



Administration of Science Programme in Nigerian Public Secondary Schools: Problems and way Forward

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Abstract: Secondary school is key to the development of the country because it is the linkage between the basic education and the higher education. Science programme offered in the secondary schools are critical to the social, economic and technological advancement. It is unfortunate that as important as science programme to the development of the nation that the programme is faced with many challenges. This paper examined the problems facing administration of science programme in the secondary schools in Nigeria. Inadequate funding, shortage of science teachers, poor supervision, inadequate instructional materials, inadequate infrastructural facilities, outdated curriculum and poor motivation were identified as the problems facing the administration of science programme in the secondary schools in Nigeria. In order to address these problems, the paper suggested to the government among other thing to increase the funding of secondary school education and that more allocation should be given to the administration of science programme in the secondary schools in Nigeria.

Key words: Secondary School, Science Education, Problems

1. Introduction

Public Secondary schools are educational institutions established by law to provide public services such as post-basic education for the general public. These schools are educational institutions owned by the government and established with the purpose of providing education after basic schools for the public (Ajemba, Ahmed, Ogunode, Olatunde-Aiyedun, 2021).

Public secondary schools in Nigeria offered varieties of programme to realize the general objective of education in the country. The New secondary schools curriculum according to Legit (2018) includes English studies (compulsory subject); Mathematics (compulsory subject); Civic Education (compulsory subject); Trade/Entrepreneurship Studies (compulsory subject, the student can choose one of 34 subjects); Humanities (Every student can choose 2, 3, 4 or 5 subjects depending on his or her potential); Science & Mathematics (Every student can choose 2, 3, 4 or 5 subjects); Technology (Every student can choose 2, 3, 4 or 5 subjects); Business Studies (Senior) (Every student can choose 2, 3, 4 or 5 subjects).

The main idea of a new curriculum is to provide more practical experience for students. Science programme in the New Curriculum include

Mathematics, Physics, Chemistry, Biology, Further Mathematics, Technology, Technical Drawing etc. Science programs in Nigerian schools are given maximum attention due to their significant contribution to the technological development of the country.

The poor performance of students on science programme and the attitudes of students towards the studies of science programme have been concern to stakeholders in education in Nigeria. Research has it that the performance of students in both external and internal exams have not been encouraging in the Nigerian secondary schools. The administration of science programme is faced with many problems. It is imperative to examine the problems facing the administration of science programme in the Nigerian public secondary schools.

2. Concept of Science Programme

The science programs include Mathematics, Physics, Chemistry, Biology, Further Mathematics, Technology, Technical Drawing etc. Science programs in Nigerian schools are given maximum attention due to their significant contribution to the technological development of the country. (Adolphus, 2019) opines that in Nigeria, science is taught and learnt as Basic Science and Technology from primary to junior secondary levels, and as biology, chemistry and physics for three years in the senior secondary (SS) classes (SS1-3). The government recognizes the importance of science to the development of its young citizenry as demonstrated in the national policy and other curricula texts, “in recognition of the fundamental importance and cost-intensive nature of science, technology and trade/entrepreneurship, Government shall provide adequate funds for science, technology and trade/entrepreneurship education” (FME 2013). Ogunode, & Aiyedun (2020) Science programme is defined as programmes that are mathematical oriented. Science programme is also viewed as programme that are involved in practicals. Science programme is the programme that is very important

to the social economic and technological development of a nation. The place of science programmes in the development of the social. Economic and technological development cannot be underestimate.

Ogunode & Jegede (2019) and Adolphus, (2019) submits that the purposes of science education in Nigeria are generally drawn from the national goals and philosophy of education as contained in the National Policy on Education (NPE). For instance, the goals of education in Nigeria include the Development of the individual into a morally sound, patriotic, and effective citizen; ...and social abilities and competencies as equipment for the individual to live in and contribute to the development of society (FRN 2013, p. 2). According to the national policy text, the goals of science education shall be to:

- i Cultivate inquiring, knowing and rational mind for the conduct of a good life and democracy
- ii Produce scientist for national development
- iii Service studies in technology and the cause of technological development; and
- iv Provide knowledge and understanding of the complexity of the physical world, the forms, and the conduct of life (Adolphus, 2019) cited (FRN 2004, p. 29).

Ogunode & Jegede (2019) cited Ajaja (2007) who identified the objectives of teaching science to include:- Knowledge of science academic discipline; to acquire the skills of scientific method; having clear explanations for societal issues through increasing interest science literacy and societal goals; for personal needs and for career awareness. The realization of the objective of science programme in the secondary schools depends on the quality and quantities of professional teachers available and engaged to teach the various programmes at the secondary schools levels.

Nwachukwu, (2008) observed that achievement in science education will go a long way in reducing illiteracy and poverty, which are impediments to

national development. Akpan (2008) opined that science contributes to the quality of life in such areas as health, nutrition, agriculture, transportation, material and energy production, and industrial development. He further stated that it ensures that the air we breathe, and the water we drink are life sustaining, and not vectors of disease and decay. He finally concluded that if science and technology form the bedrock of sustainable development, that this revelation should constitute a beacon to our nation, so that science education must be given prominence in Nigerian schools. Ogunode & Jegede (2019) cited Orukotan (2007) who submits that science education has introduced a lot of changes in our world today and it will continue to do so in the future.

Ogunode & Jegede (2019); Sambo et al., (2014) and Mulemwa (2002) points out that, the fast-changing applications of science and technology and the global reliance on its processes and products in all areas of human endeavor have made them invaluable that any society or country without them risks being alienated from the global village. This means that for an individual to be well-grounded in science, and competent enough to face the challenges of life in his society, he or she must have gone through a science program that is well planned, assessed and implemented.

3. Problems Militating Against Science Education Administration in Nigeria

The following factors will be discussed as problems facing the administration of science programme in Nigerian public secondary schools: Inadequate funding, shortage of science teachers, poor supervision, inadequate instructional facilities, inadequate infrastructural facilities outdated curriculum and poor motivation,

3.1 Inadequate funding

Inadequate funding is a major problem hindering the development of science programme in Nigerian Secondary schools. Inadequate funding according to Ajemba, Ahmed, Ogunode, Olatunde-Aiyedun, (2021) is a very big problem facing the

administration of science programme in Nigerian educational institutions. Funds released for the implementation of science programme in public secondary schools are not adequate to implement the programme. Many head of department of sciences programme cannot access funds from the school administrators to execute their programme. Ahmed, Emeka & Ogunode (2021) submitted that inadequate funding is a major problem responsible for poor development of science education. Science education is very expensive and cost effective. Ezechi and Ogbu, (2017) posits that funding science programmes and science related research has been a major problem facing technological growth and self-reliance in Nigeria. Government do not adequately fund science and science related programmes and research. In addition to this, the little fund provided relapse and are embezzled by top officials in charge of its implementation.

3.2 Shortage of Science Teachers

Shortage of science teachers is another problem hindering effective administration of Science programme in Nigerian secondary schools. Ezechi and Ogbu, (2017) and Onucha, (2002) posits that teachers are the pivot on which educational process hang. They can influence the teaching/learning outcomes either positively or negatively because they determine the quality of instructional delivery and also influence the quality of Education when it comes to implementation of the curriculum and educational policies. Teachers are to be considered when addressing issues such as quality assurance, qualitative delivery (teaching), quality context and quality learning outcomes. It is unfortunate that science teachers are not adequate in many secondary schools in Nigeria. Onucha, 2002) observes that there is inadequate teacher compensation and professional development to attract, prepare and retain high quality and qualified teachers. Insufficient number of science and technology teachers taking active role in the preparation of the programmes.

3.3 Poor Supervision

Poor supervision of science programme is a very big programme affecting the teaching and learning of science programme in Nigeria. Supervision is meant to improve the professional skills and knowledge of the science teachers. Ineffective supervision of science teachers is another big problem facing the science teachers teaching in public secondary schools. Supervisors are professionals employed to help the teachers to grow professionally. Ogunode, Olatunde-Aiyedun and Akin-Ibidiran (2021) observed that the basic function of the inspectorate is to maintain effective instruction in schools. But due to the acute shortage of properly trained personnel in this field, effective supervision has been unavailable, thereby promoting nonchalant attitude among science teachers. It is surprising that many science teachers are not regularly supervised due to shortage of science supervisors, insecurity, lack of transportation, corruption and poor funding of supervision.

3.4 Inadequate Instructional Material

Inadequate instructional materials is another big problem facing the teaching and learning of science programme in Nigerian secondary schools. Instructional materials are essential to the implementation of science programme in the school system. When properly used, it makes teaching and learning simple. Opara and David (2014) cited Akubue (1993) who posits that with the use of instructional materials, the teacher will be able to give students the chance to learn through their senses of hearing, smelling, tasting, seeing and feeling. Stressing the need for instructional materials, Mkpa (1989) submits that children at the junior secondary school level are often young learners who require to be stimulated to learn through a variety of instructional materials. It is unfortunate that many science teachers do not have instructional materials to teach. Ogunmade, (2006) observes that due to the fact that majority of schools lack the essential resources for imparting the knowledge of science

concepts to students, many students learn little science, learning tends to be by rote and many students find science not interesting and boring. Ogunmade (2006) stated that “Majority of students do not have textbooks and most of the schools do not have libraries and where they have one, the textbooks in the libraries are outdated. On the part of the schools, Opara and David (2014) did a study and discovered that most of the instructional materials are not available for teaching basic science in the primary school sampled for the study. The instructional materials not available were; flannel board, magnetic board, flow charts, flip charts, firm strips, slides, projector, radio set, models, tape recorders, posters, television, computer and video,. Most of the instructional materials were not utilized for teaching basic science in primary schools in Nsit Atai Local Government Area. These items not utilized were: flannel board, magnetic board flow charts, flip charts firm strips, slides, projector, radio set, models, tape recorder. Posters, television, computer, video etc. Items that were utilized were: Textbook, chalkboard, picture, diagrams, wall charts and specimen. Non availability of instructional materials, lack of funds, electricity and no encouragement by government constitutes major constraints to teachers' use of instructional material.

3.5 Inadequate Infrastructural Facilities

Inadequate infrastructural facilities is a major challenge hindering effective teaching and learning of Science programme in Nigerian secondary schools. Ogunde & Agor (2020) sees school Infrastructural facilities as social capital within the school environment. They include school buildings/complexes such as classrooms, tables, exam hall, chairs, auditoria, desks, staff offices, seminar/conference/board rooms, laboratories, workshops, studios, farms, gymnasia, central libraries, specialized/professional libraries, faculty libraries, departmental libraries, etc., Institute/centers' specialized facilities e.g. ICT infrastructure, special laboratories, conference facilities, etc., and Boards e.g. interactive, magnetic,

screen and chalk, etc., ICT that is computer laboratories and services, network connectivity, multi-media system, public address system, slide, and video projectors, and Ergonomics furnishing in laboratories, libraries, and lecture rooms/ theaters, moot courts, and studios, etc. They further submits that the importance of school infrastructural facilities in the realization of educational goals cannot be underestimated. School facilities aid the delivery of the teaching and learning process in the schools. The school offices provide a conducive working environment for teachers, the classrooms help the learners to learn while the school fence protects students, the teachers, and school administrators from criminals. The school plant protects the entire human resources from the sun, rain, heat cold, and snow. It is sad to know that as important as these facilities to to the realization of education programme that many schools basic schools do not have them. Ezechi and Ogbu, (2017) submits that majority of Nigerian schools lack laboratory spaces, those who have spaces lack equipments and necessary infrastructure for proper teaching and learning of science. Science therefore is not miracle where something happen out of nothing while Omorogbe, & Ewansiha, (2013) who cited Audu and Oghogho, (2006) who observes that the teacher student interactions in many science classrooms are not healthy because of lack of adequate resources. In most of our schools, there are no facilities for the teachers to demonstrate phenomena, let alone allow the students to have opportunities for finding out things for themselves. Omorogbe, & Ewansiha, (2013) and Omoifo, (2012) remarks that the situation in many science classrooms in Nigeria is nothing to write home about. In many schools there are no laboratories. Some schools merely have empty rooms labeled laboratories. Students rarely have hands-on, minds-on experiences. Few days to science practical examinations, most schools acquire science equipments for teacher demonstration to students. This cannot make for effective learning and eventually results in poor achievement. It is also observed that some science school administrators,

science teachers and science students have not fully embrace the use of ICT for school administration, implementation of teaching programme and implementation of learning programme due to inadequate ICT facilities in their respective schools across the country.

3.6 Outdated Curriculum

Another challenge facing the development of science programme in Nigerian schools is the problem of outdated curriculum. Science curriculum are ought to be reviewed every ten years but to poor implementation of policies, unstable government, corruption and poor funding, the curriculum are not reviewed when they are supposed to be review. Adikwu (2008) stated that the problem with science education is a lack of good curriculum, that curriculum must be developed, and that there should be a readily-available inquirybased curriculum. He went further to observe that one reason to develop new curriculum is to introduce modern scientific techniques derived from current laboratory experiments. He also advised that teachers should always be trained on any new curriculum Ezechi and Ogbu, (2017) Observes that many studies show that students perceive school science as lacking relevance. It is often described as dull, authoritarian, abstract and theoretical. The curriculum is often overcrowded with unfamiliar concepts and law. The curriculum is intensive with insufficient time allocation for Science Education. It leaves little room for enjoyment, curiosity and searching for meaning. It often lacks a cultural, social and historical dimension and it seldom treats the contemporary issues. Adeyegbe (2004) noted that some of the contents of science curriculum are of little relevance to the general education of the intended level and cannot even be covered within the time limit. Other researchers also held the same view based on investigations. They therefore concluded that if the objectives of science education are to be achieved for sustainable development, that curriculum planners should review and update the curriculum.

3.7 Poor Motivation

Poor motivation of teachers is affecting the development of science programme. Teachers' motivation is key to the realization of science objective and programme. It is only a motivated teachers that will teach well. Ezechi and Ogbu (2017) submits that teacher salary is very important as a predictor of students' achievement because it has a capacity to uplift the other aspects of teacher quality. If a teacher gets a suitable salary that covers the basic living costs, he may be able to live comfortably and thus be more effective as he is motivated to use his abilities, competencies and skills. Poor remuneration affects the morale of teachers, distracts and hinders their commitment and effectiveness. Ezechi (2016) did a study and found out that science teachers in Nigeria are not motivated. Science teachers are faced with poor condition of service, their salaries are not paid regularly, they are not given opportunities for developmental programmes and were not granted funds for creativity. All these have affected teachers' performance in contributing towards learning.

Recommendation

- a. The government should increase the funding of secondary school education. More allocation should be given to the science programme.
- b. More science teachers should be employed and deploy to public secondary schools where their services are needed.
- c. The government should improve the supervision of secondary schools and ensure more science inclined supervisors are employ in the various agencies and commissions handling supervision in the country.
- d. The government should provide adequate science instructional materials in all the public secondary schools.
- e. The government should provide adequate infrastructural facilities in all public secondary schools. Facilities like classrooms, laboratories,

libraries, stable internet services, electricity, water etc.

- f. The government should ensure science curriculum are reviewed constantly to expose the learners to new innovation in sciences and practical works.
- g. The government should increase the salaries of science teachers and provide conducive working environment for them.

Conclusion

The science programme is very important to the social, economic and technological development of a Nation. In Nigeria science programme have not been fully developed due to many problems. This paper examined the problems facing administration of science programme in the secondary schools in Nigeria. Inadequate funding, shortage of science teachers, poor supervision, inadequate instructional materials, inadequate infrastructural facilities, outdated curriculum and poor motivation were identified as the problems facing the administration of science programme in the secondary schools in Nigeria. In order to address these problems, the paper suggested to the government among other things to increase the funding of secondary school education and that more allocation should be given to the administration of science programme in the secondary schools in Nigeria.

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