. Chicago: American Technical Society.
- Giachino, J.W. (1977) *Arc Welding*. Chicago, Illinois: American Technical Society.
- Johnson, H. V. (1973) *Technical Metals*. Peoria, Illinois: Chas. A. Bennett Co., Inc.
- Lindbeck, J. R. (1972) *Designing: Today's manufactured Products*. Bloomington, Illinois: Mcknight & Macknight Publishing Company.
- Lindbeck, J. R. Duenk, L.G. Hansen, M.F. (1973) *Basic Crafts*. Peoria Illinois: Chas. A. Bennett Co. Inc
- Lindbeck, J.R. & Lathrop, I. T. (1972) *General Industry*. Peoria, Illinois: Chas. A. Bennett Co., Inc.
- Ola, R. (2009) Yar'Adua's Seven Point Agenda: any hope for the Nigerian People? <http://www.triumphnewspapers.com/tech3032009.html> Retrieved on 26-3-2010.
- Otu, E.S., Udo, B. A. & Usoro, H.S. U (2010) Skills Acquisition in Nigerian Educational System: Problems and prospects as they relate to vocational and technical education. *Journal of Qualitative Education*, 6 (4).
- Spencer, H.C., Dygdon, J. T. & Novak, J. E. (2003) *Basic Technical Drawing*. New York; MCGraw – Hill.
- Stockel, M. W (1975). *Auto Service and Repair*. South Holland, Illinois: The Goodheart Willcox Company Inc.
- Straight, D & Hartzler, F. E. (1987) *Principles and philosophy of Vocational Education*. Emperia, Kansas: Kansas State Teachers College Press.
- Susu, A. A. (2010) Science and Technology: Basis for Accelerated National Development. *The Nigerian Education Times*.

- U. S. Department of Labour (1977) *Dictionary of Occupation Titles*. (D.O.T) Washington D.C: U. S Government Printing Press.
- UNESCO, (1995). World Education Report.
- Usoro, H. S. U. (2006). What you should know about Technical Education in Nigeria. *International Journal of Education Development (IJED)* 9 (1).
- Usoro, H. S.U., Usoro, E. B. Akpan, G. A, and Otu, E. S. (2010) Vocational Education as an Instrument for Achieving the 7 –Point Agenda in Nigeria. A paper presented at the 12th Annual National Conference of National Association for Advancement of Knowledge (NAFAK).
- Walker, J. R. (1972) *Machining Fundamentals*. Homewood, Illinois: The Good heart – Willcox Co. Inc.