

RELEVANCE OF SCIENCE, TECHNOLOGY EDUCATION (STE) IN DEVELOPING SKILLS FOR YOUTH EMPLOYMENT: THE NIGERIAN EXPERIENCE

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Abstract

Science and Technology Education (STE) has been proved to be an indispensable factor in the economic development of any count. In Nigeria, it has a more critical role to play. This paper examines the relevance of science and technology education (STE) for national development and youth employment of Nigerian citizens. The concept of youth employment as a vehicle for enhancing STE, the interconnectivity of science and technology education (STE). The current situation and challenges facing STE in Nigeria were also discussed to bring out the relevance of (STE) for youth employment which actually has not been practically realized. Recommendations were made which include the call for training and re-training of STE teachers to update their knowledge, and the provision of long vocation/weekend programmes for out of school individuals, among others.

This paper attempts to bring out the direct connection between Science and Technology Education (STE) for youth employment. Although Nigeria is rich in human and natural resources, it is still one of the poorest and underdeveloped countries of the world. The climax is that there are so many graduates from the nation's education system who are roaming about the streets as unemployed and job-seekers (Nwachukwu, 2009). This situation is contrary to the aims and objectives of Nigerian education stipulated in the National policy on Education (FRN 2004), which stresses the development of a self-reliant nation. This shows that the policies and the practices in the schools have some gaps

(Offorma, 2005). In reality, products from good ST education ought to have acquired sufficient skills that would make them self-reliant, prepare them to enter into jobs and make progress in them. STE should prepare individuals to be self-employed in various enterprises. The delivery of Science and Technology Education should be practically oriented, but it is theorized because of lack of competent teachers or lack of equipment to enable them to practice what they have learnt. Hence, students graduate without any hands-on skills and minds-on experience (Offorma, 2005). This trend tends to obscure the relevance of ST education in the development of skills necessary for youth employment. Such constructs as, curiosity, open mindedness, creativity, aptitude among others, which are often used in connection with science, technology and education are also relevant and applicable for the development of skills for youth employment. It is against this background that this paper examines the relevance of Science and Technology Education for effectively developing skills for youth employment in Nigeria.

The Concept of Science and Technology

Science and Technology Education (STE) have been called a meta-discipline, the creation of a discipline based on the integration of other disciplinary knowledge into a new whole. This interdisciplinary knowledge bridging among discrete disciplines is now treated as an entity known as ST Education

(Morrison, 2006). Thus, ST Education offers students one of the best opportunities to make sense of the world holistically, rather than in bits and pieces. It should be noted, however, that ST Education is an interdisciplinary approach to learning; where rigorous academic concepts are coupled with real world lessons as students apply ST in the context that make connections between schools, community, work and the global enterprises enabling the development of ST literacy and youth employment skills, and with it, the ability to compete in the new economy (Tsupros, 2009).

Science and Technology have been instrumental in shaping and improving the life of mankind. While science tries to explain things, technology is what has enabled mankind to improve his standard of living, not only to build houses, supply food, health, travel and communications but arts, sculpture, music and literature (Mutasa in Nwachuku, 2009). Thus, the purpose of technology is the application of human knowledge for the betterment of human life.

Technology, therefore, seems to be a cultural activity and every society is technological and scientific in varying degrees and mathematics is the vehicle for doing science and a tool for technologies. The Egyptians also possessed considerable knowledge of chemistry, and the use of metallic oxides is evident from the nature of colours applied to their glass and porcelain. They were even acquainted with the influence of acids upon colour. Hence, they were able in the process of dyeing/staining cloth, to bring out certain change in the hues by the same method adopted in our own cotton works (Sweeting and Edmond, 2009). Amongst a host of technological inventions were tools-copper and iron and latter steel, boat and ship design. The sale of sails was one of Egypt's industries. Also, there existed the art of shaving, use of wigs, wearing of kilts and sandals, musical instruments, chairs, beds, cushions and jewellery. There was

smelting of iron for producing good quality carbon steel. With this enterprise, they were self-employed. Analysts have argued tremendous improvement recorded in science and technology over the years have been met with a corresponding increase in the technological skills possessed by individuals and their communities which make them self-employed. This could be witnessed in many developed societies where the science and technological discoveries and inventions have been applied in different human development fields for national development.

In our national context, several strides have been made by many people in the rural and urban Nigerian where skilled men had produced the needed farming implements, local guns for hunting animals in the forests, machetes and hoes for clearing the land for agricultural activities, and many other locally-made tools that would earn them a living; women were able to brew local beverages and wine, weave and dye cloths, utilize clay materials for earthenware bowls, pots, among others. Nowadays, it is difficult to find individuals with such skills in the community (Nwachukwu, 2009) due to the non-commitment of the system to the development of local human potentials and resources in the environment. This means, technology now belongs to large corporations and people have increasingly become jobless, job seekers and indeed marginalized in the industrial development, production and employment sector. Thus, if the interconnectivity of these different disciplines science, technology and mathematics education are wisely utilized, it is of great advantage for the development of necessary skills for youth employment.

Oriafo (2002) argued that science, technology and mathematics education in Nigeria are grossly characterized by inadequacy of content and ineffective methodology by teachers, paucity of facilities,

equipment and materials in our laboratories, as well as dominated socio-cultural lapses. These lapses have to be properly tackled for our ST education to produce individuals with sufficient skills capable for self-employed life activities. The present trend of mass unemployment in Nigeria shows that the ST being taught in schools do not prepare Nigerian graduates to function well in the nation undergoing transition from rural economy to modern economy (Nwachukwu, 2009). The courses which should be taught as hands-on and minds-on practical courses are basically taught theoretically; this makes the learners not to benefit maximally from their education. Hence, development of useful skills necessary for self-employment living is lacking.

The Concept of Youth Employment as a Vehicle for Enhancing STE

Okwelle (2013) opined that Youth (a stage in life between adolescence and adulthood) constitutes a large proportion of Nigeria's population but despite their critical role in nations building, it is often observed that the country has not invested seriously in youth; thereby making them an army involved in unprofitable activities. The youth form the engine room of the labour force and represent the future of any nation. A vision of prosperous, peaceful and technologically-advanced society is therefore unrealizable in an environment where youths are not properly groomed and positioned.

This is because the energy, skills and aspirations of the youths are invaluable assets that no country can afford to squander. Also, the youths are the backbone of the development of the country. Indeed, if Nigeria is to be sustained as a viable entity there must be a very good plan to tap that energy and resourcefulness of the youth population to fast track economic development (Aiyede, 2010). Really, sustainable development lies at the heart of the STE system, and become the platform among the society it serves (Okoye and Okwelle 2014).

However, creating employment for the youths is vital on many levels. Politically, employment opportunities give the population a stake in the peace process by providing young men and women with alternatives to violence. Economically, employment provides income to poor families revives domestic demand for goods and services and stimulates overall growth. Socially, employment promotes social healing and improves social welfare. As a matter of fact, an idle youth could be seen as a devil's workshop in that various kinds of social vices are being identified with such youth. Therefore, the employment of youth has positive implications for economic growth, political stability and national security.

Jimo (2009) opined that ST education should prepare individuals for employment. This can be achieved by delivering ST education practically in such a way that it enables individuals acquire necessary and vital skills for self-employment. It should be noted, however, that alleviating poverty and resuscitating employment which is a prelude to self-sufficiency and employment generation can best be achieved in Nigeria when ST Education is taught as hands-on and minds-on practical activities in public schools.

Challenges facing ST Education in Nigeria that affect its Expected Outcomes

Nwachuku (2009) enumerated some of the problems confronting ST education in Nigeria to include, lack of funds to purchase equipment/materials, lack of adequate textbooks, overcrowded classrooms/laboratories, poor time table, lack of cooperation from the administration, the pressure of external certificate examinations, etc. Other challenges, include, lack of proper monitoring and feedback mechanisms, poor preparations of teachers who teach the new programs, lack of motivation among teachers, the rapid rate in which teachers are transferred

from one school to another or out of the profession, the use of archaic/traditional teaching methods which ultimately hinders internalization of learned materials. Other problems facing ST Education in Nigeria includes the absence of efforts to bring about meaningful youth employment programs and projects to the communities. There are lack of planning in different sectors of Nigerian economy; including, poor policy implementation procedures, shortage of qualified ST teachers/educators, over whelming number of activities demanded by the new curricula, lack of clear-cut goals, scarcity of resources and non-usage of research reports on the performance of the programs (evaluation). These are clear challenges facing Nigeria ST Education, and unless these challenges are tackled, the dying relevance of ST Education skills for youth employment in Nigeria cannot be resuscitated.

The Teacher and the Curriculum

The meaningful implementation and success of any STE curriculum for youth employment rests heavily on the availability of sufficient number and right calibre of teachers. (Wasagu, 2009). Nigeria has great human resource potentials for all sectors, and many of them could be encouraged to embrace education/the teaching field, trained, and equipped with practical skills and resource materials that would facilitate youth employment training in various communities. Such are positive ways to begin imparting the spirit of youth employment and nationalism among the citizens.

Furthermore, since the teacher is the translator, interpreter and trusted executor of the school curriculum in the classroom, then Nigerian STE teachers are the central figures in the meaningful realization of the program, as enshrined in the public school curriculum. The actualization of the goals and benefits of ST Education for youth employment is a heavy task,

highly demanding on the teacher (the implementer) and the school system. This is because, the teacher as the implementer of the curriculum, mediates between the curriculum aims and objectives, contents and materials, and the learner (Nwachukwu, 2009). The teacher is responsible for selecting the content, materials, strategies and pedagogies, preparation and presentation of the content to learners, evaluation and feedback. In addition, the teacher is faced with the task of constantly motivating and reinforcing the learners, as well as provision of suitable socio-emotional atmosphere that is conducive for learning in order to achieve the desired goals (Nwachukwu, 2009). For effective and efficient execution of these laudable tasks by the teacher, Morrison (2006) advised that the teacher be properly trained, and must acquire a mastery of vast arrays of skills and competences. Examples of such skills are knowledge of the subject content, practical competence, minds-on and hands-on, pedagogical competencies, etc. Furthermore, teachers should view the learners as beginners; hence, they need to adopt practical approaches, such as, use of concrete examples and improvisations. Since the acquisition of skills necessary for youth employment are all embracing, practical activities should be extended to simulations, games, etc.

Since no educational system or curriculum could rise above the quality of its teachers, it is pertinent that teachers should be trained with variety of pedagogical approaches which will facilitate acquisition of skills needed for self-employment.

The Way Forward to Boosting Employment Creation in Nigeria

Nigeria could improve upon the present employment generation level by holistically adapting and adopting some of the African and International practices in STE delivery.

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Massive employment could be created by promoting a labour intensive agricultural revolution. This implies that the government should take it as a point of duty to improve rural infrastructures, upgrade Irrigation system and provide basic amenities in all the six zones of the country. Again, the German dual system of science, technology education could be effectively practiced in the country with all amount of seriousness to enhance employment generation.

In Ghana, the church or Faith based institutions are the largest private provider of STE; therefore Nigeria could borrow a leaf from Ghana by ensuring that a good legislation is being put in place to promote the involvement of faith based institutions in the provision of STE programmes which would in no small measure bring about lots of jobs creation (Okoye and Okwelle 2013).

Conclusion

This paper has stressed that in the past, acquisition of skills for youth employment was the target of ST Education. It now shows that a well-planned and implemented science, technology and mathematics education today would play a great role in the development of vital skills to individuals that will enable them to be self-employed, hence the ugly situation of massive unemployment of graduate will be tackled.

Recommendations

Based on the discussions in this paper, the following recommendations were made;

- a) STE teachers should be properly trained, provided with adequate knowledge on the subject content, various creative skills, pedagogies and practical approaches of teaching and learning ST Education. This will enhance effective and efficient ST Education capable of producing individuals that are ready for youth employment.

- b) Serving STE teachers also should be retrained, through in-service, workshops, seminars, conferences, and study tours. This will enable them to acquire reasonable knowledge capable of producing individuals with enough skills.
- c) Children and young individuals should be given proper value and attitudinal orientation by parents and adults. They should be encouraged to be versatile as white collar jobs were no longer available.
- d) Long vocation/weekend programmes can be organized for out-of-school individuals, this will help in equipping them with skills they need.
- e) There is need for shift of emphasis from certificate acquisition to the acquisition of practical skills and attitude needed for youth to be independent.
- f) Government should be ready to invest heavily in STM Education. Good salaries/allowances should be paid to STM teachers, all the necessary materials/equipment and infrastructure needed should be made available, conducive atmosphere for teaching and learning should be provided. With this, the corresponding effect would be performance according to expectations. Nigerian graduates would be properly equipped with all the necessary skills they need. Hence, the dilemma of seeing uncountable number of unemployed graduates roaming the street seeking for jobs will drastically reduce.

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