

# STRATEGIES FOR EFFECTIVE TECHNOLOGY EDUCATION PROGRAMME IN THE MILLENNIUM

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## **Abstract**

An education system is considered relevant in a society to the extent that it responds to the needs of the beneficiaries. Since after the curriculum conference of 1969, Nigerian educational system has been geared towards answering to the needs of Nigerians. Technology and Science education programmes have been emphasized since after the conference wherein the national aims and objectives were clearly defined. It is believed that these types of education programmes, if adequately provided will answer to the needs of developing country as Nigeria. This paper seeks to examine and highlight strategies for making technology education programme in Nigeria effective.

## **Introduction**

Nigeria is richly endowed with human and material resources. The extent to which these natural endowments are exploited for the good of Nigerian citizens, determines the nation's developmental status. A country is considered developed, developing and underdeveloped, depending on the extent to which its citizens can employ scientific and technological experiences in exploiting the physical environment. Hence, Mogbo (2000) observed that there are potentially great nations endowed with abundant natural resources but are underdeveloped simply because their citizens are technologically poor. On the other hand, some nations such as Japan and Israel are potentially poor in natural resources but because their citizens are technologically rich, they are classified as developed.

Education has long been recognized as a dynamic instrument for social, cultural, economic and political development. It is the process of developing worthwhile changes in skills, attitudes, understanding and abilities of individuals (Olailan, 1993). It also prepares for adaptation to changing society and in itself generates social change.

We have many types of education:

African tradition education, Liberal arts education /Utilitarian type of education, Nomadic education etc. How effective an education programme is, is a function of its ability to answer to the needs of those for whom it was designed. Education is therefore considered effective only as it effects desirable changes in what people think or the way people feel, and interact with their physical environment. The changes that occur in individuals are geared towards development. Thus a change in the socio-political situation of a society and the people's aspiration demands a new direction in the educational system.

The world is today becoming a global village not through eloquent speeches of graduates of liberal art education but through advancement in the communication technology. What is happening in the communication technology today is a clear evidence that an effective education programme does not only help to alleviate poverty, but also contribute significantly to growth in national productivity and income.

In this paper we will look at technology education programme. Technology refers to the use of products of creativity, inventions and scientific research in the service of man (Olaitan, 1996). It is the application of scientifically developed abilities in exploiting our physical environment for human well being. Scientific method entails that there has to be an identified problem; there has to be a collection of evidence to discover if the problem can be solved. A trial solution or hypothesis has to be worked out; the hypothesis is tested, and a conclusion is drawn.

The influence of technology education in the world as a whole and in Nigeria in particular is witnessed by all and sundry. However, Olailan (1993) submitted that a worthwhile education programme is distinguishable by the following qualities:

- i. Availability of qualified and highly motivated educators;
- ii. Availability of adequate and up-to-date equipment;
- iii. Adequate funding;
- iv. Good balance between theory and practice;
- v. Constant evaluation.

Ezewu (1992) was however not comfortable with Nigerian education system for, according to him, Nigerian education system is at variance with national philosophy and aims of education, and therefore not responsive to the needs of Nigerians. This paper however looks at:

- i. Trend in Nigerian education.
- ii. Status of technology education.
- iii. Strategies for effective provision of technology education programme.
- iv. Conclusion.

### **Trend in Nigerian Technology Education Programme**

Pre-colonial Nigerians had a system of transmitting their cultural values to their young ones. This system was identified as African Traditional Education (Fafunwn, 1991). The system was aimed at equipping youths with necessary occupational skills as well as orientating them to the world of work. Occupational skills in the system were transmitted through apprenticeship. The system was primarily technological, and then serving the social, economic and structural needs of the people.

This system was however deemed inadequate at the advent of western education system which was more of liberal art than scientific. Nigerian later discovered the shortcomings of the type of education system designed for Nigerians by the colonial masters. The greatest harm done by the liberal arts education was that though it widened Nigerians occupational horizons, it failed at long last to meet the occupational needs and the interest of the people; thus negating the purpose of a worthwhile education system.

A purposeful education system was however designed by Nigerians for Nigeria. This followed after the National Curriculum Conference of September 1969, during which a clear National Policy on Education emerged in 1977, revised in 1981 and 1998 respectively.

In preparing the National Policy on Education to meet the educational needs of Nigeria, educational planners emphasized the importance of science and technology programmes and consequently provide for them in the document viz:

1. A greater proportion of education expenditure will be devoted to science and technology;
2. Universities and other levels of the education system will be required to pay greater attention to the development of scientific orientation. To this end, more Colleges of Technology and Polytechnics will be opened in a bid to improve technological and science education;
3. The ratio of science to liberal Arts students in our universities has been fixed at 60:40 during the Third National Development Plan period. This ratio will continue to be reviewed in accordance with the manpower needs of the country FRN (1998).

Nigerian education implemented have since this document been itching to meet up with the recommendation but have not had the breakthrough. Since after the introduction of the policy many Universities of Technology and Agriculture, Colleges of Technology, and Colleges of Education (Technical) have been put in place. The admission ratio is not easy to come by as students right from secondary school level dread technology subjects. Huge amount of money is invested in this aspect but is still not adequate. They are capital intensive and must therefore be specially addressed.

### **The Status of Technology Education in Nigeria**

Mogbo (2000) summarized the views of Mogbo and Onyehalu (1997), Mogbo and Iloputaife (1997), and Nwodo (1997) about the status of Technology Education in Nigeria as follows:

- No viable economic policy based on sound fiscal governmental measures;
- Unrelatedness of technology to needs;
- Inadequate technical know-how;
- Non-availability/incorrect sourcing of raw materials;
- Uncoordinated agrarian policy;
- Inefficient effluent disposal system;
- Inability to recycle materials;
- No bold step taken on technological transfer;
- Gross absence of a methodology of openness based on merit in the selection of think tank;
- Neglect of those who should have been remunerated for their talent;
- Slow and heavy approach to privatization;

- Inability to encourage small-scale approach to industries;
- Lack of financial incentive to restructure technology - based institutions;
- Inability to cut down on the monopoly and on the influence of the multinationals;
- Poor incentive to individual researchers;
- Making research institutes part of the civil service structure;
- Unfulfilled aspiration on the sustainability of the primary health programme;
- Poor funding.

This paper upholds the views expressed by Mogbo concerning the status of Technology Education in Nigeria. For Nigeria, education system has not been able to address the immediate physiological needs of Nigerians. This is noticeable in the nation's over dependence on imported goods and services. It is regrettable that Nigerians lean heavily on foreign technical experts in maintaining most of the plants in use in Nigeria. A clear evidence is the refineries located in Kaduna, Port Harcourt and Warri which are no longer functional due to inadequate technical know-how.

### **Reasons for the Low Status of Technology in Nigeria**

Mogbo has the following as reasons for the low status of technology education:

- i. Absence of or the non-utilization of the factors of production - land, capital and know-how.
- ii. Imperialistic mentality.
- iii. Acclaimed consumer nation.
- iv. Lethargy to investment in a broad range of science discipline.
- v. Role of multinationals.
- vi. Poor manpower needs.

A closer look at some of the above reasons causes one to doubt the essence of our existence as a sovereign nation. Nigeria is blessed with vast area of fertile land for agriculture, mineral resources for worthwhile economic ventures as well as human resources for technological development but has been eluded with the leadership that will give technology education the attention it requires. Our colonial masters, even when not physically present with us, are very much present with their intimidating policies. They control our economy by determining how much we sell our petroleum products, biasing Nigerians on goods produced locally as well as discouraging and biasing Nigerians against technological education. All these have culminated to Nigeria being a dumping ground for foreign goods. Nigeria is today a consumer nation, consuming whatsoever the white produces in the name of technology.

In line with Mogbo's observations, this paper further advanced the following as having great consequence to the status of technology education in Nigeria:

1. **Insensitivity of Nigerian Leaders to the Needs of Nigerians. Mogbo blames the woe of** Nigerian science education on the military dictatorships. The bulk of the nations wealth is in their private treasury while Nigerian citizens remain uneducated and many die in misery. Mogbo's view concerning Governments' nonchalance over science education is even worst with technological education which Nigerians have since the advent of western education neglected. Technology education is a type that cannot be managed without adequate provision of requisite facilities and equipment. Nigerian secondary schools, Colleges of Education, Polytechnics as well as universities are characterized by ghost laboratories and workshops. Such workshops are devoid of equipment and skilled personnels. Where you have equipment, they are obsolete and some have gone out of use.
2. **Fear of Frustration and General Insecurity. No right thinking individual has ever put his best in an** as environment devoid of peace and harmony. In almost all human endeavours, in Nigeria, one experiences one form of dislocation or the other. In the nations work places there are constant industrial unrest, threat of cultism, and all manner of bewitchments. This has led to so many Nigerians of high technological reputes fleeing the nation for at least job security.
3. **Equally of no(e is the condition of Nigeria institutions' libraries. The libraries are stocked with** antiquated books - where they do exist at all. Books which white men discarded several years are sent to us. What new information are we expecting from such obsolete books?
4. **Preference for academic rather than utilitarian education.** Nigeria lean more towards academic education which in the view of Mogbo is divorced from the lives and cultures of a people and bound to be beyond the reach of the majority of the people. A worthwhile education is one which answers to the needs and aspirations of the beneficiaries. If the academic education will prepare one for a culture and environment outside his own, the system should be readdressed. A relevant education for Nigerians today will be such that will address the need for hunger, poverty, diseases, illiteracy, shelter, security of the masses of this country.

### Strategies for Effective Technology Education Programme

This paper has reviewed some areas of defects in technology education in Nigeria. While attempting to address the shortfall the paper recommends:

1. **Striking a Balance Between Academic and Utilitarian Education**  
Academics emphasize mastery of the content while utilitarian education emphasize the effect of content in the society studying to have knowledge applied to human need.
2. **Shift of Emphasis on Examination cum Certificate Oriented Education.** Learning should be for intrinsic values rather than extrinsic. Assessment and reward should be based on productivity, interest and inward satisfaction on the job and not issuing certificate to educated idiots who have no value system for any thing.
3. Government should as a matter of necessity remove threats from workers and also ensure that workers are adequately remunerated. Government should equally assure those whose roles are hazardous with a reputable insurance company and remove all threat of insecurity of job.
4. An inward look should be given to the content of what is learnt by Nigerian children with a view to having them respond to basic needs of the recipients.
5. **Government should adequately provide for education.** In doing this government should look at some frivolous spending on issues like beauty contest, Mmanwu festival and convert resources wasted there to technology which benefits all.
6. **Learning environment should be made conducive for the learners.** Learning environment should be appealing to the students and all threat of danger must be removed.
7. Library should be supplied with relevant textbooks and trained librarians employed to help guide and direct students aright.
8. Government should recruit qualified, interested and dedicated staff to handle young Nigerians. The teacher should be resourceful and conscientious to his duty.
9. New equipment should be procured to replace the old ones and prudent spending should be emphasized in all spheres of the nation's education investment.
10. Teaching method should be varied as often as occasion warrants. Involve scientific methods in all science and technology teaching.

### Conclusion

Technology as the bedrock of national development is the education programme which has been tried and adapted by all the developed countries of the world. Nigeria is still in her infancy stage of technological development, therefore needs to be properly directed. We have worthwhile national policy on education; the only thing that is left for us is to ensure its proper implementation. This paper believes that if the strategies outlined here are implemented, the millennium technology for national emancipation will emerge.

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