

TOWARDS TRANSFORMATION OF TECHNICAL EDUCATION FOR A SUCCESSFUL CAREER IN NATION BUILDING

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Abstract

Technical education is scientific study of automobiles, buildings, woodworks, metal works and electrical/electronic technologies. Many factors influence occupational career choice and these factors are part of problems militating against technological development in Nigeria. The technical nature of courses lead graduates of technical education into occupations that are seen to be dirty, hard and unattractive. This has caused the youth to shun seeking admissions and pursuing studies in technical education. In order to overcome these problems, technical education sub-sector needs transformation in the use of modern sophisticated equipment, modern infrastructural facilities and improving remuneration. The paper concluded that technical education in Nigeria needs to partner with foreign universities to tailor the curriculum for the transformation. It recommended among others: government should provide stable electric power supply, learning of sciences and technology at primary and secondary schools be made compulsory for easy admissions into Nigerian tertiary institutions and adequate funding.

Key words: Transformation, Technical Education, Career, Curriculum, Nation Building.

Technical education has now been recognized as the bedrock for development of all countries and a corner stone to sustainable technological development. It is the scientific study of automobile technology, building construction technology, wood work technology, metal work technology and electrical/electronic technology. It is a broad based discipline with many subjects which include mathematics, physics, chemistry, biology, geography, social science, health science and technical drawing. Technical education includes general education, theoretical, scientific and technical studies and related skill training. Technical education is a special grade of vocational education, which can be distinguished from other vocational programmes because mathematics and science orientation is required in the training programmes (Ikeogu and Nzeribe, 2012).

According to Federal Republic of Nigeria (2004) technical and vocational education is used as a comprehensive term referring to those aspects of the educational process involving general science with its acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. There are many factors that influence vocational career choices and aspirations. These factors are parts of the problems militating against the growth and technological development in Nigeria. Therefore transformation is necessary in technical education if Nigeria is to be developed economically and technologically.

Nature of Technical Courses

Technical education consists of courses that are practical in nature and include the following options: Automobile technology, Building technology, Electrical/Electronic technology, Metal work technology and Wood work technology. These courses demand acquisition of knowledge, affective behaviour, and psychomotor skills. The practical nature of the technical courses involves the acquisition of many psychomotor skills such as use of tools, equipment and materials handling, rigour, dexterity, manipulative and concentration skills.

The nature of technical courses is seen to lead the graduates into technical occupations which are dirty, hard or drudgery and unattractive. For examples, all technical courses enumerated above in their traditional manner require knocking with various sizes of hammers, sawing wood or metal with different sizes and grades of saws, breaking walls for installation of cables with chisels and hammers, moulding and ramming blocks and removing bolts and nuts with chisels and spanners among others. All these operations require physical efforts which are energy demanding.

The Problem

Technical education programmes are facing problems of low student enrolments and lack of highly skilled technical workers. The nature of technical education programmes are seen to be programmes of study leading to technical occupations with low public perception and biases. The youths of today have shunned to seek admissions and pursue studies in technical education programmes. The technical occupations such as carpentry, steel cabinet making, auto mechanics, welding, refrigeration to mention but a few are suffering from dearth of skilled workers, and entrepreneurs. In order to overcome these problems, technical education sub-sector needs transformation through the use of modern sophisticated equipment and tools, attractive, cleaner and conducive working environments with good remuneration. This has informed the writing of this paper.

Concept of Career in Technical Occupations

A career refers to the sequence of occupations, jobs, and positions occupied during a course of a person's working life. Onyekwere (2008) defined career as the sequence of occupations, jobs and positions occupied by a person during his work life time which include both prevocational positions such as those of students preparing for work (examples are teaching practice and industrial attachments) and post vocational positions such as playing work substitute roles in retirement. According to May (1972) choosing a career is an extremely difficult and chancing business for most students. Circumstances, opportunities, influences from home, school, friends and occupational aspiration all play their part. Occupational aspiration relates to the type of occupation one aspires to take up in future if things work according to plan.

Choice of Career in Technical Education

Arrangement for guiding the students should form an integral part of the school system, if choice of career in the Nigerian secondary schools are to be real. The implication of this according to Onyekwere (2008) is that career counselors in our school system will have to play a more active role in career guidance of the students especially at the point of subject selection for school certificate examination. At the secondary school level the individual is meant to choose subjects that specialize him to specific career in the society. This choice of subjects helps the individual student to explore his or her career choice areas and finally get committed to a particular career, which is pursued up to the tertiary institution level. The individual therefore, establishes himself or herself in a particular career area, for example, technical occupation.

Curriculum of Secondary School

The scope and content of secondary school curriculum is restructured so that prevocational, vocational and academic subjects could be studied, thereby encouraging technological innovations and development. Whereas vocational and academic subjects are studied at the senior secondary school, prevocational and academic subjects are studied at the Junior Secondary School (FRN, 2004). Among the prevocational subjects studied at Junior Secondary Schools are: Agriculture, Business Studies, Home Economics, Basic Technology and Basic Science. Basic technology which is a core subject at the Junior Secondary School level exposes students to technology and world of work. It is through basic technology that students will acquire basic technical skills with practical works (Ukit, 2006). Technology can be described as a process or a way of doing something. Technology is marked by different purposes, different processes, and different relationship to established knowledge and a particular relationship to specific contexts of activity. Therefore basic technology is important in repositioning technical education at the prevocational level. At junior secondary school level the students are given proper orientation in many occupational areas to enable them see the need for

school continuity at the senior secondary school level and in the tertiary level of education.

Federal Republic Nigeria (2004) in national policy on education states that “The senior secondary school shall be comprehensive with a core-curriculum designed to broaden pupils’ knowledge and out-look”. Among the core subjects in senior secondary school level are English Language, Mathematics, one of Biology, Chemistry, Physics, or Health Science, Geography and a vocational subject (applied Electricity, Auto-mechanics, Building construction, Electronics, Metal work, Technical Drawing or Wood work) and Non-vocational electives such as Biology, or Chemistry, or Physics which are relevant to technical education programmes. It is observed that most secondary schools lack basic technology workshops and science laboratories. Where there are technology workshops and science laboratories equipment, facilities, technical teachers and consumable materials for practical are lacking. Also most secondary schools lack qualified basic science and technology teachers and do not teach vocational subjects such as applied Electricity, Auto mechanics, Building construction, Electronics, Metal work, Technical Drawing and Woodwork (they are vocational electives).

The problems highlighted above constitute impediments to teaching and learning of subjects relevant to technical education programmes at tertiary level. The resultant effects are that students cannot acquire the knowledge and practical skills of the aspects of science and vocational subjects (Anumudu, 2012). Most importantly, national policy on education does not emphasize students offering of vocational subjects at the senior school certificate examinations. Therefore, students attitude to vocational subjects will be negatively affected leading to poor performance or non selection of relevant science and vocational subjects at senior school certificates. The outcome of this will cause most students selecting and offering arts and commercial subjects at the senior secondary school level, hence low students’ enrolment in technical education programmes at the tertiary level of education. Consequently, the short supply of technology personnel affects negatively the technological development of Nigeria (Ukit, 2006).

Transformation of Technical Education

Curriculum of technical education should be reformed such as to develop capacity for involving indigenous technology and products that address our needs and aspirations. Multi-skills development for lifetime of career in technical education should be initiated. Ikeogu and Nzeribe (2012) opined that in United States of America (USA), the basic objective of technical education is to develop saleable skills in youths, make them useful in the society and become labour assets. In United States of America career and technical education (CTE) is being transformed to lead students to develop the knowledge and skills required for success in colleges, career, and civic life. This

includes mastery of the core academic content required of all students, as well as specialized knowledge that is specific to particular careers. It also includes learning and practicing a set of employability skills, such as the ability to work collaboratively in diverse teams, communicate effectively, think critically, solve problems, find and analyze information, ask challenging questions and adapt to changes, that make individuals more employable across specialty areas. These employability skills are the transferrable skills that empower a person to seamlessly transition from one job or field to another for a lifetime of career success (USA, 2012).

Transforming technical education is essential to this process, it offers students opportunities for career awareness and preparation by providing them with the academic and technical knowledge and work-related skills necessary to be successful in post secondary education, training, and employment (Eze, 2013). The federal, state and local governments should ensure that more of the youths and adults can be assisted to afford, access, and complete post secondary education and training to earn post secondary certificate or degree in technical education and entrepreneurship.

Curriculum Content and Leadership

The curriculum content of the technical education programmes must be responsive to labour market skills needs. The governments must work closely together, and with employers, to ensure that the programmes are responsive to labour market demands. The programmes will use technology to increase access to high-quality learning opportunities for students in all areas (Isah and Abdulkadir, 2013). Federal, states and local governments must provide resources such as equipment, training facilities and materials, entrepreneurial start-up capital, cash and technical assessments to encourage collaboration between key stakeholders (Ukit, 2013).

The technical education system and career development cannot be transformed without strong leadership at both the state and federal levels. Technical educators, researchers and other key stakeholders will compare and analyze national outcome data for the students. There would be provision for critical information for monitoring and analyzing student outcomes and closing gaps in participation, educational attainment and employment between different groups of students. Federal and state leaders, armed with this improved data, would be better positioned to support the programmes of teachers and administrators at the local level. Special considerations may be given to specific pressing needs that build on existing assets and capacities such as projects that better prepare students to enter and succeed in science, technology, engineering and mathematics (STEM) careers.

Creation of Innovation and Transformation Fund (CITRAF)

This fund can be created from tertiary education trust fund (TETFUND) and petroleum trust fund (PTF) to implement policy and programmatic changes designed to considerably increase access, expand state investments in technical education and take actions to boost performance and outcome levels significantly. Funding can be made available only for states proposing reforms and transformation that either enhance or build on the state conditions for success and innovation.

Conclusion

Technical education sector is perceived negatively today among the young generation. Technical occupation jobs are seen as low paying, physically intensive, dirty, and unsafe. The Nigerian education system's ability to keep pace with developments in the technical industry is questionable, the industry the world over is developing rapidly, but the education system is falling behind. Technical education needs to partner with foreign universities and other tertiary institutions to tailor curriculum of transformation. They should set up alliance to create sustainable key centres for studying new technology and having a high-skilled, flexible workforce for technical occupations and career success. Globalization presents another set of challenges related to human resources. A global workforce means different demographic profiles and different sizes of expectations across geographies. Coordination of business will involve numerous considerations, including location, language, technologies, regulations and cultural differences.

Recommendations

Based on the discussion above, the following recommendations are made to facilitate the transformation of technical education and career success in nation building. The government needs to do the following:

1. Providing stable electric power supply to all parts of the country.
2. Learning of science and technology can be made compulsory at all three levels of education for admissions into Nigerian tertiary institutions, towards ensuring strict compliance with the 60:40 ratio in favour of science and technology courses.
3. Assisting the operators and entrepreneurs of technical occupations to design their workshops and laboratories, layouts, build modern standard infrastructure and approved plans of conducive working environments to help transform the sector and make it attractive.
4. Carrying out curricular reform of technical institutions to be more practical-oriented.

5. Establishing more technical institutions across the federation based on the peculiar skills requirements of each geo-economic zone.
6. Making technical education more functional through adequate funding and recruitment of qualified and experienced teachers for implementation of the programmes.
7. Putting in place accountability and monitoring team to assess the progress for the programmes.
8. Creating enabling economic, social and political environment conducive for products of technical and science schools to either gain admissions to higher institutions, or secure employment in industry or commerce or for entrepreneurship where their skills are required.

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