

# RESOURCE DEVELOPMENT AND PROCUREMENT AS AN INDEX FOR PRODUCTIVITY IN NIGERIAN BASIC SCIENCE AND TECHNOLOGY TEACHERS

By

SAUDAT SHEHU BALA

*Department of Integrated Science,  
Federal College of Education,  
Kano.*

## Abstract

*Socio-economic advancement through productivity is now the main focus in Africa, so great expectation is placed on education, especially science education, which is done through the formulations of various policies on education as well as revisiting the procedures, methodology, and the implementation of the basic science and technology curriculum in the classroom, which is expected to provide a sound foundation in the primary, secondary, and tertiary institutions and subsequently in later years. The paper therefore attempts to explain how local development and procurement (improvisation) can serve as an index of productivity in Nigerian basic science and technology classrooms, it also attempts to explain the essential teaching resources for an effective teaching of the basic science curriculum as well as describe some of the simple ways of sourcing or procuring the basic science teaching resources in the Nigerian schools.*

If development is to be accomplished in a nation like Nigeria, then technological development and scientific literacy has to come first. With this in mind, then there is a strong need to promote effective teaching of the Basic Science and Technology right from the primary school level, and this can only be possible if the Basic Science and Technology teachers are oriented towards the development and procurement of the science teaching resources. To provide a scientifically literate society then science and technology education must be for all students. A scientifically literate individual is that individual who is able and willing to continue to learn the science contents, to develop science processes on his own accord and is also capable of communicating the results of his learning or findings to others (Sutman, 1996).

The main objective of scientific literacy should be to produce a society that will benefit from its members if they are scientifically literate to participate intelligently in science based societal issues. In this regard better programs and orientation towards an effective classroom teaching that can produce individuals who can be productive in the society is absolutely necessary. However one major area of primary concern is the availability of and effectiveness of the usage of specialized science equipments, facilities, and teaching aids (Abimbola, 2001). This is to say the use of appropriate

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scientific resources that are soundly based on psychological theories as well as detailed and supportive of the scientific facts that are to be presented is absolutely necessary. Now the question here is, are our schools being provided with all the resources needed for effective teaching of the Basic Science and Technology?

For this nation to achieve its objective in the teaching of the Basic Science and Technology as well as produce productive individuals in the society, infrastructures like laboratories, science equipments, services and other consumables, should be made available to the teachers and the students; also the teachers should be trained on how to use these facilities in the classroom for effective teaching, this will provide a discourse that will focus on the resources for the teaching of the basic science and technology education in our primary schools.

## **Literature Review**

A resource is something that can be utilize to accomplish a set objective or standard, it can be human or material resource, so learning resource should be viewed as one of the most important assets of any educational organization. Hence for an effective and productive teaching to occur emphasis must be laid on resource development and procurement in all levels of education. The success and failure of any educational organization should depend largely on its learning resources. Aworanti, and Aderonmu (2005). People and resources should be made available as an integral part of the educational process Williams (1978). Adenle (1996) also reported that it is in the interest of industries to participate in the re-structuring process for teacher training, so that the realities of businesses are fully perceived through teaching by developing or procuring resources. The purpose of this relationship therefore should be to meet the efforts of the schools that train students for more concrete and reliable careers, but the high cost of imported materials does not help matters, hence the return to resourcefulness on the part of the instructors will immensely help in the learning process thereby boosting the path way to productivity in the Nigerian basic science and technology classrooms.

One major aspect of science education that has been of great concern is the area of availability and effectiveness of the usage of specialized equipments and facilities, Abimbola (2001). In Nigeria one of the most striking problems of science education in general and basic science and technology in particular is that of inadequate science teaching materials, Abimbola (1997). The policy that introduces science into the curriculum, introduced it as an activity based so this pre-supposes that it requires a lot of teaching and learning resources the use of which will make learning easy and interesting, thereby producing individuals that could boost productivity in the Nigerian basic science and technology.

## **Aims and Objectives of Basic Science and Technology Education in Nigerian Schools.**

The aims and objectives of Basic Science and Technology education in Nigerian schools as cited by Bajah, (1982) in the Benin journal of educational studies are:-

- To transmit scientific knowledge to students.
- To develop scientific approach to problem solving among students.
- The teaching and learning of science should be geared towards the acquisition of skills and involvement in the areas of research and innovation.
- Emphasis must be laid on discovery learning.
- To make students discover the order of complexity of the universe.
- To provide some functional practical skills to students who may not go further.
- To provide scientific skills that will enable students function effectively in the society in which they live.
- To make students seek meaningful scientific explanations to the mysticism and superstition that have plagued the African society for many years.
- To encourage the excitement of discovery and focus on producing people with entrepreneurial flair and the compassion to help transform communities and improve the human condition across the country.
- To provide a continuous improvement in the educational effectiveness.

### **Essential Resources in the Teaching of Basic Science and Technology Education**

A resource(s) literally means something which an organization has acquired and could be used for the accomplishment of an objective (Nagel, 1961). As cited by Audu and Bake,(2007). Observed that science takes its ultimate point of departure from problem suggested by observing things and events encountered in common experience but aims to understand the observable things by observing some systematic order in them. And find test for the law that serves as instrument of explanation and prediction in their concordance with such observation (Sepa,1978) as cited by Audu and Bake 2007 also pointed out that its approach to science education takes the view that science is a medium through which a child might develop his natural curiosity and his power in problem solving and decision making, all these are fundamental qualities of enquiry and constructive attitude to the kind of education which has particular relevance to the African environment and fosters the child's understanding of his world and his potentials.

Abdullahi, (1980) is of the opinion that there is a continuous search for new knowledge to either falsify or to maximize the existing knowledge. He goes on to say that the students of modern science acquire new rules so he/she becomes a role player, a discoverer, a technician, designing his own apparatus out of local inexpensive materials; an experimenter who arrives at his own answer. All these mental exercises and activities require materials, and the science teacher of today is a resource person, a simulator, an organizer, an evaluator, a moderator as well as a manager of learning activities. Unfortunately the high cost of imported materials does not help matters. Hence the answer to all these problems is the return to resourcefulness on the part of the teacher, that is to say an ideal teacher should be able to develop or procure his resources through the process of improvisation (develop the materials locally).

### **Methods of Sourcing or Procurement of the Science Teaching Materials.**

In spite of the emphasis laid on demonstration and practicalising the teaching of science, the lapses still persist in almost all our schools. For instance teachers lack the facilities to demonstrate phenomena or allow pupils to have the opportunity to discover or find out things for themselves Abdullahi, (1980). However Majorie and Brown (1969) warned that teachers should not use inadequate facilities and equipments as an excuse to resort to poor teaching, instead they should learn to develop resources.

Resourceful teachers can use the abundant local materials around to construct teaching materials that they can use as substitutes for standard ones. Improvisation or resourcefulness as the word implies is a very important technique in all human enterprise. (NTI 1990) saw improvisation as a technique of originating a totally new tool, instrument, material, or device, or modify an existing one for a particular purpose.

Improvisation can be by substitution or by construction (Ofoefuna, 1999). On the other hand construction in science as cited by Audu, (2007) is the act of constructing or developing scientific materials easily through substitution, for example preservation bottles can be replaced by jam jars, glass jars are replaced by plastic ice cream containers, and plastic margarine containers. Other examples include using cut off jik / bleach containers as funnels etc. Otherwise a resourceful teacher can out rightly construct or develop new scientific equipments.

### **Suggestions**

1. Train teachers through workshops and seminars on the usage and importance of instructional materials.
2. The development of indigenous and local raw materials should be encouraged
3. Teachers at all levels must be encouraged to produce or develop facilities and equipments needed for affective science teaching.
4. Government should establish and finance centers for the construction of local teaching resources
5. The federal ministry of education should introduce a special course on the process and technique of improvisation in all colleges of education.

### **Conclusion**

One of the major problems of most developing nations is the problem of unemployment on the part of youth which brings about lapses in the area of man power development. However this can be ameliorated by re- engineering our educational system for increased productivity. One key area is by inculcating interest of procurement of teaching resources in the minds of our teachers, especially the Basic Science and Technology teachers. In a nut shell if the above suggestions are carefully followed and implemented then resource development could be counted as one area that can help for self employment and productivity.

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