

# Teachers' Involvement in Implementing the Basic Science and Technology Curriculum of the Nine-Year Basic Education

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The study investigated teachers' involvement in implementing the basic science and technology curriculum in primary schools in WSLGA (Warri South Local Government Area) of Delta State. It sought to identify the availability of the document in primary schools and teachers' knowledge of the objectives and activities specified in the curriculum. Interview and questionnaire were used to collect data from headmasters and basic science and technology teachers. The results showed that teachers are not involved in the implementation of the curriculum. This is evident from the fact that primary science teachers do not have knowledge of the curriculum in terms of the objectives and activities. Secondly, the curriculum was not available in most of the schools.

*Keywords:* teacher, curriculum, implementing, basic education, knowledge

## Introduction

Curriculum is a dynamic programme that is expected to address the changing needs and aspirations of any society (Igwebuike, 2008). Nigerian policy-makers and educators recognize the role of science and technology in the achievement of education for all and national development in the present millennium. This has informed an evaluation process that led to the development of the nine-year basic science and technology curriculum of the universal basic education. The curriculum was implemented in September 2008 in primary one in Nigeria. This study is an investigation into the level of implementation of the basic science and technology curriculum.

## Background and Literature

In Nigeria, education is perceived as an instrument for achievement of national objectives. According to the National Policy in Education (Federal Republic of Nigeria, 2004), education is an "instrument per excellence" for achievement of national development. This explains the huge amount of money government earmarks for education in its annual budget.

The basic education curriculum is an innovation in Nigerian education system. It was developed by the NERDC (Nigerian Educational Research and Development Council) following a directive it received from the NCE (National Council on Education) in 2005 to restructure and re-align the existing primary and junior secondary school curricula to meet the targets of the nine-year basic education. The features of the nine-year basic education curriculum are as follows: Firstly, it stipulates nine-year continuous basic education structured

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as lower Basic Education Curriculum (Primary one to three), Middle Basic Education Curriculum (Primary four to six) and Upper Basic Education Curriculum (JSS (junior secondary school) one to three); Secondly, the overall objectives of the curriculum are to develop interest in science and technology, acquire basic knowledge and skills in science and technology, apply their scientific and technological knowledge and skills to meet societal needs, take advantage of the numerous career opportunities offered by science and technology and become prepared for further studies in science and technology (NERDC, 2007). In addition to these, the curriculum emphasizes the following process skills: enquiry, intellectual, manipulative and societal values. The basic science and technology curriculum for primary school level shares these features.

The provisions of the MDGs (millennium development goals) and the NEEDS (national economic empowerment and development strategies) profoundly influenced the objectives, contents, materials and methods of the nine-year basic education curriculum. According to Gidado (2002) UBE (Universal Basic Education) is aimed at development of life-long education. This is one of the provisions of the MDGs. Gidado (2002), Okam and Bozimo (2002) and Faure (1972) explained life-long education as that which is concerned with helping learners to develop skills, competencies and attitudes which enable him/her to live successfully in the society as well as prepare him/her to assume roles as an adult in future. NEEDS was developed in response to the development challenges of Nigeria. It recognized education as central to the achievement of its goals. It recommended the complete revision of school curriculum "to reflect the dynamism of society and emerge global issues" (National Planning Commission, 2005, p. 36).

Before the introduction of the UBE, the UPE (Universal Primary Education) was in existence. It provided six-year primary education. Junior secondary school was provided as a part of secondary education. Gidado (2002) criticized the UPE on the following grounds. It was elitist and failed to emphasize life-long learning and vocational education. Thus, its products were characterized with unemployment and inability to apply knowledge to their environment. Gidado further noted that another problem with UPE is that its implementation was not evaluated on regular basis. Thus, it became difficult to monitor implementation for possible improvement.

Curriculum evaluation is making value judgment about decision alternatives on the curriculum based on valid data. It is an important stage in curriculum development processes outlined by Wheeler, Nicholl and Curriculum Organization of Nigeria (Igwebuikwe, 2008). According to Asher (1976), evaluation is an important aspect of every educational innovation in the US. Government laws in US make available funds for the evaluation of educational innovations. Such evaluation is meant to provide answers to pertinent questions that pertain to implementation of different aspects of a programme.

Experts agreed that the teacher is a critical factor in the successful implementation of any educational innovation (Wokocho, 2007; Nwadiani, 1995). They argued that previous policies failed partly because teachers did not possess adequate knowledge about them. This argument was supported by the declaration in the National Policy on Education (2004) that no education system can grow above the quality of its teachers. Nwadiani (2007) stated that among the problems in reform implementation in Nigeria is lack of understanding of the policy. According to Ereh (2005), curriculum implementation consists of two components: the technical and the managerial. The technical component consists of actual development of the curriculum or programme. The managerial component consists of planning for its development. The teacher is central in the task of implementation of any curriculum. His understanding of the curriculum objectives, contents, materials and methods is crucial in his/her ability to implement the curriculum. The nine-year basic education curriculum

which embraced basic science and technology curriculum was implemented in primary one and the basic science component in junior secondary school one respectively in September 2008. Currently, it is in the second year of its implementation. No study to the knowledge of these researchers has evaluated the status of its implementation.

There needs to investigate teachers' knowledge of the policy as well as evaluate their perceptions of the adequacy and achievability of its contents. Teachers' knowledge of the policy and their perceptions of the adequacy and achievability of its contents may be influenced by their levels of academic qualification, teaching experience, number of workshops attended and the type of employer. For instance, teachers employed by government are expected to attend workshop under the sponsorship of the state government, perhaps more than their counterparts employed in the private schools.

## **Methodology**

### **Statement of Problem**

The problems of this study are: what is the level of awareness among primary school teachers of the basic science and technology curriculum?; Specifically, are copies of the document available in primary schools, does it guide teachers in lesson preparation, are teachers able to identify the objectives of the curriculum as well as identify teachers and pupils activities for a given topic?; How achievable do they consider these activities?

### **Purpose of the Study**

The purpose of the present study is to ascertain the status of implementation of the basic science and technology curriculum in primary schools. It intends to find out if the curriculum document is available in schools and the extent teachers are conversant with its provisions.

### **Research Questions**

The study sought answer to the following questions:

- (1) What percentage of the sampled schools has the basic science and technology curriculum?
- (2) What percentage of the teachers is guided by the basic science and technology curriculum in lesson preparation?
- (3) What percentage of the teachers can correctly copy the objectives of the basic science and technology curriculum from the document?
- (4) What percentage of the teachers can list the teachers' and pupils' activities for the topic "exploring your surrounding" from the basic science and technology curriculum?
- (5) What percentage of the teachers considered the activities as achievable?

### **Significance of the Study**

First, it will provide information in literature on teachers' involvement in implementing the basic science and technology curriculum in primary schools. This is likely to stimulate further research in the area.

Secondly, the outcome of the study will provide independent feedback to NERDC on the results of some of the actions taken so far in the implementation of the nine-year basic education programme. Thus, the outcome will serve as basis for further action.

Thirdly, the outcome of the study will guide government and her agencies in identifying areas of intervention in the successful implementation of the nine-year basic education curriculum. This will help to address the existing gaps.

Fourthly, teachers will be sensitized by the outcome of the study to enquire about the nine-year basic

education curriculum. This will improve their awareness on the curriculum.

### **Scope of the Study**

The study was carried out in public primary schools in WSLGA (Warri South Local Government Area) of Delta State. It focused on science and technology curriculum of the nine-year basic education.

### **Research Design**

The descriptive survey design was employed in the investigation. It is capable of collecting data that describe the status of implementation of the basic science and technology curriculum of the nine-year basic education.

### **Population**

Headmasters of primary schools and teachers of primary science and technology in primary one in public primary schools in WSLGA of Delta State constitute the population of the study. According to the statistics from Delta State Ministry of Basic and Secondary Education, there are 52 public primary schools in the area with 52 headmasters and 62 teachers of science and technology.

### **Sample and Sampling Technique**

Data was collected from 26 headmasters and 26 teachers of primary science and technology who were selected from the same school. Random sampling technique was used. Using balloting, 26 primary schools were chosen. The headmasters and teachers of primary science were the subject. The headmasters identified the science and technology teachers in primary one.

### **Instrument of Data Collection**

Oral interview and questionnaire titled teachers' involvement in implementing basic science and technology curriculum developed by the investigators were employed for data collection. Oral interview was used on the headmaster. Headmasters were asked if they have the basic science and technology curriculum of the nine-year basic education. Where the answer was yes, the headmaster was asked to provide it for sighting. Otherwise, the headmaster was asked to produce the curriculum that the teachers were using for teaching. The questionnaire has 13 items and seeks questions that provide answers to the research questions. It had a reliability coefficient of 0.86. This was an index of the stability of response over-time. An interval of two weeks was used.

### **Method of Data Collection**

Since oral interview was involved, the researchers personally went to the schools to collect the data that were used.

### **Method of Data Analysis**

Descriptive statistic of the percentage type was used to answer the research questions. Percentage was computed for the responses.

## **Results**

The results of data analysis are presented in tables according to the research questions.

### **Research Question One: What Percentage of the Sampled Schools Have the Nine-Year Basic Science and Technology Curriculum of the Nine-Year Basic Education?**

Table 1 provides the data that was used to answer the research question.

Table 1

*Availability of the Basic Science and Technology Curriculum in Primary Schools*

Available	No. of schools	Percentage of schools (%)
Yes	2	8.00
No	24	92.00
Total	26	100

Table 1 reveals that the document is not available in 92.00% of the primary schools in the LGA. Only two of the schools representing 8% have the basic science and technology curriculum of the nine-year basic education.

**Research Question Two: What Percentages of the Teachers Are Guided by the Basic Science and Technology Curriculum in Lesson Preparation?**

Table 2 presents data on teachers' utilization of the basic science and technology curriculum in lesson preparation.

Table 2

*Teachers' Utilization of the Basic Science and Technology Curriculum in Lesson Preparation*

Lesson preparation guided by the basic science and technology curriculum	No. of teachers	Percentage of teachers (%)
Yes	0	0
No	26	100
Total	26	100

Table 2 shows that teachers do not use the basic science and technology curriculum in lesson preparation. All the teachers that were sampled said they do not use it.

**Research Question Three: What Percentage of the Teachers Can Correctly Identify and Copy the Objectives of the Basic Science and Technology Curriculum From the Document?**

Table 3

*Teachers' Knowledge of the Objectives of the Basic Science and Technology Curriculum*

Ability to identify and copy the objectives of the basic Science and technology curriculum	No. of teachers	Percentage of teachers (%)
Able to identify and copy	0	0
Unable to identify and copy	26	100
Total	26	100

Table 3 reveals that none of the sampled teachers are able to identify and copy correctly the objectives of the basic science and technology curriculum.

**Research Question Four: What Percentage of the Teachers Can Identify and List the Teachers' and Pupils' Activities for the Topic "Exploring Your Surrounding" From the Basic Science and Technology Curriculum?**

Table 4 reveals that none of the sampled teachers was able to identify and copy teachers' and pupils' activities for a specified topic in the basic science and technology curriculum.

Research Question Five: What Percentage of the Teachers Considered the Activities as Achievable?

Table 4

*Teachers' Knowledge of Teachers' and Pupils' Activities in the Basic Science and Technology Curriculum*

Ability to identify and list teacher's and pupil's activities for the topic "exploring your surrounding"	No. of teachers	Percentage of teachers (%)
Able to identify and copy teacher's and pupil's activities	0	0
Unable to identify and copy teacher's and pupil's activities	26	100
Total	26	100

Table 5

*Percentage of Teachers That Considered the Activities as Achievable*

Teachers opinion on achievability of teacher's and pupil's activities	No. of teachers	Percentage of teachers (%)
Able to make opinion	0	0
Unable to make opinion	26	100
Total	26	100

All the teachers sampled were not able to make opinion on whether teacher's and pupil's activities of the basic science and technology curriculum are achievable or not.

## Discussion

### Availability of the Basic Science and Technology Curriculum in Primary Schools

Results from this study revealed that majority of the primary schools in WSLGA of Delta State do not have the basic science and technology curriculum. Only two out of the 26 sampled schools had the document. All the schools were using new national primary school curriculum modules which have been phased out in primary one. This curriculum is different from the new one in the following ways. Firstly, it is organized in a six-year fashion, while the new one is organized in nine-year fashion. Secondly, the old curriculum has science while the new one has science and technology. According to Asher (1976), the curriculum document is an essential element for effective implementation of any new programme. It tells what is expected of the teachers as well as the activities needed to achieve the set objectives. The absence of this document means that the nine-year science and technology curriculum has not taken-off in the majority of the sampled schools.

### Utilization of the Basic Science and Technology Curriculum in Primary Schools

The study revealed that primary school teachers are not guided by the basic science and technology curriculum in planning lesson for pupils of primary one. Even in the schools where the document is available teachers' responses showed that it does not guide them in lesson preparation. It implied that teachers are teaching out of context or expectations of NCE. The nine-year basic science and technology curriculum was developed to meet the millennial needs of primary education in Nigeria (Obioma, 2008; National Planning Commission, 2004). The non-utilization by teachers implies that the goals of EFA (education for all) and the MDGs may not be achieved in Nigeria.

### Teachers' Knowledge of the Basic Science and Technology Curriculum

The study revealed that all the teachers sampled in the study did not have knowledge of the new curriculum. For instance, they were unable to identify the overall objectives of the curriculum and teachers' and

pupils' activities needed to teach the topic "Exploring Your Surrounding". Nwadiani (1995; 2007), Nwokocha (2007) and Ereh (2005) were consistent in the opinion that teachers' knowledge of the curriculum is very essential for its successful implementation.

Teachers' lacks of the knowledge of the curriculum mean that the new document cannot be successfully implemented in Nigeria. An important feature of the nine-year basic education curriculum is its emphasis on process skills like enquiry, manipulation, intellectual and societal values. The curriculum presents these skills so as to relate learning including basic science and technology to the immediate environment of the learner. A teacher without knowledge of the curriculum will not be able to present learning in a way as to achieve these skills in pupils.

### Conclusions

From this study, it can be concluded that much still needs to be done for effective implementation of the basic science and technology curriculum of the nine-year basic education. The extent at which teachers and head teachers are presently oblivious of the document suggests that a lot of work still needs to be done for these categories of school staff to acquire the necessary knowledge for effective implementation of the curriculum. It is necessary to organize workshop at the local government levels with the aim of acquainting head teachers and subject teachers with the rudiments of the new curriculum.

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