

## TECHNICAL AND VOCATIONAL SKILLS ACQUISITION TRAINING: AN IMPERATIVE TOWARDS THE ACHIEVEMENT OF NATIONAL INDUSTRIAL REVOLUTION PLAN (NIRP).

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### ABSTRACT

Acquisition of technical and Vocational education and Training (TVET) has been discovered to be imperatives for achieving the National Industrial Revolution Plan in Nigeria. The paper took a critical look at the National Industrial Revolution Plan launched by the Federal Government of Nigeria in February 2014 in addition to a brief mention of past industrial plans in Nigeria such as National Economic Empowerment and Development Strategy (NEEDS), the 7 Points Agenda, Manufacturers Association of Nigeria (MAN) 4 year strategic plan among others. The experience of few industrialized/developing countries such as Malaysia, South Korea, Australia, Japan, China e.t.c. was also mentioned. The main objective of Nigerian Industrial Revolution Plan is to move Nigeria beyond been raw material selling Nation into a more value added manufacturing activities nation. This objective has five major goals to boost the economy of Nigeria. The paper dealt extensively on the imperative of acquisition of Technical and Vocational Education and Training for achieving the industrialization of Nigeria economy through the National Industrial Revolution Plan (NIRP). This is because most industrialized nations achieved their feat through her human resources who are not well read but mainly acquired vocational and technical training either formal or informal means, though may be later formalized at Technical School or Polytechnic, examples are abound in Japan, South Korea, China, Malaysia to mention a few. This will hopefully make the economy competitive both locally and globally. It was further stated that technical and vocational skill training is imperative but not all in all for achieving National Industrial Revolution Plan in Nigeria. That what is required in addition are, Government policies to stimulate the economy, and grow high-performance enterprises that demand skilled labor, create opportunities, ensure sustained industrialized growth.

Keywords: Industrialization, Technical, Vocational, TVET, NIRP

### Introduction

Industrialization is the system of production that has evolved from the steady development, study and use of scientific knowledge. Industrialization is said to be based on specialization and uses mechanical, chemical and power-driven including organization and intellectual aids in production. The primary objective of industrialization is to achieve a reduction in cost per units of producing goods and services. Nigeria as a nation has had a number industrial development plans spanning the 1950's to 2007. We have had the National Economic Empowerment and Development Strategy (NEED) in 2007. This seeks to bring about changes in the industrial sector. Also **Manufacturers Association on Nigeria (MAN) 4 years strategic plan** is to attain efficient production level in the manufacturing sector which hopefully will stimulate increased manufacturing sector contribution to GDP, Employment generation, Wealth Creation and Poverty eradication. **The 7 point Agenda**, The focus of the Agenda is to put in place policy options and initiatives that would resolve the Infrastructural, Financial and Competitiveness issues facing manufacturers, be it small scale, large scale or even medium scale.

### Nigeria industrial revolution plan (nirp)

This is the latest national roadmap for industrialization in Nigeria with a five year plan. It is hoped that this will accelerate industrial capacity expansions and reform:

### Objective:

The main objective of NIRP is to move Nigeria beyond been a raw material selling nation into a more value added manufacturing activities nation.

### Goals:

The goals of the NIRP among others are;

- Addition of about N5trillion to annual manufacturing revenues in the next three to five years.
- Creation of Jobs.
- Generation of additional National Wealth.
- Diversification of our economy.
- Substitution of import.
- To boost Export.
- Broaden the nation's tax base.

National industrial development cannot be imported. It must come from within. It is a known fact that we become knowledgeable by learning from others, but we only become wise by understanding ourselves.

The NIRP is a five year plan to rapidly build up Industrial Capacity and improve competitiveness in Nigeria.

The plan has identify detail groupings such as Agro-Allied and Agro-Processing, Metals and Solid Materials Processing, Oil and Gas related industries, Construction, Light Manufacturing and other services.

The overriding philosophy of the NIRP starts with the acknowledgment that National Industrializations must be driven by long run competitiveness. This is evidenced by the fact that industries succeed when they are competitive both locally and globally.

What a robust plan, well thought out, well laid out; but one major factor which is key to implementation of the previous plan, and which is, for the current NIRP is the technical and vocational skills. This is because no matter how sound and well thought of a policy plan is acquisition of the right technical and vocational skill to actualize the plan both in quantity and quality is very imperative. This is evidenced from the examples of countries such as Australia, Malaysia and Singapore.

### Technical and vocational training

The National Policy on Education (NPE) defined technical education and vocational education 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 (NPE, 1981).

Technical educational skill therefore refers to any formal training of persons as technicians in different occupations.

Uwaifo (2009) reported that technical education refers to the training of technically oriented personnel who will eventually be the initiators, facilitators and implementers of industrial revolution plan of a nation. He concluded that such training will afford the citizen of been technologically literate which will lead to self-reliance and sustainability. Technical educational skill includes, metal work technology, mechanical/automobile technology, electrical and electronic technology, building and woodwork technology, mechatronic technology. E.t.c. ultimately technical education will serve as change agents not only for technical systems but also for many other societal changes towards industrial revolution of our nation.

### Vocational skills

Further, Wikipedia (2014) described Vocational education or skills as education based on occupation or employment, which prepares people for specific trades, crafts and careers at various levels from a trade, a craft, technician or a high professional practitioner position. Such as:- Engineering, Accountancy, Insurance, Nursing, Medicine, Architecture, Pharmacy, Law e.t.c Craft vocations are usually based on manual or practical activities traditionally non academics, related to a specified trade or occupation. Vocational educational skill may be classified as teaching procedural knowledge as distinguished from declarative knowledge which theory and abstract conceptual knowledge base education is. Okafor (2001) said vocational and Technical (VTE) skill training systems play a crucial role in the social economic development and overall industrialization of a nation. Because of their dynamic nature, they are continuously subject to the forces driving change in the schools, industry and society. That mechanized farming and others require technical skills that could be obtained in technical and vocational schools. Friedman (1982) said that Technical and Vocational education provides students with life skill that will aid industrialization. (Alwasilah, 2002) also reported that it enables students to be productive entrepreneurs as it engenders creative and innovative pie, and increase personal freedom.

## Experience of other countries

Perhaps, if successive government in Nigeria had adopted technical and vocational education as a vehicle for national industrialization, the nation would have been better for it. The classic examples of the Asian Tiger viz South Korean, Malaysia, Singapore, Indonesia e.t.c not to mention the economic giants such as Taiwan, China and Japan that come to mind.

### Malaysia

Technical and vocational skills training are no longer seen as second-class education in Malaysia.

- Vocational education centre (High Schools train students to acquire skills in various area.
- Technical schools are to train future engineers.
- There are 33 polytechnics and 86 community colleges under ministry of Higher Education.

### South korea

Vocational high school in South Korea offer programmes in five fields; Agriculture, technology/engineering, commerce/business, maritime/fishery and home economics. Students in high school follow a common national curriculum. In the second and third year, they follow a course (s) relevant to their specialization.

In some programmes, students may participate in work place training through co-operation between schools and local employers. Most vocational high school students continue into tertiary education.

### Australia

Vocational and technical training is mostly post-secondary provided through registered training organization. Some senior schools do offer school-based apprenticeship and traineeships in other more service-oriented occupations. The training provides a combination of school based and work place training. Apprentices and trainees receive a wage which increases as they progress. Training packages are 60% funded by public funds and training curriculum are define by the need of the industry and not by government and training institutions.

### Japan

Technical and vocational training offer a 2 year school, to students after finishing high school though not compulsory. In the vocational and training school there are wide ranges of majors such as computer technology, fashion e.t.c.

## Nigerian case in perspective

In terms of National Industrial revolution plan, Nigeria want to be a producer nation; that is, producing mainly secondary good rather than primary and crude raw materials. With industrialization, Nigerian wish to transform from a "Consumer Nation". This is because a consumer nation in the emerging competitive world economy is a dying nation.

Obiefuna (1998) retortedly ask the following questions, do Nigerians need to wear clothes? Then we must have capability to produce some clothes we need to wear, not just raw cottons. Do we need to take good foods and drinks? Then, we must be willing and capable of producing finished goods. Do we need to drive cars? Then, we must not only mine and stockpile iron ore/steel at Itakpe and Ajaokuta, we must have the capability to transform this steel/iron ore into finished goods. It is not sufficient to assemble cars from completely knocked down parts but to manufacture them as is done in Japan, France, and Germany e.t.c

An industrialized Nigeria means, a Nigeria where the average citizens enjoys an appreciable standard of living and that we must produce most of what we consume with substantial leftovers to sell to foreign countries.

Importantly, we must note that general education cannot turn our hides and skins into shoes, or raw cottons into clothes. It is only the relevant technical and vocational skills that are only derived from vocational and technical skill training that will transform wood pulp into paper and our crude oil into a wide spectrum of petroleum consumer goods. Hence, technical and vocational skills acquisition training and not just "general education" are imperative for Nigerian Industrial Revolution Plan.

For Technical and Vocational skills training to effectively support industrialization, skills training must be of high quality and competence-based, incorporate the use of modern information and communication technologies, be relevant to the needs of industry, efficient and adaptive to the changing technological work environment.

The skills acquired in technical and vocational educational training is best embodies in the Chinese proverb

***'Give a man a fish and he will eat for a day, teach him how to fish and he will eat for a life time'***

TVE focused on the formation of skilled workers in technical fields which focus on the skills of the hand (hand-on-skill).

## Means of acquiring technical and vocational skills and training in Nigeria.

Nigeria is endowed, as the following institutions provide platform for acquiring the skills;

Table 1: Polytechnic sector

Polytechnic	No
Federal owned	21
State owned	38

Table 2: Post primary sector

Technical colleges	No
Federal owned	19
State owned	110

Table 3: Health and allied institutions

College of health technology and allied institutions	No
Federal owned	9
State owned	40

Source: <http://www.nbte.gov.ng/institution.html>

### Federal universities of technology and other universities

This gives a picture of the institutions in Nigeria of Technical Colleges which serves as the entry point for formal training in technical and vocational education while the polytechnics, College of health technology and allied institutions and Universities afforded further training.

The informal training are usually acquired from the artisan – the entrepreneurs, which is industry based training.

After all, the 1997 UNESCO International Standard Classification of Education, described TVET as education and training to acquire the practical skills, know-how and understanding necessary for employment in trade, group occupation or other industrial concerns.

Before the great industrial revolution (1750 to 1830), the home and the “apprenticeship system” constitute the major sources of technical and vocational education.

Without prejudice, the current preoccupation of university education in Nigeria reduces socio-economic opportunities of those who are more oriented towards work life or industry than academics.

Infact, not everyone needs a university education whilst not condemning the General Education. After all, many of the so-called “expatriate engineers” who are adored, well respected and are being paid huge sums of money in dollars to build the roads and bridges or even pilot our industries and other critical sectors in Nigeria are graduates of technical and vocational colleges, yet Nigeria is not taking the sector seriously.

Though technical and vocational skill are imperative to achievement of National industrial revolution, they are engrossed with teething problems as stated by; (Ogimba, 2012)

1. Funding: vocational and training centre are owned by Federal Government, State Govt. or privately owned. In Nigeria, the allocation to education as a share of budget is quite minimal, below the UNESCO recommendation of 26% vote for technical and vocational education training which have not been impressive.

2. Inadequate Facilities: (Oryem and Oriya, 2005) reported that inadequate training equipment is really affecting the learning and training in the institutions. Infact some don't have laboratories or workshop or even have to depend on the engineering workshop and their lecturers to teach technical education concepts.
3. Brain Drain: this refers to movement of Lecturers especially on technical and vocational education which are seriously needed for industrial revolution from one institution to another or to other professionals (e.g politics) in search of better condition of service. Brain drain can be in a diverse way as indicated by Akintunde (1998) that there are five (5) different components of brain drain:
  - Experts in academics who moved to the industry where they get better pay for their services.
  - Lecturers and students who leave the country to acquire more knowledge and later refused to return.
  - Lecturers who move from one country for better conditions of service.
  - Skill professionals who abandon the practice of technical education in favor of other more lucrative economic activities and political appointments which are not related to their training.
  - Skilled professionals, although in their field of training who do not devote their full attention to their job because of their effort to supplement their earning through other unrelated economic activities.
4. Staff situation: many universities across the country are inadequately staffed both qualitatively and quantitatively (Uwaifo, 2005). In most departments, especially in technical education programme, the proportion of staff without Ph.D out numbers those with Ph.D. However, it is difficult to get people trained to the level of Ph.D because academic is not as attractive and commensurate to the effort, commitment and finances put in to acquire it; whereas a first "degree graduate" can function well in the industry and politics e.t.c and earn good money. Obviously this will be a drawback to National Industry Revolution.
5. The curriculum of technical education: The curriculum of a subject with practical content is generally organized into an average of 67% for the theoretical classes and 30% for laboratory. Olunloyo (2002) noted that one of the issues confronting the design of appropriate curriculum for technical education is preparing students for the shifts from the fordist to ICT paradigm in technology practice. However, some problems inherent in curricular include:
  - They are based on a foreign model
  - There is a basic lack of textbooks and available ones are illustrated with examples from outside the local environment.
  - There is usually a shortage of highly competent indigenous teaching and support staff with sufficiently wide practical experience in technology.
  - The curricular are adjudged to be too academic and over-loaded with intellectual content in pure science and mathematics at the expense of basic engineering and technology.
  - The teaching approach follows the conventional method of transforming knowledge across through the lecturer reading out to students, who would then take down notes. The educational system continues to place considerable value on this method of teaching.
6. The apathy of political office holders/law makers: Education generally, including technical education programmes that has been grossly neglected in Nigeria. Technical Educators have the greatest challenge of convincing the law makers on why they should give priority to the programme in allocating resources. However, if this lopsided attitude to the proper development of technical education remains. Nigeria's dream of been an industrialized country will be a mirage.

### **The way forward**

Effective technical and vocational education and training for national industrial revolution, is only possible if all the relevant stakeholders play their part. (Afeti 2011), He further identify the stakeholders to include; Government, Training Institutions, Parents and Guardians, Development partners and Employers, all have important role to play.

### **Government**

- develop and support implementation of national TVET policies.
- improve coherence of governance and management.
- introduce policies and incentives that will support increased private sector participation in TVET delivery.
- improve capital investment in TVET.
- establish TVET management information system for education and training.
- create measures to reduce gender, economic and geographical inequities in TVET provision.
- ensure sustainable financing scheme for TVET.
- increase funding support for the sector.
- mainstream TVET into the general system, so that the vocational track is less dead-end.
- constantly monitor and periodically evaluate the performance of the system and apply corrective measures where need be.

### **Educational institutions and training providers**

- provide training within national policy framework.
- deliver a flexible and demand-driven training.
- develop business plan to support training activities.
- establish strong linkages and collaboration with employers and industry
- mainstream gender in training activities and programmes.
- introduce ICT in training.
- institute bursary schemes for poor trainees
- strengthen guidance and counseling services to trainees
- network and bench-mark with other training providers
- involve community, parents and guardians in training activities
- training institutions should be encouraged to be profit oriented and to become active operators in the training market.

### **Parents and guardians**

- support children and wards to follow a career in tvet track
- reject perception that vet is for the less academically endowed
- lobby politicians in favor of tvet
- support activities of educational institutions and training providers.

### **Donors and development partners**

- support development and implementation of national tvet policies and strategies
- fund small business development research
- fund acquisition of training equipment
- support post-training employment support services for tvet graduates, including business start-ups
- support capacity building in tvet sector – instructor training, management training, technical assistance e.t.c.
- help in identifying and disseminating best practices in tvet
- support tvet advocacy initiatives, motivation campaigns and programmes.

### **Employers**

- deliver work place training to employees.
- contribute financially to national training fund.
- provide opportunities in industry for tvet teachers to regularly update their work place experience.
- provide opportunities for industrial attachment and internships for trainees.
- contribute to the development of national skill standards

The achievement of national industrial revolution through technical and vocational skills training demands policies and strategies that addresses the cross-cutting issues of quality and relevance of training, employability, collaboration between training institutions and employers, accreditation of training providers (in the formal, non-formal and informal sectors), assessment, certification, internal and external quality assurance of training programmes, funding, and instructor training.

This calls for a TVET system that is competent-based and employment led with proficiency testing of the learners and trainees as a proof of competence. TVET should also be seen and acknowledge by all the stakeholders as a valid passport to a well paid job or self employment or higher education which is highly essential for national industrial revolution and not as an alternative educational opportunity fit only for early school leavers, the less academically endowed or even the poor.

On a final note, it is essential to make the point clear that technical and vocational education and training is imperative but not the only ingredient for achieving national industrial revolution.

Good government policies that stimulate the economy and grow high-performance enterprises. For this to be achieved on a sustainable basis, TVET system must be labour-market relevant, equitable, efficient and of high quality.

Achieving the national industrial revolution plan is quite possible so that it will no suffer the faith of the previous plans, it is therefore a challenge to the Federal government and training institutions, which they must rise to. I hope they are ready!

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