

Innovation & Change in Technical and Vocational Education in Nigeria: Challenges for Sustainable Industrial Development

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Abstract

Education holds the key to socio-political and economic development. Aware of this, the Federal Government, in its opening statement on the National Policy on Education, maintains that “education in Nigeria is an instrument ‘par excellence’ for effecting national development” (FGN, 2004: 1). But since independence, Nigeria has had quantitative education with minimal impact on national development. Despite the previous reforms in the sector to make it more efficient, problems persisted, just as panaceas abound, but questions remained, hence, the clamour for innovation in the sector. The checkered history of Nigerian education pre-dated independence. On the eve of independence, precisely in 1954, the colonial government reformed the existing educational system from 8-6-2-3 (that is, 8 years of primary, 6 years of secondary, 2 years of higher school certificate and 3 years of university) to 6-5-2-3 (that is, 6 years of primary, 5 years of secondary, 2 years of higher school and 3 years of university). This reform merely reduced the years of schooling from nineteen to sixteen years, and though the curriculum remained heavily academic, hence the need for innovations and change for sustainable economy and development.

Introduction

Historically, training in specific skills was pivotal in the development of great nations. In the United States of America, for instance, the centrality of vocational/technical education in the economic growth is irrefutable. Gutek (1983) maintain that as early as 1917, a federal law (Smith-Hughes Act) was passed to provide funding for vocational/technical education in response to the increasing demand by industries for technical skills, and “throughout the twentieth century, vocational education received additional funding” (Gutek, 1983:91). Vocational and technical schools were federally funded because as McKenzie (1983) observed, the U.S business sector and industries persistently complained that “schools let students graduate who lack not only necessary general skills, but also specific skills for employment,” an observation that accurately reflects Nigerian predicament. The role of technical education in South Korea’s technological development is even more dramatic. Soon after independence in 1945, S. Korea re-organized its school curriculum and emphasized science and technical education (Majasan, 1998). The combination of aggressive educational policies, visionary leadership and disciplined labour force revolutionized S. Korea and propelled her to economic greatness such that the erstwhile mendicant nation dependent on the U.S for food aid, turned a nation of cornucopia and their unquestionable technological success was evident globally even in remote West Africa with “the arrival of Daewoo cars” (Majasan, 1998:56). S. Korea’s functional educational system never allowed loss of talents.

Early Attempts to Introduce Vocational/Technical Education

The missionaries initiated vocational/technical education, which unfortunately did not fit into the prevailing liberal curriculum, for the products of such schools had slim chance of securing white-collar jobs, perceived as distinctive sign of an educated man then. As a result, both students and parents then, and still now viewed vocational/technical education as an educational arrangement for low-achievers who could not succeed in purely academic secondary school, but prepared them for blue-collar career in a society where upward mobility depended on purely academic careers, a perception that almost smothered vocational/technical schools nation-wide.

The recommendation of the Phelps/Stokes Commission on African Education advocating skill-oriented curriculum for the natives resulted in re-emergence of vocational/technical education, for in 1925, the colonial government directed that the curriculum for the natives be adapted to the aptitude and occupations of the natives, and at the same time preserving the healthy aspects of their culture. The directive was in realization that meaningful and productive educational system should be anchored on the existing cultural patterns, and aimed at developing latent human potentials for overall human growth and socio-cultural development. However, this initiative collapsed because the colonial government failed to establish industries to absorb graduates from vocational schools (Fafunwa & Aisiku, 1982). Ever since, the Nigerian educational system has remained academic, and literary, producing graduates without functional skills.

The Emergence of 6-3-3-4 System of Education

The national post-independence curriculum conference held in Lagos in 1969 recommended a change in educational system from 6-5-2-3 to 6-3-3-4 (that is, 6 years of primary, 6 years of secondary split into junior and senior secondary of equal duration, and 4 years of university education). The new system was fundamentally different from its predecessors; the highlight was the inclusion of technical/vocational subjects, conspicuously absent in the previous systems, which scholars variously criticized as being overtly academic and unanimously decried the western cast of the colonial curricula

The British colonial curriculum was not different (Ajayi & Kayode, 1997). Essentially academic, the colonial curriculum catered for less than 5% of the population who proceeded to higher education. It was unsuitable for the remaining 95% for whom secondary education was terminal; these were left without saleable skills (Fafunwa & Aisiku, 1982).

The recognition of the literary and academic nature of the curriculum of Nigerian schools probably inspired the re-organization of the curriculum and entire school system that gave birth to the 6-3-3-4 system whose goal was to provide option for those who may not proceed to senior secondary as well as provide opportunity for self-employment for those whom secondary education was terminal. In fact, among the objectives of secondary education is the provision of technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development (FGN, 2004).

The National Policy on Education (1981) recommended the establishment of more National Technical Teachers' Colleges (comparable to Yaba Technical College) for the production of adequate manpower supply for the country. The Federal Government implemented this recommendation by the establishment of National Colleges of Education (Technical) across the country. Note that technical education (FGN, 1981) or technology education (FGN, 2004) includes post secondary education in Polytechnics, Monotechnics and Colleges of Education (Technical) and have common goals among which is training skilled technicians, technologists, and other skilled personnel who shall be both enterprising self-reliant (FGN, 2004). But to what extent do these Colleges of Education (Technical) meet the goals to justify their continued existence? Do they graduate sufficient number of students in various vocational and technical subjects to teach the same in secondary schools? Available statistics, unfortunately, tend to suggest otherwise.

More distressing is the graduation rate in these institutions across subjects. Even in the courses of choice that hold promise for white-collar jobs, the percentage of graduates is abysmally low (Biodun and Awoni, 1997). Generally, graduation rate across courses is below 50% except in a few dotted instances in purely technical courses where enrolment is generally low. The statistics showed that Colleges of Education (Technical) are not generating enough manpower as anticipated to teach the vocational/technical subjects at secondary school level. How will the significant percentage that dropped out fit into society and become self-reliant and productive members of society?

Vocational/Technical education neither thrived in 6-3-3-4 system nor in Colleges of Education (Technical), and since the incidence of school drop-out at secondary level is not abetting, creative ways of generating interest in vocational/technical education must be crafted. It is rather paradoxical that the same youths who loathe vocational/technical education, learn the same skills through apprenticeship and often demonstrate mastery of the skill. High enrolment in computer training centers, and electronic repair workshops, which usually lasts for a few months, suggests that vocational/technical education among Nigerian youths will thrive if other supportive structures are in place. It may be difficult for any nation to develop without the contribution of vocational and technical education.

Need to Revise the Schools Curriculum to Reflect Multiple Intelligence

Over the centuries, debate on the concept of and nature of intelligence has raged. What is intelligence? Is it a specific or a general ability? While some (Herrnstein & Murray, 1994; Jensen, 1980), conceived intelligence as an innate ability, others (Plomin, 1999; Gordon & Bhattacharyya 1994; Rifkin 1998) believed that intelligence was a function of environmental variables. Spearman (1927) thought that intelligence was both a single and general abilities, and Thurstone (1938) viewed it as general abilities. Gardner (1993) however, provided fresh insight into the concept of intelligence when he identified eight intelligences and contended that intelligence had been misconceived and misinterpreted. The

traditional school (such as the Nigerian school system) has always measured intelligence using a single parameter – academic achievement, which in Gardner’s view is a narrow measure of a broad and complex concept. School assessment focuses only on two aspects of intelligence namely, logical-mathematical and linguistic intelligences, excluding other aspects of intelligence, which according to Gardner include: musical, spatial, bodily-kinesthetic, naturalist, interpersonal and intrapersonal intelligences. Unfortunately, the NPE (2004) clustered the relevant subjects leading to the development of various intelligences (such as music, physical education, art and so on) as electives. Contemporary curriculum that fails to emphasize subjects that help develop these aspects of intelligences is not only misguided, but anachronistic.

The global trend now is education for knowledge economy, which is the World Bank’s effort to assist developing nations like Nigeria overhaul their educational system to focus on the cultivation of highly skilled and flexible human capital needed to compete in the global market (World Bank, 2010).

Knowledge economy requires an educational system that fosters life-long learning, particularly among workers who have not completed secondary education. Knowledge-based economy relies mainly on the use of ideas rather than physical abilities and on the application of technology rather than on the transformation of raw materials (World Bank Institute, 2001c; World Bank, 1998d). The implication of knowledge economy for the curriculum is that since skills depreciate rapidly in the fast changing global economy, and since workers must compete in the constantly changing world environment, workers’ skills need constant upgrading to keep abreast of the times. Educational systems can no longer emphasize only specific skills, but must focus on developing learners’ decision-making and problem-solving skills as well as teaching them how to learn on their own and with others (World Bank Report, 1998d).

The Knowledge for Africa’s Development (KAD) Conference (2006) echoed the same concern and gloomily noted: Africa faces enormous educational challenges at the primary and secondary levels... Africa has the poorest installed educational infrastructure, the lowest enrolment rates, and the lowest numbers and quality of secondary school teachers. On the average in Africa, less than 25-30% of each age cohort completes junior secondary education and less than 15-20% completes senior secondary education. Moreover, many employers find the quality and relevance of graduates at the secondary level to be unsatisfactory (KAD, 2006).

The conference advocated fundamental changes in the educational curriculum of African nations; curricular reforms must focus on the development of basic skills necessary for participation in the global economy and these competencies include: analytical capacity, critical thinking, problem-solving and communication skills, as well as skill in the use of new media. Acknowledging the indispensable role of teachers in the development of these skills, the conference emphasized the need to strengthen teacher training institutions and teaching techniques. The conference equally observed that although ICT alone cannot develop a country, in this day and age, it is impossible for a country to develop without the ubiquitous use of ICT across all sectors of society. This observation compels one to ask: how many secondary schools, especially public schools in Nigeria have computer laboratories sufficiently equipped with functional computers to engage students in hands-on experience? How many secondary schools have competent computer teachers on the pay-roll? Computer education is pivotal in the curriculum of advanced countries while in the case of Nigeria it is placed under elective category. Thus how many Nigerian students are computer literate? How many of these students are computer literate in the current curriculum as computer education is relegated to the class of elective subjects when it occupies a central position on the

curriculum of developed countries. Perhaps, Nigeria is still operating an analogue educational system when the rest of developed world have gone digital and beyond.

New Direction

The secondary school segment of the 6-3-3-4 has not fared so well despite the spade work claimed to have preceded the introduction of the system, which included: development of appropriate curricula, importation of necessary equipment, establishment of necessary infrastructure, development of teaching and technical staff both locally and abroad as well as publicity and advocacy for the new policy (Nwana, 1997), the secondary school segment of the system is still wobbling. Some of the factors implicated in the foundering of the secondary school component of the system include: inadequate infrastructure and lack of qualified teachers (Gusau, 2008), shortage of qualified and experienced teachers to teach pre-vocational subjects, insufficient teaching and learning resources necessary for meaningful education, lack of workshops and equipment for practical subjects (Mbanefoh, 1997). In addition to these factors is apparent disregard for history by the planners of the system. The architects of the new system failed to be guided by history. As earlier indicated, the missionaries introduced vocational/technical education, but it failed to thrive because of misperception and the inability of the graduates from vocational/technical schools to secure white-collar employment. It did not thrive under the colonial government for the same reasons besides non-availability of industries to absorb graduates from these schools. If the designers of the system were guided by this inexorable logic of history, why did they believe that vocational/technical education would be successful when the factors that derailed it in the previous attempts were still present?

But the identified factors are only symptomatic of an underlying problem. For long, the public outcry on the state of the educational sector has been shrill and the reforms so far have been ineffective. The failures of the educational reforms suggest that the problem of the educational sector has not been identified, for problem-solving begins with identifying the problem. Solution to the problem of education has not been found because wrong questions are still being asked and as long as this questions are asked so long shall there be wrong answers. No matter how the innovations and reforms are crafted, Nigerian educational system will remain disabled because the problem of the educational sector has not been viewed in proper perspective; it is often viewed in isolation of other socio-political and economic problems when it is, in fact, a strand of the intricate web of multifaceted problems plaguing the nation. It is impossible to solve the problem of education apart from other socio-political and economic problems because in any system, the sub-systems forming a dynamic whole are intricately interconnected and interdependent, each influencing and being influenced by other subsystems. Consequently, a subsystem cannot be efficient when other subsystems are dysfunctional.

The educational sector, therefore, is a subsystem being influenced by other sectors (such as energy, financial institutions, politics, and other socioeconomic factors), which constitute other subsystems. When these other sectors (subsystems) are dysfunctional, then the educational system cannot function in isolation. For instance, it is impossible for vocational/technical education to be strong in the absence of stable power supply to operate the machines where available. Nor can it thrive where technical/vocational subjects are taught theoretically like in history, for lack of fund to procure necessary equipment, construct workshops, and employ trained teachers. Popoola's (2004) assessment study carried out in Oyo to evaluate the success of the implementation of the objectives of vocational/technical education at junior secondary education level buttressed this view. The study revealed that the objectives had not been achieved because of the limiting factors mentioned above as well as unstable power supply. Popoola considered a critical factor militating against the functionality

of vocational/technical education in Oyo. This explains the success of VTE system in America that initiated it, and in Japan that adopted it after World War II in 1945.

Vocational Technical Education succeeded in these countries because they had functional infrastructure that sustained the system; Nigeria operated the 6-3-3-4 system, but failed to copy the honesty, disciplined work force, and work ethics of these countries that made their educational system and other infrastructure function. The system is wobbling in Nigeria not because of inherent weaknesses in the system, but because we lack the requisite structures to support it. In fact, in developed economies like the U.S, market and labour demands dictate the location and curricula of vocational/technical schools, suggesting that businesses and industries that will absorb the graduates from these schools must be in place before vocational technical education can really thrive. Government should also provide incentives in the form of scholarships and grants that will attract students to embrace vocational/technical education.

Conclusion

Given the immense scientific, technological and socio-economic development, either in progress or envisaged, which characterize the present era, particularly globalization and the revolution in information and communication technology, technical and vocational education should be a vital aspect of the educational process in all countries, and in particular should: contribute to the achievement of the societal goals of greater democratization and social, cultural and economic development, while at the same time developing the potential of all individuals, both men and women, for active participation in the establishment and implementation of these goals, regardless of religion, race and age; lead to an understanding of the scientific and technological aspects of contemporary civilization in such a way that people should comprehend their environment and are capable of acting upon it while taking a critical view of the social, political and environmental implications of scientific and technological change; Empower people to contribute to environmentally sound sustainable development through their occupations and other areas of their lives. Given the necessity for new relationships between education, the world of work and the community as a whole, technical and vocational education should exist as part of a system of lifelong learning adapted to the needs of each particular country and to worldwide technological development. This system should be directed to abolishing barriers between levels and areas of education, between education and the world of work, and between school and society through: the appropriate integration of technical/vocational and general education at all levels. The creation of open and flexible educational structures; the taking into account of individuals' educational needs, the evolution of occupations and jobs recognizing work experience as a part of learning; improving the quality of life by creating a learning culture that permits individuals to expand their intellectual horizons, to acquire and to constantly improve professional skills and knowledge, and to engage positively in society to utilize the fruits of economic and technological change for the general welfare. Technical and vocational education should begin with a broad base which facilitates horizontal and vertical articulation within the education system and between school and the world of work, thus contributing to the elimination of all forms of discrimination.

Recommendations

In terms of the needs and aspirations of individuals, technical and vocational education should:

- (a) Permit the harmonious development of personality and character, and foster spiritual and human values, the capacity for understanding, judgement, critical thinking and self-expression

- (b) Prepare the individual for lifelong learning by developing the necessary mental tools, technical and entrepreneurial skills and attitudes
- (c) Develop capacities for decision-making and the qualities necessary for active and intelligent participation, teamwork and leadership at work and in the community as a whole
- (d) Create the enabling environment for individuals to cope with the rapid advances in information and communication technology.
- (e) Funding for technical and vocational education should be shared to the maximum extent possible between government, industry, the community and the learner, with government providing appropriate financial incentives.
- (f) Governments of least developed states in the federation in particular should seek bilateral and multilateral capacity-building cooperation in technical and vocational education.
- (g) It is desirable that governments should streamline the public institutional framework to the maximum extent possible to coordinate the national technical and vocational education efforts, create an effective partnership with the private sector, and promote technical and vocational education for the benefit of all citizens.

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