Administration of Chemistry Programme in Nigerian Higher Institutions: Problems and way Forward

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Abstract: Chemistry programme is one of the programme offered in the Nigerian higher institutions. It is a programme that is science inclined and vital to the social economic and technological advancement of Nigeria. The article discussed the challenges facing the administration of Chemistry programme in the Nigerian higher institutions. Secondary data was used to support the points raised in the article. The secondary data were sourced from printed material and online publication by recognized institutions and individual author. The article identified the following: inadequate funding of chemistry programme, shortage of chemistry lecturers, inadequate infrastructural facilities, brain-drain, strike actions and poor staff training as the challenges facing the administration of chemistry programme in the Nigerian higher institutions. To solve these challenges, this article recommends the following: government should increase the funding of chemistry programme in higher institutions, provide adequate infrastructural facilities, ensure stable academic programme, employment of more chemistry lecturers and motivation of lecturers to prevent brain-drain.

Keywords: Administration, Challenges, Chemistry Programme, Higher Education

1. Introduction

Higher education is the post-secondary school education. It is an organized education for the production of manpower. Higher education is the education that deals with teaching, researching and providing community services. Higher education is the education that prepares the people for career life. NOUN (2009) defines higher education as the post-secondary education (or study beyond the level of post-secondary education) where a degree, diploma, or certificate is awarded at the end of study. Higher education builds on the level of competence, knowledge and skills normally acquired in secondary education. The second African Union (AU) Meeting of Experts describes higher education as including all post-secondary education, including universities, polytechnics and technical colleges, teachers training institutions, institute for medical training and agriculture (and other fields), distance education centers, and research centers and institutes, with the possibility of expanding to include other forms of post-secondary education. The National Policy on Education (FGN, 2004), defines higher Education as the Post-Secondary Section of the National education system, which is given of Universities, Polytechnics and Colleges of Technology including courses as are given by the Colleges of Education, Advanced Teachers Training colleges, Correspondence Colleges and such Institutions as may be allied to them. The objectives of higher education include: to aid the development of the country; to inculcate the right skills and knowledge on the Nigerian youths. The objectives of Higher
education in Nigeria according to National Policy on Education (2013) include: the acquisition, development and inculcation of the proper value orientation for the survival of the individual and societies; the development of the intellectual capacities of individuals to understand and appreciate environment; the acquisition of both physical and intellectual skills which will enable individuals to develop into useful members of the community; the acquisition of an overview of the local and external environments (FGN, 2004). The National Policy on Education again stated that higher educational institutions should pursue these goals through: Teaching; Research; the dissemination of existing and new information; the pursuit of service to the community; and by being a store-house knowledge (FGN, 2004). The higher education of Nigeria is the largest in Africa with millions of students. The Nigerian higher education include: universities, polytechnics, and colleges offering programme in teacher education and agriculture. Higher education is a community of scholars, free to pursue knowledge without undue interference from anywhere.

The Nigerian higher education is under the supervision of National Universities Commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE). The National Universities Commission is in charge of the administration and management of all universities in Nigeria. The National Board for Technical Education (NBTE) oversees the administration and supervision of all polytechnic and technic schools in Nigeria while National Commission for Colleges of Education (NCCE) is in charge of the administration and supervision of all Colleges of education in Nigeria. According to Noun (2009) these commissions are responsible for policy decisions affecting institutions under their supervision, maintenance of standards through a system of periodic accreditation of courses, distribution and monitoring of government funding, appointment of members of governing councils, and the day-to-day running of the institutions. The National University Commission among other functions is saddled with the responsible of programme development and accreditation for all the universities in Nigeria.

The National University Commission in 2007 drafted a document named Bench Mark minimum academic standard. The National Universities commission BMAS documents were produced for the under-listed academic disciplines: i) Administration; Management and Management Technology; ii) Agriculture, Forestry, Fisheries and Home Economics; iii) Arts; iv) Basic Medical and Health Science v) Education; vi) Engineering and Technology; vii) Environmental Sciences; viii) Law; ix) Pharmaceutical Sciences x) Medicine and Dentistry; xi) Science; xii) Social Sciences; xii) Veterinary Medicine.

Science programme is one of the programme designed and approved for universities in Nigeria to offers. The science programme include chemistry, Biology, Physics etc. The chemistry programme is one of the most offered programme in the Nigerian higher institutions because of its unique contribution to the social, economic and technology advancement in the country. The chemistry programme like every other programme in the Nigerian higher institutions is facing many administrative problems. This article is bent to discuss the various problems facing the administration of chemistry programme in the Nigerian higher institutions.

2. CONCEPT OF CHEMISTRY PROGRAMME

Chemistry programme is the science that deals with the properties, composition, and structure of substances (defined as elements and compounds), the transformations they undergo, and the energy that is released or absorbed during these processes. Chemistry, therefore, is concerned not with the subatomic domain but with the properties of atoms and the laws governing their combinations and how the knowledge of these properties can be used to achieve specific purposes.

Chemistry also is concerned with the utilization of natural substances and the creation of artificial ones. Cooking, fermentation, glass making, and metallurgy are all chemical processes that date from the beginnings of civilization. Today, vinyl, Teflon, liquid crystals, semiconductors, and superconductors represent the fruits of
chemical technology. The 20th century saw dramatic advances in the comprehension of the marvelous and complex chemistry of living organisms, and a molecular interpretation of health and disease holds great promise. Modern chemistry, aided by increasingly sophisticated instruments, studies materials as small as single atoms and as large and complex as DNA (deoxyribonucleic acid), which contains millions of atoms. New substances can even be designed to bear desired characteristics and then synthesized (Melvyn, 2018). The scope of chemistry include analytical chemistry, inorganic chemistry, Organic chemistry, Medicinal Chemistry, food chemistry, environmental chemistry, Petroleum Chemistry, Biochemistry, Polymer chemistry, Physical chemistry and industrial chemistry. Chemistry is the study of matter and its interactions with other matter and energy. According to Jon (2019) Chemistry is a very important branch of science. Chemistry is the study of science that deals with constituents of matter like atoms, molecules, ions, etc.; and its properties, structure, behavior, and interactions among them. Since everything is made up of atoms and molecules, we can see the chemistry all around us. Today, chemistry has grown into a very diverse field. There is a significant overlap between chemistry and other branches of science, for example, biochemistry (chemistry and biology), physical chemistry (chemistry and physics), medicinal chemistry (medicine and chemistry), chemical engineering (chemistry and engineering).

According to Thoungtco (2020), the important of Chemistry include the following:

a) Cooking: Chemistry explains how food changes as you cook it, how it rots, how to preserve food, how your body uses the food you eat, and how ingredients interact to make food.

b) Cleaning: Part of the importance of chemistry is it explains how cleaning works. You use chemistry to help decide what cleaner is best for dishes, laundry, yourself, and your home. You use chemistry when you use bleaches and disinfectants, even ordinary soap and water. How do they work? That's chemistry.

c) Medicine: You need to understand basic chemistry so you can understand how vitamins, supplements, and drugs can help or harm you. Part of the importance of chemistry lies in developing and testing new medical treatments and medicines.

d) Environmental Issues: Chemistry is at the heart of environmental issues. What makes one chemical a nutrient and another chemical a pollutant? How can you clean up the environment?

According to Chemistrygod (2017), Chemistry also helps in the following:

1. **Food**
   
   Food we eat is nothing but a mixture of various chemicals. From its production to cooking, chemistry plays a very important role. Consider tomatoes, they are produced in farms. Fertilizers and crop-protection chemicals like insecticides, pesticides etc., are used in farming to increase the production of tomatoes. Then ripped tomatoes are brought to food processing industries, where they are converted into a finished product like ketchup. After various stages of food processing different ingredients like flavouring agent, chemical additives are added based on chemistry. Finally, food products are passed on to Food safety and standards authority like the FDA in the US. This authority analyses the content of food by chemical tests and approves the food for consumer consumption

2. **Detergents and soaps**

   We use detergents and soaps for cleaning, bathing, washing etc. They are a mixture of chemicals with cleaning properties. They are manufactured in chemical industries through saponification of fatty acids. Common chemicals used in soap industries are sodium hydroxide, potassium hydroxide, Lauric acid, Palmitic acid, Oleic acid etc.

3. **Medicine**

   Drugs are made of chemicals which are produced in pharmaceutical industries. The knowledge of chemistry is vital for pharmacists and doctors. Have you ever glance at the label...
of a medicine? If yes, then you have observed various chemical ingredients listed on the label. It is based on these ingredients medical practitioners decide a suitable pill for patients. The chemical nature of drugs also helps doctors to determine how drugs are going to interact with a patient’s body. For example, antibiotics like ciprofloxacin and levofloxacin are dependent on renal functions. So, the doctor who prescribed such pills needs to be prudent for kidney patients. Chemicals are also used in sterilization, disinfection to kill microbes. Chemistry also helps pharmacists to understand biochemical mechanisms in a body.

4. Textiles
Raw materials used in textile industries are wool, silk, jute, cotton, flax, glass fibre, polyester, acrylic, nylon etc. These materials are transformed into usable finished products like clothes, bags, carpets, furniture, towels, flags, nets, balloons etc. During this transformation, raw materials are subjected to numerous chemical processes. Pre-treatment chemicals like cleaning and smoothing reagents are added to clean to fabric and smoothen it. Dyeing involves the application of fabric to dyes and pigments. Other chemical processes are bleaching, permanent press, desizing, scouring, printing, finishing. Chemists work to improve the quality of a product or involve in the development of new material.

5. Building & construction
Chemistry governs the performance of buildings. Building materials play a significant role in improving the performance of buildings. Coating chemicals like acrylics, silicones, urethanes are responsible for reflective roofs, which decreases the heat transfer. Polymers like polyurethane reduce the weight of buildings, which reduces the civil cost. Insulators like polyurethane foams, polystyrene foams decrease the heat leaks or in other words, improves the energy efficiency of the building. Polyethylene is a lightweight, flexible polymer which is used to create building piping. Polyethylene piping is easily curved and deformed to desired shapes. Vinyl tiles give shining, resilient flooring. Fillers like polystyrene beads lighten concrete without affecting the strength of concrete.

6. Paper and pulp industries
Over the last few decades, paper and pulp industries are responsible for negative impacts on the environment. Paper and pulp industries are facing great challenges to meet environmental norms. Pollutants released from these industries are sulphur oxides, nitrogen oxides, carbon oxides, heavy metals (lead, cadmium, mercury), dioxins, furans, chlorates, chelating agents etc. To overcome this, industries are more focused on green chemistry to mitigate some of the environmental challenges. Green chemistry enables the researchers to design safer chemicals and products, to use renewable raw materials, converse the energy, to develop better catalyst etc.

7. Fuel
Petrol (PMS), diesel (AGO), Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), kerosene(DPK), Oils, hydrogen etc are all fuel produced from complex refining processes. Today’s transportation (land, water, and air) is possible because of these fuels. These fuels are extracted from cruel oil found beneath the earth or oceans. Here, petrochemistry plays an important role; it is a branch of chemistry which deals with the study of petrochemical processes.

8. Battery
Batteries are used in cars, cell phones, laptops, watches, flashlights, and many other power storage applications. Batteries work based on the principle of electrochemistry. The energy inside a battery is stored in the form of chemical energy, which converts into electric energy by electrochemical reaction.
9. Environmental protection

Chemistry is the central subject in the study of environmental conservation. All those pollutants and greenhouse gases nothing but hazardous chemicals. These pollutants destroy our precious environment, degrade the ozone layer, enter our food chain, and cause tumours and so forth. All these interactions of pollutant with the environment are chemical reactions. Hence, chemistry is vital to alleviate the environment and humans from these poisons.

10. Forensic

Forensic chemistry has made jobs of police officers a lot easier. Forensic helps to identify criminals by detecting chemical evidence left behind crime scenes. Chemical techniques used by forensic investigators are spectroscopy, chromatography, X-ray diffractometry, colour tests, melting point analysis etc.

11. Nation's economy

Chemistry also contributes to the growth of a country. Chemical production increases the (Gross Domestic Product) of a nation. Chemical industries also generate employment.

12. Humans

We are a biological organism made up of various biochemicals like carbohydrates, proteins, vitamins, lipids etc. Our biological processes like digestion, respiration, cellular metabolism, reproduction, and many others are accomplished by biochemical reactions. In nutshell, we will not exist without chemistry (Chemistrygod, 2017). The importance of chemistry programme to national development in the life of any country cannot be overemphasized. This is because knowledge and skills in chemistry are very vital in the development of any society. 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 programme that is well planned, assessed and implemented.

3. CONCEPT OF ADMINISTRATION

Administration is the arrangement and application of organizational resources to implement organizational programme with the objectives of realizing the objectives of the organization. Administration is the use of human and materials resources of the institutions in a way that will lead to the actualization of the institutions’ goals. Administration involves systematic arrangement of organizational resources to the attainment of the organizational goals. Administration takes place in different institutions. One of the institutions is the educational institutions where it is tagged school administration (Ogunode, 2021). School administration is the act of using school resources to actualizing the objectives of the school. School administration is the arrangement and application of both human and materials resources of the school in the implementation of the school programme for the actualization of the school objectives. School administration deals with planning, organizing, coordinating and supervising school programme with the aims of realizing the school objectives. School administration involves effective student programme implementation, staff development, programme development, resources allocation, reduction of educational resources wastages, Supervision of instruction and evaluation of school programme (Ogunode, 2021). School administration takes two forms, the external and internal school administration. The external school administration deals with policies formulation, guideline implementation plans, resources allocation, accreditation of programme in schools, supervision and monitoring, ensuring quality control and registration of private educational institutions. The external administration is in the hands of federal Ministry of Education for federal school, States Ministries of education for state schools and other commissions and agencies established by law to handle the administration and
supervision of educational institutions. The internal school administration is the administration of the school by the school administrators. Internal administration is in the hands of school heads or administrators with other team members in the school. The function of the internal school administration include: to ensure the school objectives are achieve, to ensure implementation of the school programme, to coordinate the teachers and students for effectiveness and efficient in the school, to ensure supervision of instruction, to allocate funds, to plan, organize and evaluate the school programme (Ogunode, 2021).

Programme administration is the use of programme resources to achieve the aims and objectives of the programme. Programme administration is the process of using the human and materials resources of the programme for the implementation of the programme with the objectives of realizing the general goals of the programme. The objective of programme administration include: to effectively allocate limited resources for the realization of the programme, to plan for the implementation of the programme; to ensure effective organization and coordination of the programme and to ensure effective supervision of the programme.

4. PROBLEMS FACING ADMINISTRATION OF CHEMISTRY PROGRAMME IN NIGERIAN HIGHER INSTITUTIONS

The article identified the following: inadequate funding of chemistry programme, shortage of chemistry lecturers, inadequate infrastructural facilities, brain-drain, strike actions and poor staff training as the challenges facing the administration of chemistry programme in the Nigerian higher institutions.

4.1 Inadequate Funding Of Chemistry Programme

Adequate funding is very important in the administration of school programme especially the science programme that are very expensive. Inadequate funding have been a major problem facing the administration of chemistry programme at the Nigerian higher institutions. The budgetary allocation for the administration and implementation of the programme in many higher institutions in Nigeria is not adequate to effectively realize the objectives of the chemistry programme. The funding of higher institutions in Nigeria is poor and this is affecting the administration of chemistry programme that is science inclined. Ogunode, & Aiyedun, (2020) submitted that inadequate funding is one of the major problem facing the administration of science programme in the Nigerian higher institutions. Annual budgetary allocation for the administration and management of science programme is not adequate. The administration of science programme is very cost intensive. So, more funds are needed to effectively implement science programme in higher institutions across the country. The inability of the Nigerian government to objectively accept and implement the 26% funding formula for education recommended by the UNESCO impact negatively on the performance and sustainability of higher education. Inadequate funding have been issue with the administration of higher institutions in Nigeria, Okoli, Ogbonoh & Ewor,(2016), Udida, Bassey, Udofia, & Egbona, (2009). The problem of underfunding have make it impossible for many school administrators to embark on infrastructural facilities expansion in their various institutions. Many institutions of higher learning in Nigeria were unable to build lecture halls, students’ hostels, equip laboratories and workshops and payment of staff salaries, research grants, allowances and medical bills (Romina ,2013, Ivara and Mbanefo cited in Asiyai 2005). Ebehikhalu & Dawam (2017) submitted that the abysmal state teaching and learning infrastructure in Nigerian Universities is a consequence of the financial imbroglio in the nation’s ivory tower, due to government refusal to accord the university its pride of place in terms of funding, and the high level of corruption in the management of universities’ resources. Nigerian universities have been grossly underfunded and the consequence of this has manifested in the deficiency of teaching and learning infrastructural facilities development in the universities. Many of the stakeholders in the university system in Nigeria are also responsible for the rot in the university system. Academic staff union of Universities (ASUU) has struggled to force the government to properly fund the universities, but these funds are poorly managed, embezzled and stolen. This high level of corruption is a practice
common among the universities” administrators. The corrupt practices are similar to what obtains in the civil service and in the political world. The symptoms of these corrupt practices are manifested in the dilapidated, very substandard and poorly delivered buildings and other infrastructure. Majority of the universities” administrators have seen their positions as opportunity to amass wealth, caring more on how to enhance their financial wherewithal than protecting the integrity of the university system.

4.2 Shortage of Chemistry Lecturers

Inadequate chemistry lecturers is a major problem facing the department of chemistry in almost all the Nigerian higher institutions across the country. There is shortage of chemistry lecturers and this is affecting the administration of chemistry programme. The teacher is the implementer of the curriculum. The roles of the teachers in the administration of school programme especially the chemistry programme cannot be underestimated. The teacher’s academic qualifications and knowledge of subject matter, competencies and skills, and the commitment of teacher have a great impact on the teaching learning process. A science teacher is anyone who teaches science. Science teachers in Nigeria are prepared mainly at colleges of Education and faculties of Education of different universities. Achieving the goals of science education requires qualified and highly scientifically literate teachers. Okureme (2003) posited that: An effective science teacher should be a master of his subject, as well as grounded in methods of teaching and be able to relate the science concepts to real life experience. As important as the teachers to the implementation of school programme, it is unfortunate that many higher institutions do not have adequate teachers to teach. Ogunode, & Aiyedun, (2020) submitted that another problem facing the administration of science programme in the Nigerian higher institutions is the challenge of inadequate science lecturers. The Nigerian higher institutions is facing the problems of shortage of lecturers, (Federal Ministry of Education, 2012; NEEDS, 2014)

4.3 Inadequate Infrastructural Facilities

Inadequate infrastructural facilities is a very big problem facing the administration of chemistry programme in the Nigerian higher institutions. Many department of chemistry do not have adequate infrastructural facilities to implement the chemistry programme as designed. Ogunode, & Aiyedun, (2020) observed that infrastructural facilities are very important in the administration of science programme. Infrastructural facilities are social capital that every higher institutions must have in adequate to be able to implement the science programme effectively. Infrastructural facilities to include classrooms, offices, exam halls, laboratories, tables, chairs, desks, power supply, water, good roads network within the schools etc (Ogunode 2020). Arabe et al (2013) noted that physical facilities are the compulsory components of any educational institution and research have proved that student’s performance and academic achievements are correlated with better building quality, advanced laboratories, libraries and other physical facilities.

4.4 Poor Laboratory Facilities and Libraries

The laboratory is where science students engaged in hands-on-activities (Ekanem, & Obodom, 2014, Tamire, 2003) such as observations and experiment. Ekanem, & Obodom, 2014 and Renner (2003) submitted that practical work in science assumes an important role in the development of the psychomotor domain of the taxonomy of educational objectives. The availability of science laboratory makes science lessons concrete and stimulating which helps to enhance the achievement of students in secondary schools (Ekanem, & Obodom, 2014, Farrant, 2002). Most of the laboratory furnishings are dilapidated and relevant equipment are lacking. The few available equipment are not functional and obsolete. In some cases, the laboratories double as lecture rooms. The library is not conducive for learning. It is poorly ventilated and with inadequate lighting, overcrowded and stuffy. At the main campus, there was only one central, inadequately equipped engineering workshop for eight programmes (Ebehikhalu & Dawam 2017).
4.5 Inadequate Classrooms

Accommodation problem which includes inadequate classrooms still exist till today especially in public secondary schools in urban area. A class that may contain fifty students may end up contain about hundred and twenty students. The class will be very tight in such a way that the teacher cannot go round during teaching. This creates a lot of problems for the teaching of science in schools. Ebehikhalu & Dawam (2017) observed that the inadequacy of physical facilities like universities is very glaring. Most of the science based programmes have one lecture room and one laboratory allocated to all levels of study. For example, the physics, chemistry, Biology, Mathematics etc programmes have one lecture room each for students from level one to final year. There is no programme that has a lecture theater assigned to it. The numbers of lecture rooms, laboratories and lectures offices are still grossly inadequate to meet the needs of the school. The library is still not adequate to meet the needs of the growing population of the university community. There is a significant deficit of basic learning resources which including multimedia systems, magnetic boards, computers, printers, plotter etc.

Ebehikhalu & Dawam (2017) stated that the recent reports on our universities portray a general lack of infrastructural facilities. An average public university in Nigeria lacks basic infrastructure like regular water supply, electricity, and standard accommodation for students. In many instances, the toilets that serve the students are in bad shape as many do not have running water. Lecture rooms and offices are not available and where available are in need of refurbishment. Libraries are poorly equipped and are short of modern books and equipment. Laboratory equipment are obsolete and inputs for teaching are in short supply. Roads and building on many campuses are in a state of disrepair. Poor and dilapidated infrastructures are the major factors that have led to the despicable state of the Nigerian Universities.

4.6 Brain-Drain

Brain –drain refers to mass movement of professionals from one place to another for economic benefit. Brain-drain is the migration of people especially professional from less developing countries to developed countries where they can secure a better paid employment and work in a more conducive environment. Brain-drain is one of the major problems facing the administration of chemistry programme in the Nigerian higher institutions. Many lecturers from the department of chemistry are moving out of the country to other developed countries to get a better job. Their movement is affecting the teaching and learning of chemistry because less experience lecturers are left in the different higher institutions in the country. Brain-drain is one of the major factor responsible for ineffective administration of science programme in many Nigerian higher institutions. Many academic staff that are supposed to be lecturing and mentoring the students here in Nigeria are leaving every day to abroad for a better job (Ogunode, & Aiyedun, 2020). Poor motivation, unconducive working environment, strike actions, insecurity and poor welfare packages are responsible for the massive movement of lecturers from the Nigerian higher institutions. Smah (2007), Oni (2000) and Odetunde (2004) submitted that, there was mass exodus of many brilliant lecturers to the business world and others left Nigeria for better services.

4.7 Strike Actions

Strike actions is also a big problem preventing effective administration of chemistry programme in the Nigerian higher institutions. The Nigerian higher institutions is known for continuous strike actions by the different union groups. The strike actions frustrates the implementation of academic programme. During the strike all academic activities are closed down. Reason for the strike actions include underfunding of the higher institutions, inadequate infrastructural facilities, poor implementation of agreements and poor working environment. Ogunode, & Aiyedun, (2020) noted that strike action by different union groups in the Nigerian higher institutions is another problem preventing smooth administration of science programme across the Nigerian higher institutions. Okoli et al (2016) observed that it has become a known fact that students across various universities in Nigeria are constantly faced with industrial actions embarked upon
by the Academic and Non-Academic Staff Unions of various institutions. The disagreement or lack of understanding between government and unions arising from non-implementation of agreement reached, often results in deadlock that usually disrupts academic calendar. As academic activities are suspended for a long period, the students reading abilities fell. Even the previous knowledge acquired is even forgotten by some students. This mostly turns some students into certificates seekers than knowledge seekers. Romina (2013) cited Asiyai (2005), Asiyai (2006) observed the strike actions in the higher institutions have negative impact on the academic performance of the students.

4.6 Poor Staff Training

Basil et al (2013) observed that capacity building programmes have been adjudged to be critical factors in Nigerian universities, culminating in their positions as major determinants of lecturers’ professional advancement. Apart from gaining pedagogical and content knowledge, lecturers’ participation in the programmes enhances capacity building effectiveness in universities. It transforms role performance abilities and skills of lecturers in such a way and manner that they meet and fit adequately in the challenges of their jobs. Without it, a missing gap evolves whereby universities become shadows of themselves. Capacity building programmes include workshops, seminars, conferences, ICT training and mentoring. It is sad to note that poor staff development programme in the department of chemistry is another problem facing the administration of chemistry programme in the Nigerian higher institutions. There is poor staff development programme for the staff in most department of chemistry in the country. Basil et al (2013) did a study and the study revealed that lecturers’ participation in capacity building programmes is significantly low with respect to workshops, seminars, conferences, ICT training and mentoring. There is no significant difference between male and female lecturers’ participation in capacity building programmes. It was recommended that enabling environment should be provided whereby university lecturers are encouraged to participate fully in capacity building programmes. Basil et al (2013) submitted that capacity building efforts of universities in south-south Nigeria has been hampered by institutional inadequacies, chief among which is paucity of funds. This has negatively affected institutional provisions for lecturers’ participation in conferences, seminars, workshops and ICT training. The consequence of this is low research productivity among lecturers, because these programmes play vital role in enhancing research capacity. It therefore follows that poor funding results to poor participation in capacity building programmes and to a greater extent to poor research productivity and lastly poor ranking of universities in the world.

5. WAYS FORWARD

To solve these challenges, this article recommends the following:

a. The government should increase the funding of higher education and school administrators should increase the allocation for the administration of chemistry programme.

b. The government should direct the school administrators to employ more chemistry lecturers in all the higher institutions in Nigeria.

c. The government should provide more infrastructural facilities in all the higher institutions in Nigeria.

d. Motivation of lecturers to prevent brain-drain.

e. Modern laboratories and equipment should be provided in all the schools.

f. The government should ensure that effective staff development programme are designed for higher institutions staff especially lecturers in the department of chemistries.

g. The government should provide special motivation packages for science lecturers.

h. Ensure stable academic programme.
6. CONCLUSION

Chemistry programme is one of the programme offered in the Nigerian higher institutions. It is a programme that is science inclined and vital to the social economic and technological advancement of Nigeria. The article discussed the challenges facing the administration of Chemistry programme in the Nigerian higher institutions. Secondary data was used to support the points raised in the article. The secondary data were sourced from printed material and online publication by recognized institutions and individual author. The article identified the following: inadequate funding of chemistry programme, shortage of chemistry lecturers, inadequate infrastructural facilities, brain-drain, strike actions and poor staff training as the challenges facing the administration of chemistry programme in the Nigerian higher institutions. To solve these challenges, this article recommends the following: government should increase the funding of chemistry programme in higher institutions, provide adequate infrastructural facilities, ensure stable academic programme, employment of more chemistry lecturers and motivation of lecturers to prevent brain-drain.

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