

EDUCATIONAL TECHNOLOGY AND NATION BUILDING

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Abstract

Human resources development is the pivot of nation building. This development is achieved through the formal, informal and non-formal education. However, an examination of the state of the Nigerian nation indicates tendencies inimical to nation building, 'This is an indictment of the poor state of education in Nigeria. This paper examines the roles of educational technology in nation building. Educational technology is the engineering of the educational system for effectiveness and efficiency. If applied, it can reposition education and make it relevant to national development. Through the subsystems of education, such as curriculum development, instructional design and delivery, management and evaluation, educational technology can be used to put in place education that will develop the human resources required for nation building.

Introduction

Technology can be decomposed into methodology and content. The former refers to methods used in technology, which are scientific in nature, while the latter refers to the body of organized scientific knowledge which is used to solve problems. Most definitions of technology emphasize the latter and are silent on the former. Yet, the methodology is as important as the content. For instance, Hornby (1999) defines technology as the application of scientific knowledge to practical tasks. This definition does not bring out the methodology of technology. What differentiates technology from the traditional method is that the former uses organized knowledge in a systematic manner, while the latter does not. Therefore, technology is the application of knowledge to practical tasks in industry in a systematic manner (Hornby, 1981). But industry is not the only area of application of technology. Also, the systems approach is a problem solving methodology (Okwo, 1995). Therefore, technology can be defined as the systematic application of organized knowledge to solve problems.

Education can be seen in terms of its components. Therefore, one can talk about the educational system consisting of instruction, management, curriculum and evaluation subsystems; each of which consists of sub-subsystems. The educational system is a social system, which is open, dynamic and complex. But the reductionistic approach on which the method of science is based may be found wanting and inadequate for such a system (Okwo, 1995). Therefore, the method of science is not appropriate for solving educational problems. The systems approach is proposed for such problems. This is a method which results from fine tuning the method of science to cover dynamic and complex problems. Therefore, when technology is applied to education, attempt is made to solve educational problems by the application of organized knowledge through the systems approach.

Systems approach, which is the methodology of educational technology, is characterized (Okwo, 2000a) as scientific, technological and comprehensive, providing the framework for the examination of the ramifications of any given problem in order to ensure effectiveness and efficiency. Therefore, educational technology can be defined as the application of organized knowledge, such as scientific information, data and devices to education problems, through the systems approach methodology.

The alternative to educational technology, which is in vogue in our country, is the conventional atomistic and haphazard approach to educational problems bereft of scientific methodology and knowledge.

Nation building is the process of developing a state or country according to a pre determined plan. Therefore, it is a systematic process that leads to national development. Following the definition of national development (UNESCO, 1963) in terms of growth and change, many recent authors have defined it in terms of the welfare of the citizenry. For instance, Opara (2000) notes that in spite of the different dimensions of national development, its focal point is the capability to satisfy people's needs of goods and services. Therefore, nation building refers to the process that ensures not only increases in the Gross National Product (GNP), in the number of physical and infrastructure facilities, industries, institutions for education, health, insurance, banking services, legal services, politics, security and other state agencies; but also on their change in the course of time to improve national

integration, posterity, security of life and properties, and effective and efficient use of resources. It can be said that nation building is improvement of resources to cater for the good of all. How can educational technology facilitate the improvement of human and material resources for the good of the citizens? Before this is examined, it may be instructive to discuss the commonalities between educational technology and nation building, and the state of the Nigerian nation.

Commonalities Between Educational Technology And Nation Building

Educational technology and nation building have common features which can be exploited in understanding how the former can enhance the latter.

Both are processes of change. Educational technology is a process which aims at changing the existing educational realities to make them relevant to the present and the future and thereby enhance development. On the other hand, nation building is a process that moves a state or country towards development. It improves on the present state of a country, thereby enhancing development.

Both are systematically undertaken. Educational technology applies the step-by-step method of (the systems approach in order to ensure accomplishment of goals. In the same vein, nation building is a step-by-step process of development; but if undertaken in a haphazard manner will not lead to development.

Both are concerned with solving problems. Educational technology is concerned with solving educational problems in order to improve its effectiveness and efficiency. This will improve the quality of the educated persons who are the builders of a nation. If there are no problems, there will be nothing like nation building. The different social, political, economic and educational problems necessitate nation building.

Both are equipped to handle complexities. Most educational problems and issues are complex to the extent that only a comprehensive scientific methodology can address them. The different social, religious, political, economic, technological and educational problems that confront a nation are complex. When they interact, they produce more complex patterns. Nation building, therefore, is equipped to handle such complexities.

Both are continuous processes of refinement and improvement. Educational technology is the process of design, implementation, evaluation and modification of different components of education while nation building is the process of planning, execution, appraising and improvement of the different dimensions of development. In other words, the dynamic nature of nation building is sustained by that of educational technology.

Both tend to move towards integration and the development of complete systems. Educational technology does this by integrating different aspects of education, develop systems that will be effective and efficient. On the other hand, nation building harmonizes the different dimensions of development to produce a system that represents a level of national development, hence there are developing and developed countries.

Both are agencies of technology. Educational technology and nation building apply technology. They are opposed to haphazard approach devoid of scientific knowledge and methodology.

Therefore, while it can be said that education is the engine that drives or powers nation building, educational technology is the engineer. From the foregoing discussion on the common features of educational technology and nation building, one can conclude that the former has roles to play in the latter.

State Of The Nigerian Nation

The Nigerian nation is characterized by avarice, fraud, corruption, wickedness, ethnic and religious crises, poverty, superstition, hatred, materialism, favouritism, nepotism, selfishness, unpatrotism, stalism, distrust, deceit, unseriousness, rudderless leadership, misplacement of priorities, marginalization, cultism, cruelty, riot, ritual killing, assassination, armed robbery, examination malpractice, poor education system, political instability, electoral malpractice, unemployment, underemployment, poor economy, inadequate technology, confusing political system, insecurity, over-dependence on imported goods and services, falling standard of education, insincerity, and poor judiciary system, to name a few.

These problems rather than being controlled through nation building are increasing in intensity and sophistication with time. Their interactions produce complex patterns of behaviour which governments find difficult to handle through their haphazard approach. For instance, imagine the problems created when ethnicity, religious bigotry, poverty, and hatred interact. The so-called religious riots in Kaduna, Kano, Jos and other parts of the country can be attributed to the interaction of these forces.

One other problem that needs elaboration here is the confusing political system in operation in Nigeria.

The Federal system allows states some freedom to address their peculiarities, while allowing the central government monopoly of areas, such as foreign policy and defence. This system of government allows unity in diversity. However, the model of federalism operating in Nigeria is a sort of mild unitarianism. The different military regimes perfected this aberration, which is a ploy to access and control vast resources which should belong to the states.

With more than enough resources in the kitty and under its control, the Federal Government dictates to the states how much they should have, and by implication, what projects to embark on. It encroaches on the areas that should have been the traditional concerns of the states and local governments, through benevolence, which is just an excuse to expend excess resources. Imagine the central government dictating to local governments how much to pay their staff in a Federal set-up!, or states being asked to register a certain number of pupils and use a certain category of teachers for the Universal Basic Education (UBE) programme. These and other instances of the overbearing influence of the Federal Government in controlling, allocating and disbursing resources impede nation building.

Nigeria has in the last two decades witnessed an unprecedented level of infrastructural decay in from of poor network of impassable roads, epileptic power and water supply, poor telecommunication system and inadequate refuse disposal system. It is only now that the present democratic government, especially the central government appears to be addressing some of the problems through massive road and power projects, and privatization. Although progress is being made in reactivating and developing physical infrastructural resources, little is being done in the area of human resources development, especially, the aspects dealing with attitude, values, disposition, ethics, orientation, and good citizenship.

If extensive physical infrastructural resources are being developed at the expense of the affective behaviour of the human resource, as is usually the case in Nigeria, nation building will be an exercise in futility, since no real national development will result from it. This is because human resources development is the pivot of national development. This explains why in spite of huge budgetary outlay for physical infrastructural development, the country continues to experience crises and tendencies inimical to national development.

Therefore, education that is the engine that powers nation building is not performing well. How can educational technology (the engineer) help in reactivating and repositioning education for nation building and national development? This is addressed in the next section.

Roles Of Educational Technology In Nation Building

The roles of educational technology in nation building can be discussed through curriculum development, instructional design and delivery, management and evaluation of education.

Curriculum Development: Curriculum is a plan of educational experiences meant for a target audience. One major fault in the present curricula, especially at the primary and secondary school levels, is that they are based, in most cases, on the traditional subject boundaries, without emphasis on problem solving. According to Ukeje (2000), the purpose of education is to create a good society and good life for the citizenry by the use of all the developed resources by the human resources. This statement has been reinforced by earlier depositions that education is the engine that powers nation building, and that human resources development is the pivot of national development. It has also brought to the fore, the creative and problem solving potentials of education. Therefore, education for nation building should be one that enhances the problem solving capability of the citizens. This capability can hardly be achieved through the implementation of curricula based on the traditional knowledge compartments, since problems by their nature transcend these compartments.

One method of curriculum development that will ensure that education challenges the learners with problems is integration of contents from different subjects. Curriculum integration, therefore, increases the chances of presenting topics as real life problems which the learners are expected to solve. We are familiar with the inclusion of social studies, integrated science and **introductory** technology in the curricula; which are supposed to be based on integration approach.

More recently, the National Policy on Education (FRN, 1998) recognizes social studies and integrated science, hitherto restricted to the primary and junior secondary schools, as subjects that could be offered in senior secondary schools, it does appear that the importance of this curriculum development approach is recently being recognized. Bozimo and Okam (2001) note that modern curriculum development for primary level of education must as of necessity derive from integration. This is true not only for primary education, but also for other levels of education, especially secondary education.

In the context of integration. Okam (1998) reiterates the views of other scholars that social studies ensures the development of self-confidence and initiative, power of imagination and resourcefulness, sense of respect and tolerance, co-operation, interdependence, honesty, integrity, diligence and trust worthiness, to name a few. Apart from the fact that these competencies equip the learners to be social problem solvers, they

are also the ingredients required in nation building.

In places like Israel, there is science and technology education curriculum that defines human and social needs and problem solving in response to these needs (The Government of Israel, 1995); with the aim of producing citizens actively involved in decision-making and contributing to the functioning and growth of society (The Government of Israel, 2000). In line with this arrangement, Ayodele (2001) calls for the integration of science, technology and social studies, as a framework for curriculum development for primary education in Nigeria. The integrated science and technology will represent human insights into solutions of problems emanating from interaction between human beings and their environment. Therefore, it is clear that curriculum integration is a potent method of organizing education for nation building.

The traditional method of curriculum integration has not been able to realize the potentials of integrated subjects. An examination of social studies, integrated science and introductory technology curricula indicates instance of amalgamation, rather than integration in many places. Therefore, the place of educational technology in curriculum integration is not only timely, but also pertinent. It is through the systems approach of educational technology that a system of contents, learning experiences and evaluation can be based on identified problems; the implementation of which will lead to solutions. The step-by-step process of the systems approach is outside the scope of this paper.

Instructional Design And Delivery

This is an opportunity by the teachers to develop and deliver a micro curriculum in form of instruction or lesson. Analyzing the curriculum guidelines for pre-primary education using the educational technology approach, Okwo (1998) observes the inadequacies inherent in the curriculum which will make it difficult for teachers to design and deliver effective and efficient lessons. Therefore, the structure of the curriculum is a constraint to instructional design and delivery. However, if teachers are equipped with the required competencies, they may overcome some of these inherent weaknesses and still improve the effectiveness and efficiency of instruction. Evidence (e. g., Okwo, 2000b) exists to show that this is not the case with our teachers. Consequently, there is less learning and poor performance in internal and external examinations in Nigeria.

Therefore, one major problem of nation building is the little or no learning taking place in most formal and non-formal educational environment, leading to the production of ill-educated persons, many of who are bereft of morality and other affective competencies. This state of affairs is due to inadequate instructional design and delivery. The application of educational technology to instruction ensures that given any objective, instruction is designed and delivered such that the objective is achieved.

This principle has given rise to instructional design for normal classroom, low risk areas, high risk areas, and other forms of precision learning. According to Okwo (2000c), precision learning enables one to acquire and apply identified skills accurately and competently. This is what is required in critical sectors such as defence and internal security. What the Nigerian police needs, for instance, is precision learning that will equip officers and men with appropriate competencies required in crime and crises management. The Nigerian Police needs this type of learning more than they need jeeps. This is because four or so policemen with this type of training and operating on motor bikes will

perform better in quelling crises than the same number of ill-trained men driven in a jeep. Therefore, lapses in the security system which threaten national integration can be addressed by the application of educational technology in the design and delivery of instruction for officers and men of our security outfits.

Educational technology is also applied in designing and implementing instruction for life long and distance education. This is one opportunity for liberalizing access to education, and equipping a greater majority of the citizens with competencies required in nation building. This is mainly achieved through the use of mass media, information technology and instructional packages designed with the instructional objectives and target audiences in mind. There are other instances of the application of educational technology in instructional design and delivery to improve education for nation building.

Management

One of the major problems plaguing education in Nigeria is poor management. This is characterized by inept administration, insufficient supervision and poor planning of education. These are common in government schools and colleges where indiscipline, laxity, mismanagement, lack of resources for teaching, and large classes are the order of the day. It has been noted by experts (e. g., Ukeje, 2000), that all the previous experiments in Universal Primary Education (UPE), that is, the Western Region, programme started in 1955, the Eastern Region programme introduced in 1957 and the Federal Government scheme introduced in 1976, all failed due to inadequate planning. The same may likely happen to the Universal Basic Education (UBE) scheme launched in 1999 if care is not taken to ensure adequate planning. Already some (e. g., Nwanna-Nzewunwa, 2001) have questioned the rationale of training equal number of teachers for each state,

and the planned use of pivotal teachers for the programme.

Applying educational technology in the management of education will ensure proper administration and adequate planning. For instance, the issue of training teachers for the UBE scheme can only be scientifically pursued after adequate data and statistics have been collected on enrolment, number and qualifications of employed and unemployed teachers, pupil-teacher ratios on state basis. Educational technology does not encourage politicking in the management of education. It is concerned with scientific management to the extent that principles, theories, models and systems are used to enhance educational management for nation building. The politicization of educational management is responsible for the many ills plaguing the nation's education; and these have reduced the positive influence of education on nation building.

Evaluation

Examination malpractice is endemic in Nigeria. The products of any educational system which encourages cheating cannot be useful in nation building. First, they are incompetent academically and professionally, and second, they lack the basic moral ingredients to support nation building.

Educational technology encourages objective-based evaluation. This is a process by which test development is based only on those objectives specified in the curriculum. This is the only way of ensuring fairplay and making evaluation learner friendly. It should also be noted that the concept of continuous assessment which is currently being abused is derived from the idea of feedback in physical systems. To that extent, continuous assessment is an educational technology method of regular monitoring of not only the instructional subsystem, but also the curricula!- subsystem, to enhance learning. If properly implemented, it will facilitate diagnosis of instructional problems leading to redemption. This will in addition to making instruction more effective and efficient, re-orientate learners to see evaluation as a way of life. What will result is education properly positioned for nation building.

Conclusion

Education is the engine that powers nation building. In the same vein, educational technology is the engineer that designs education and monitors its implementation, evaluation and modification towards the goal of nation building. It performs these roles through curriculum development, instructional design and delivery, management and evaluation of education.

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