



## Relevance, Implementation and Challenges of Integrated Science Teacher Programme in Nigerian Universities.

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**Abstract.** This study focused on the relevance, implementation and challenges of integrated science teacher training programme in Nigerian Universities. The paper focused on the concept, relevance, challenges, teachers training curriculum, it is observed that the curriculum is rich and update as it has provisions for security, safety, diseases control, and implementation. The researchers profound some way forward toward improving the implementations as; National effort should be launched to address factors hindering students in technology and science, the cost charged on research science books should be bore by government. The researchers dare to point out that “those who refuse to change will remain in chain.

**Keywords:** Relevance, implementations, Challenges, Integrated science, Teachers programmes and Nigeria universities

### 1. Introduction

Education in Nigeria is an instrument “par excellence” for effecting national development. As such it has observed active participation by non-governmental agencies communities and individuals as well as government intervention. Education is a vital ingredient to the development of all societies. All participants in, and contributors to higher education are engaged in an enterprise which is crucial to societies cooperation, interchange of ideas and experiences.

Tertiary institutes by virtue of their essence and programmes, have visions and missions that center on knowledge generation, dissemination and application of same fore sustainability and development. Also they

have as their focus the development of individuals and the society in which they exist. Since individuals have wide range of interests and abilities, they live in a dynamic society, programme of tertiary institutions are bound to be varied and capable of meeting individual needs. All aspects of human endeavour make up the target for which programmes are designed in tertiary institutions. In the same vein, Osuala (2004) affirmed that educational programme provide help to all students who attend the basic knowledge, skills, abilities, understanding and attitudes that will enable them to become worthy human beings and effective member of the society Ben (2011) expresses that the essence for tertiary education is to make preparation for the survival of the society through:

- Manpower development for all sectors of the economy and education.
- Research and development for the sustainable development of society and for the improvement of life generally in society.
- Survival of individuals and society through inculcation of proper values as enshrined in the (National policy on education in 2004).

The Nigerian educational system has gone through several development and changes most especially in curriculum issues. The selection and organization of curriculum content is one of the problems associated with the system. Science education being the gateway to the survival of nations scientifically and technologically is achieved through science literacy for which integrated science is one.

Consequently, the Nigerian government in fostering the citizens’ interest in science and as a career formulated a

policy of 60% of admission into tertiary institutions to be science and 40% for arts and social science courses. *Consequently, the Federal Government of Nigerian through her policy of 60% admission into tertiary institutions for science based courses and 40% for arts and social science courses is fostering citizens' interest in science.*

However, Ajibola (2008) laments that this great effort has not yielded much as fewer students still opt to study science. This deficiency he attributed to lack of solid basic foundation in science which points to integrated science as a course. If a child is not grounded in integrated science at this lower basic level, he/she might not show interest in offering core science courses in Biology, Physics and Chemistry.

Integrated science programme is integration of various sciences as well as process through which the spirit of inquiry and other important psychomotor skills can be taught to student's right from primary schools, JS and SS level. At the universities, teachers are produced for this job.

## 2. The Philosophy and objectives of Integrated Science Teacher Education Curriculum

Nigeria integrated science Teacher Education Project (1983) described integrated science as a course in which various concepts in basic sciences like geography, public health, physics, chemistry, biology and so on are integrated to produce curriculum which when taught, an individual with an integrated conception of science, who will be capable of teaching integrated sciences as a core subject in universities .

NCCE (2008) anchored the philosophy of integrated science on the following areas:

- Fundamental unity of science
- The use of scientific method as a common approach in solving problems of scientific nature
- The role and functions of science in everyday life.

The same NCCE (2008) outlined the objectives of integrated science teacher Training as follows:

- Enabling students gain the concepts of the fundamental unity of science.
- Instilling in student's a commonality of approach to problems of a scientific method.

- Increasing student's understanding of the role and functions of science in everyday life and in world which they live.
- Making the students well informed and scientifically literate
- Enabling students acquire and demonstrate the intellectual competence and professional skills necessary - for the teaching of integrated science.
- Development in teachers the ability to impart and encourage in their students as an inquiry-based subject in the conformity with the national curriculum.
- Developing the ability and motivation in students tow work and think in the independent manner.
- Enabling students carry out scientific investigations, emphasizing cooperation and development of appropriate scientific process and skills and improving their written and oral communication skills.

The philosophy and objectives of integrates science are further more based upon six themes as cited by Dogara (2006) some of the themes include the following:

- Living things and the environment
- Non-living things in the environment
- Controlling the environment.

The programmes in tertiary education can be judged for relevance to the needs of every changing society and as such the integrated science program should be made relevant to the development of the society. Judging the teacher training curriculum, it is relevant to the needs of the safety, disease control, conflict resolution and entrepreneur for self-reliance. Industries are interested in the products of the universities by integrating with the materials goods and services made available to it. It is no longer news that implementation of the package is facing some problems and this has limited the effective implementation of the integrated science teacher running curriculum:

- Lack of finance,
- low status of teaching profession in the society,
- the urge to attain the ultimate within a short time

Iwowi (2011) in Ben (2011) laments that sufficient evidence now exists from research findings that teaching Integrated science is still basically done through the lecture method as against the student

activity oriented strategy. This brings to mind a lot of questions on why curriculum implementers do not perform to the level expected by the curriculum developers.

- Do teachers not have enough competencies in the content area of the subject; are they sufficiently tried in pedagogy?
- Are they aware of the objectives of the policy and the course they are called upon to teach?
- Are they aware of the objectives of the policy and the course they are called upon to teach?
- Are teachers sufficiently motivated to do their work?

For lack of adequate implementation of the integrated science teacher training curriculum, it is expected that every teacher that has gone through this integrated science curriculum should be adequate in the content area of appropriate and adequate teachers in the subject and lack of appropriate and adequate teachers in the subject area, and this encourages wrong hearing and lack of good training in pedagogy, also, it is noted that sufficient in-service and orientation courses are not held regulatory for lecturers and lack of sponsorship to international and national conference. The paper sought to look at the concept of relevance, and implementation challenges and way forward.

### 3. Concept of Relevance

According to Longman English Dictionary (2001) relevance is something directly related connected or pertinent to the present. But in the Collegiate Thesaurus (1993), relevance is applicability, appropriateness, fitness and usefulness. The relevance of higher education in Nigeria according to Education sector status Report, FRN, (2013) is to promote the life of the mind through intellectual inquiry and to generate store and transmit specialized knowledge and sophisticated expertise, higher forms of culture and ethical basis of conduct, these missions are pursued by universities through teaching, research, publication and community service. The distinguishing mark of the University with regard to teaching is the award of degrees which symbolizes admittance of the earner to the community of the transaction of developing and spreading of knowledge. In order to function properly, universities generally exercise self-regulation in academic matters.

Due to the availability of manpower and material resources, plan is now on ground to involve the polytechnics, colleges of education and the National

Open University of Nigeria (NOUN) to run similar functions as the universities. The university education according to the national Policy on education FRN, (2013), contributes to national development by:

- Intensifying and diversifying its programmes for the development of high level manpower within the context of the needs of the nation.
- Making professional course content to reflect the national requirements.
- Making all students, as part of general programme of all round improvement in university education, to offer general study courses such as history ideas, philosophy of knowledge and nationalism.

### 4. Implementation of Higher Education

Amadi (1993), defines curriculum implementation as “that stage in the curriculum process and system whereby all the relevant curriculum input are brought into direct contact, with the learners through a wide variety of activities, so that learning experiences and mastery can be maximized at a minimal cost”. Implementation from this understanding therefore weaves the instruction matter (subject matter), materials and method together produce desired learning experiences. The main focus of implementation is the “learner” and the most important person in the curriculum implementation is the “teacher” (the implementer). The extent of this implementation as observed by the researcher is not satisfactory and this motivated the researcher to investigate, to ascertain the adequacy of qualified integrated science teachers and their competencies, the use of stipulated methods, availability of resource materials and the adequacy of supervision by government agencies.

The National Policy on Education provides broad educational objectives for the country in the hope that the fulfillment of such objective would lead to quality education and a general development of the nation. Since the higher education is very crucial, particular attention has been paid to this level, in the provision of new emphasis on the curriculum.

The formulation of the policy has resulted from series of dialogue between federal and state ministries of education officials, universities and other educational institutions to find alternative sources of financing education, in organizing two national workshops to plan the strategy for take-off of the new system and in monitoring the commencement of the policy itself.

In terms of the strategies adopted in translating the provisions of the policy into action in school programmes, some steps are obvious. These are the development of suitable syllabuses and instructional materials; preparation of teachers for the new system, and provision of learning facilities in schools. All these stages need to be completed and coordinated in order to ensure that the desired goals have a chance of being achieved. Hence the training of integrated science teachers in universities are made for proper implementation of science curriculum at all levels of educational system.

### **5. Important factors in the Teaching of Science**

For effective implementation of any curriculum, must focus attention is on teacher's preparation for its implementation to be meaningful. The preparation of teachers in this case took forms, producing new teachers to meet the orientation courses for existing teachers to introduce the new programme for them.

Facilities: The facilities for teaching science could be seen ways: infrastructural (such as textbooks. The building of functional laboratories has to be recommended for the programme.

Equipment in universities should be available for proper implementation. Institutions should have adequate supply of equipment and obsolete equipment. It should be immediately replaced with current ones. For any instituting to be effective for teaching learning, equipment need to be on ground.

Availability of funds: The implementation of integrated science will depend on the availability of the funds to cater for the welfare of the institution. Funding is the most important elements of the success of education.

#### **Challenges of Higher Education**

The University education is faced with a lot of challenges resulting in the production of poor quality graduated who may not be able to effectively hold executive positions in the public service in the future. These problems manifests variously as staff and student indiscipline, poor remuneration and poor service conditions, dilapidated facilities, bad administration, poor funding, enrolment expansion beyond the capacity of facilities, cultism, examination malpractice, strike actions, crises of succession of vice-chancellors, sexual harassment, drug abuse and apathy to work and learning. Among the multifaceted problems of the

Nigerian universities, cultism, examination malpractice and conflict between staff unions and management appear to pose the greatest danger to the future of Nigeria (Yoloye, 2002).

In 1993-May 2003, public Universities in Nigeria remained closed for about 33 months due to progressive reformulation of collective bargaining issues by university staff unions (FMNE, 2003). These have badly affected the quality of education and the future of students in no small measure. On account of this, the credibility of degree qualifications is fast becoming untenable (FME, 2003).

Furthermore, the problem of inadequate funding of public universities has been seen as the prime cause of problems of the universities. The recent position of the Academic staff union of universities (ASUU) is that both the federal funded by the federal government. ASUU hold that the real value of current funding is low in terms of purchasing power due to the progressive devaluation of the local currency and inflationary trends.

This is not all; there is inadequate focus on relevance utilitarian research, scholarship and creative work leading to low output of books and low impact on the direction of national development (FME, 2003).

Over the years, many commissions have been set up to redress the problems but they appear not to have succeeded due to proper implementation of recommendations.

### **6. Conclusion**

The study discovered that there is an inadequate facility for effective teaching of integrated science in the universities as funds given is inadequate; the course of study given if followed will bring tremendous change in the technological age. The introduction of integrated, science in the education system is a worthwhile investment as seen from this discussion, although there are challenges, therefore, to make more effective, government should give full support to institution financially to enable them produce better teachers in future.

### **7. The Way Forward**

The way forward to the restoration of normalcy in the university system appears to be through implementation

of the plan of action. In addition, it may be necessary to consider that:

- The existing rigidities in the university education system which serve to hinder students' academic mobility should be relaxed by the adoption of the practice of programme articulation and credit transfer as is characteristic of university education in other countries.
- The study of all types of technology should culminate in the university as the mission of the university is to generate and transmit specialized knowledge and sophisticated expertise.
- A book policy should be developed whereby the cost of book production particularly in the technology and science is borne by government under special copyright agreement to that effect. This is because books in technology and science have discouraging narrow and unprofitable sales market and some authors do not have the capacity to fund their book production. For this reason, a National Book Trust Fund should be set up in NERDC to manage technology and sciences have discouragingly books in technology and agreement to that effect. This is because books in technology and science have discouragingly in narrow and unprofitable sales market and some authors do have the capacity to fund their book production. For this reason, a National Book Trust Fund should be set up in NERDC to manage technology and science book production for which government should bear the cost.
- A national effort should be launched to address factors hindering student's participation in technology and science education in the universities. The funding of physical development and operation of public universities should be on the basis of student per capita costs developed by the national university commission (NUC) from time to time and optimum student population.

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