

PRIMARY SCIENCE TEACHER EDUCATION PROGRAM FOR EFFECTIVE CLASSROOM PERFORMANCE IN NIGERIA

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Abstract

The main focus of this study is to highlight primary science teacher education program for effective classroom performance in Nigeria. This paper examined basic science and technology education, primary science teacher education, factors which influence pupil's performance in basic science and technology education, and the ways for improving basic science and technology education in Nigeria. In order to achieve the effective classroom performance in Nigeria, the paper recommended that there should be effective implementation of objective of basic science and technology education, sufficient qualified teachers in all the primary schools, effective delivery of primary science textbooks, there should be adequate funding by the major stakeholder (government). This will improve the teaching and learning of basic science and technology education in primary schools in Nigeria.

Keywords: *primary science teacher, basic science & technology, pupils*

INTRODUCTION

The primary level of education is considered all over the world to be the most important level of education, because it is the foundational level. The National policy on Education put it more clearly when it stated that:

“since the rest of the education system is built upon it, the primary level is the key to the success or failure of the whole system” (FRN, 2004, P14).”

Primary education therefore forms the basis for a child's ability or inability to function well at past-primary levels. This means that whatever achievement a child will make in his/her future academic endeavor depends on the foundation laid for him/her at the primary level (Osuafor & Okigbo, 2010). This is line with the introduction of UBE on

September 30th, 1999 by president Olusegun Obasanjo for making basic education for every Nigerian child of school age i.e. education for all in order to achieve these goal, Nigerian's National council on education (NCE) approved a new reform in the delivery of primary education in Nigeria in 2004. And, this reform introduced a 9year basic education program which made up of three years of lower basic education, three years of middle basic education, while three years of upper basic education for junior secondary school level (J.S.S). Moreover, with the advancement of science and technology, there is need for a solid foundation in science and technology education at the primary level of education so as to engage them at a youthful age. So, science should be effectively taught at the primary level to prepare children for higher level of education

Some primary objectives of teaching science at the primary level include:

- * *To lay a sound basic for scientific and reflective thinking;*
- * *To lay a sound opportunities for developing manipulative skills that will enable the child to function effectively in the society within the limits of the child's capacity and;*
- * *To provide the child with basic tools for further educational advancement, including preparation for trades and crafts for the locality (FRN, 2004, P.14)*

These objectives cannot be achieved without a firm foundation of scientific enquires at the primary school level. Therefore, primary science teachers should always seizes the opportunities of making pupils appreciate the fact of the subject as a means of achieving technological development and economic survival (Yoloye, 1994).

Therefore, this paper would be addressed under the following sub-headings.

- i. Basic Science and Technology Education
- ii. Primary Science Teacher Education in Nigeria
- iii. Factors Influencing Pupils Performance in Basic Science and Technology Education in Nigeria.
- iv. Ways for improving Basic Science and Technology Education in Nigeria
- v. Recommendations
- vi. Conclusion

Basic Science and Technology in Nigerian

Basic Science and Technology Education is the first part of call for those who later become inventors' scientists, engineers, doctors, lawyers, educators and so on. It is the gateway of whatever individual can achieve in life through education. National Policy on Education (FRN, 2013) sees Basic

Science and Technology Education as the key to the success or failure of the national education system.

Basic Science and Technology Education is the most cost-effective education the society can give its citizens and its goals according to National Policy on Education are heavily centered on foundation laying. In order to achieve these goals, every good methods/strategies of teaching should be used to rightly get the attention of the pupils for proper teaching and learning to take place.

The goals of Basic Science and Technology Education are to develop in pupils an inquiry mind and a scientific approach to problems and help them to develop the culture of scientific thinking and investigation.

Basic Science and Technology Education curriculum was organized and prepared in 1960 and later the federal government of Nigeria published guidelines for teaching science in primary schools (Onwu, 2010). According to Onwu, the aims of the core curriculum for Basic Science and Technology Education for pupils are to:

- * *Observe and explore the environment;*
- * *Develop basic science process skills such as observing manipulation, classifying, inferring, hypothesizing;*
- * *Explain simple natural phenomena's;*
- * *Develop scientific attitudes including curiosity, critical reflection and objectivity;*
- * *Apply the skills and knowledge gained through science in solving everyday problems in the environment;*
- * *Develop self-confidence and self-reliance through problem solving activities in science (Onwu, 2010).*

In Nigeria, science teaching has its roots in the primary schools and it was introduced by the missionaries at Badagry who came to preach the gospel in making education available to Nigerian citizens, the missionary's major interest was to train preachers who would assist the church in spreading the gospel in Nigeria.

The African Primary Science Programme (APSP) first provided framework for organizing the curriculum for primary science, later Science Teachers Association of Nigeria (STAN) as a body promoted primary science as well as devoting some of its annual conferences to the issues of Basic Science and Technology Education in Nigeria.

Primary Science Teacher Education in Nigeria

The primary science teachers are responsible for preparing and making children to develop interest in science and also to overcome any negative influence toward their learning of science. In addition to having a need for science content knowledge, teachers need to feel that they have the ability to translate the content to their pupils (Carrier, 2009).

The science teacher must strive to develop teaching materials that will be motivated to catch the interest of the pupils when they are learning. The teacher should developed the cognitive, psychomotor and affective domains abilities of the child, because education is supposed to affect all round development in the child (Ewesor & Itie, 2015).

In order to teach basic science and technology effectively, the teacher must:

- * *Must involve pupils in the design and conduct of activities during science*

lessons;

- * *Be friendly and caring;*
- * *Ask questions which stimulate reaction from all members of the class;*
- * *Allow the pupils to be involved in most of the talking and other activities during class sessions;*
- * *Have a good mastery of the basic science and technology content;*
- * *Carefully prepare all his lessons ahead of time so as to identify and collect materials required and work towards clearly set objectives;*
- * *Be prepared to meet the needs of both the less-able and the most intelligent pupils in the class, always showing a personal concern for their efforts;*
- * *Present lessons in such a way that the pupils are encouraged to be curious or inquisitive and to find out or discover things for themselves;*
- * *Display enthusiasm for discovery, so as to able to engage the children in every subject of interest;*
- * *Develop the habit of observation and accurate reporting through exercise in length estimating, number work, shape, colour and other general practices;*
- * *Motivate pupils to seek further knowledge through experimentation, and*
- * *Practice hard at drawing correct conclusions from evidence (STAN 1988).*

Factors Influencing Pupil's Performance in Basic Science and Technology Education in Nigeria

1. **Quality of teaching:** According to Okafor (2007) quality of teaching lies at the teacher's capacity to transform written knowledge into forms that are pedagogically powerful and yet

adaptive to the pupil's abilities and backgrounds. Also, Abdulahi (2007) and Ogbeba (2010) observed that most teachers' emphasis theory rather than practice ways of science and most of the teachers lack adequate knowledge of subject matter and the competence to deliver. Moreso, the researchers stressed that the teaching of science has been reduced to a descriptive methods through the use of chalk and talk method and very little inquiry methods. Omoifo (2012) said that our science lessons are yet to be structured, guided and students directed because there are also few traditional hands-on (practical) classes and few classrooms with demonstrations and when in use, it is often teacher demonstration which makes pupils passive.

2. **Quality of teachers:** A science teacher is anyone who teaches science. The teacher's academic qualifications and knowledge of subject matters, skills, competencies and the commitment of teacher have a great impact on the teaching-learning process. Okureme (2003) stated that an effective science teacher should be a master of his/her subject, as well as grounded in methods of teaching and be able to relate the science concepts to real life experience. The teacher knowledge base for effective science teaching is very important in that they are to help the pupils completely understand the content and underlying philosophy of science.
3. **Academic qualification:** Academic qualification is very important quality of a teacher (Dahar, Dahar,

DAhar and Faize, 2011) stated five indication of teachers quality, which academic qualification is one of them and the others are: professional qualification, in-service refresher course and trainings, teacher experience and teacher salary. Melnar (2002) reported some studies in which students taught by certified teachers consistently outscored those taught by uncertified teachers. He posited that a poorly trained teacher will likely produce a poor engineer, doctor, fellow teacher.

4. **Teaching experience:** Teaching experience is time spent by a teacher in the teaching profession. So, teachers improve in their teaching skills and methodologies as years passes by.
5. **Professional Qualification:** National Policy on Education (2004) stated that the qualification for entry into the teaching profession shall be the Nigeria Certificate in Education (NCE). This is in with Omayuli and Omayuli (2009) that most of the science teachers are not professionally trained, whereby engineers are recruited to teach mathematics, chemistry & physics rather than specialists that are trained to teach the subjects.
6. **Teacher salary:** Teachers' salary is very important because if a teacher gets suitable salary that covers the basic living costs, the teacher may be able to live a comfortable life. It will also motivate the teacher in their teaching-learning practice.

Ways for Improving Basic Science and Technology Education in Nigeria

They are many areas that need to be improved in basic science and technology education in Nigeria. These include:

1. **Improving teacher quality:** International evidence strongly support the improving teacher quality by teacher training (Akumi, 2001) improving the quality of teachers makes it possible to make them have effective teaching learning of primary science. Also, the right caliber of teachers should be recruited and not to make teaching profession a dumping ground for those who cannot get employment elsewhere.
2. **Improving in-service training:** The competence effectiveness and efficiency of a teacher is in function of his/her training. This is the reason why training and retraining of primary science teachers should be given greater emphasis. Moreover, such training should take cognizance of effective teaching methods, concept of the nature of science content for effective science training. when teachers are properly trained, it is expected that they will be effective in their teaching process.
3. **Improvement of instructional materials and resources:** For effective teaching and learning of primary science to take place, adequate instructional materials and resources are to be adequate. such as charts, textbooks, classrooms, laboratories, models e.t.c

4. **Quality of teaching ways:** Educators have suggested that special attention be given to teaching about science, i . e . methods of science and developing an understanding of the nature of science. Akinyemi (2006) said that if we want performance of pupils in science to improve, they should be encouraged to use appropriate thinking strategies through innovative intervention by teachers. So, inquiry methods of teaching should be used because it will deepen and develop better understanding of the nature of science.

CONCLUSION

Basic science and technology education is the most cost-effective achievement the society can give to its citizens i.e. boys and girls and its goals are centered on foundation laying according to national policy on education in order to achieve this goals, it is very important to make use of effective strategies of teaching basic science and technology to the young ones/pupils in order for proper teaching and learning to take place in primary schools. Because basic science and technology education is the first part of call for pupils/ students who later become scientists, engineers, doctors, educations e.t.c.

The researchers attempted to highlight basic science and technology education, primary science teacher education, factors that influence pupils' performance in basic science and technology education and ways for improving basic science and technology education in Nigeria . Also , recommendations were given by the researchers such as sufficient supply of educational equipment to teach basic science and technology, sufficient qualified teachers

in all the primary schools, allocation of more time for the teaching of basic science and technology education. This will facilitate the teaching and learning of basic science and technology education in primary schools in Nigeria.

RECOMMENDATIONS

The following recommendations are made:

- i. There should be effective implementation of objective of basic science and technology education.
- ii. There should be sufficient qualified teachers in all the primary schools.
- iii. There should be sufficient supply of educational equipment to teach science.
- iv. There should be adequate funding by the major stakeholders.
- v. For effective delivery of basic science and technology education, textbooks authors should be encouraged to write textual materials since primary science is a fairly new subject area in the primary school curriculum.
- vi. Allocation of more times for the teaching of basic science and technology education, since it is a practical oriented subject, it therefore needs more time than the normal 30-35 minutes lesson period to be properly executed.
- vii. Stakeholders in science education should provide sufficient funds to build more classrooms, laboratories, provide equipment and resources for the teaching and learning of basic science and technology education.
- viii. Libraries should be provided with modern quality science textbooks for teachers and pupils.

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