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GENERAL EDITORIAL POLICY

Aims and Scope
Sagbama Journal of Science and Technical Education (SAJOSTE) is a publication of the School of Science and Technical Education of Isaac Jasper Boro College of Education, Sagbama, Bayelsa State. It is a peer review academic journal committed to the publication of high quality research papers with emphasis on all areas of Science and Technical Education.

The Sagbama Journal of Science and Technical Education (SAJOSTE) is meant to encourage the conduct of research in the physical sciences and technical education geared towards the advancement of technical knowledge. The articles in the journal are original works of contributors and are written in scholarly acceptable language and focused on issues and challenges confronting humanity and society in the emerging world system. The Journal is published bi-annually, June and December.

This journal is an international journal and scope is not confined by the boundary of any country or region.

The Journal welcomes contributions from a wide range of disciplines, especially as they relate to Science and Technical Education, including: Biology, Chemistry, Physics, Mathematics, Integrated Science, Physical Education, Fine and Applied Arts, Engineering, Bio-Chemistry, Geology, Zoology, Technical Drawing, etc.

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Implementation Plan of the Journal

1. **Frequency of Publication:** Sagbama Journal of Science and Technical Education (SAJOSTE) is a bi-annual journal, June and December with two (2) issues published annually. A minimum of five (5) peer reviewed articles will be accepted and published in each of the issues.

2. **Manuscript Submission:** The journal will call for submission of scholarly researched papers from contributors. A period of four weeks will be allowed for submission of articles from scholars. However, if at the close of the four weeks, the submitted articles do not make up the required number, a two weeks' extension window will be allowed.
   All intending authors should visit the Journal portal/website address https://ijbcoejournals.com/sajoste and follow the guidelines for submission

3. **Review Period:** All researched articles will be subjected to open peer review. This period is expected to last for two weeks. All reviewed articles will be returned to the correspondent author(s) for appropriate corrections within two weeks. Only articles that meets the SAJOSTE standard that will be considered for publication. The decision for publication of articles in SAJOSTE will be collectively taken by the Editorial Board.

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FOREWORD

Welcome to the first issue of the Sagbama Journal of Science and Technical Education (SAJOSTE). SAJOSTE is a publication of Issac Jasper Boro College of Education, Sagbama, Bayelsa State. The journal is supported financially by TETFund. It is a peer reviewed, multidisciplinary journal in the fields of science and technical education. SAJOSTE aims to provide cross-disciplinary and international forum for researchers to showcase their high quality research studies. We intend to establish SAJOSTE as a flagship journal in science and technical education with a focus on innovative research works in engineering technology, building technology, Chemistry, Physics, Medical and Biological Sciences, Agricultural Science and other academic fields in technical education. We seek to present cutting-edge innovations in the various research areas in science and technical education and seek to maintain the highest standard of excellent.

All manuscripts considered for publication in this issue, volume 1; Issue 1& 2 were subjected to a rigorous peer reviewed process and were considered by reviewers to be of vital interest to our esteemed readers. This inaugural issue of SAJOSTE contains 18 outstanding articles which shed light on contemporary research questions in science and technical education.

As a practice, the number of articles accepted for publication is controlled by a team of editors and the size of the journal. However, we received many more highly quality manuscripts than we could publish in this inaugural edition. This has informed the editorial board to create provision for the publication of all manuscripts accepted in two issues of the journal. The first issue will be both on print and online, while the second will be online only. This is to ensure that we do not miss out any quality submission that is of interest to our esteemed readers. While the articles chosen for publication vary in subject, method, writing style, and manuscript formating, they are excellent in content.

The articles included in this first edition are drawn from disciplines in medical science, mathematics, fine and applied arts, office management technology, technical drawing, agricultural science, and management science.

I must thank the members of the Academic Journals Publication Committee and Editorial Board for their dedication and commitment to ensuring the success of this outstanding project of the College. I hope you will enjoy reading the inaugural issue of Sagbaman Journal of Science and Technical Education (SAJOSTE)

Ebitimi P. Berezi PhD
Provost

SCIENCE AND TECHNICAL EDUCATION: TOOLS FOR NATIONAL DEVELOPMENT

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ABSTRACT
Science and technical education in Nigeria are facing challenges as a result retarding national development. Nigerian educational institutions are producing graduates without adequate acquisition of scientific and technical skills that can pave the way for self-reliant or job opportunities for socio-economic progress. The rate of unemployment rate in Nigeria has seriously increased to 33.5% in 2022 while the number of Nigerians living in poverty is 14.7 percent (%) from the 2018/2019 figure of 82.1 million to the projected 95.1 million in 2022. This paper examines science and technical education as tools for national development. It further discusses the concepts, roles and challenges of science and technical education in Nigeria. It recommended among others that science and technical education policies should be adequately implemented by government to achieve the objectives of national development.

Keywords: Science and Technical Education, History, National Development, Roles and Challenges.

INTRODUCTION
Education plays a significant role in national development of a country. It is obvious that education has occupied a central position in the priority list of many countries of the world in their pursuit for scientific, technological and socio-economic progress. However, it is very worrisome to see how Nigerian students graduate from schools and colleges without relevant occupational skills to secure jobs in the labour market. Therefore, over the years, school leavers and graduates of tertiary institutions have not secured employments (Victor & John, 2022). Moreover, in 2022, the unemployment rate in Nigeria is estimated to reach 33 percent. (Sasu Doris, 2022). In addition, data shows that the unemployment rate in Nigeria rose constantly in the past years and in the fourth quarter of 2020 over 33 percent of the labour force was unemployed according to World Bank, 2022.
According to World Bank, (2022) other African countries with high rate of unemployment include:

a. South Africa (33%)
b. Djibouti 28%
c. Eswatini 25%
d. Botswana 24%
e. Lesotho 24%
f. Congo Republic 23%
g. Gabon 22%
h. Somalia 20%
i. Sudan 19%

From all indications, it is imperative to say that one of the major causes is that science and technical education have not been enhanced through Nigeria's educational system. If science and technical education are given the right place in Nigeria, our developmental objectives will be met effectively in accordance with National Policy on Education (NPE, 2014) of the Federal Government of Nigeria (FGN).

In addition one of the objectives of National Policy on Education (NPE) is to aim and impart necessary skills and knowledge leading to the production of skilled manpower in the area of science and technology. Therefore, Nigerian citizens should be engaged with the relevant occupational skills to secure jobs or to be self-reliant which can be achieved through science and technical education organise by National Business and Technical Examination Board (NABTEB). This is because the philosophy of education in Nigeria is tailored towards social, cultural, economic, political, scientific and technological progress. Therefore, education is adjudged to be an instrument pair excellence for achieving national development (FRN; 2014).
In addition, it is imperative to say that education is a needful instrument in the development of every society. Also, education is an instrument for scientific, technological advancement and socio-economic reconstruction, and a means of developing qualities that end up in building up a rich and fulfilled life (Muhammed, Yusha' u and Lawal, 2018).

Brief History of Technical and Vocational Education in Nigeria
Technical and vocational subjects were first introduced in Nigeria during colonial period by the British. Some subjects offered then were wood and metal work, domestic science, agriculture (Armstrong, (2012). These subjects continued to be offered after Nigeria political independence. Therefore, in 1960, the General Trade Schools (GTS) which focused on vocational and technical education were put in place across Nigeria. These schools focused on wood working, metal and other in-demand vocations. Vocational and technical education were seen as avenue for employment opportunities and the vocational schools had a parallel academic institutions. Furthermore, in 1970's, many Nigerians were sent to European countries to learn or acquire technical skills in order to impart this information in their return to Nigerians. By 1977, in light of new national policy on technical and vocational education, it was realized that those sent to European to learn the practical skills failed to return to teach in Nigerian vocational schools.
In addition, in 1980s the Federal Government of Nigeria (FGN) rolled out technical and vocational education curriculum for both secondary and tertiary vocational and technical schools.

Concept of Technical and Vocational Education
Many scholars have written on the concepts and structure of technical and vocational education system. As a matter of fact, Dike (2016) stated that vocational education involves the training of students based on practical programmes generally targeted to a specific occupation, trade or vocation. Therefore, the aim for this practical programme is to improve the vocational skills of students in areas where they have talents and technical capability.
Technical education is design to build skills, abilities, understanding, attitude, work habits and appreciation as well as the knowledge and information needed for workers to progress in useful and productive employment opportunities (Salleh & Salaiman, 2015). The aim is to promote national technology development, socio-economic well-being and job opportunities creation through training and retraining as well as deployment of medium and high level manpower for national development.

Technical and vocational education is jointly defined by International Labour Organisation (ILO) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2018) as that which is:
"used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education the study of technologies and study related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life."

Vocational Technical education plays a key role in facilitating community and national development. It promotes the acquisition of applied skills and basic scientific knowledge.

Vocational and technical education involves a planned programme course and learning experiences that begins with the examination of career options, supports basic academic standards, leadership preparation for industry and continuity education (Ozomena, 2013). In addition, vocational and technical education is a form of education whose primary aim is to improve and equip individuals for employment in different occupations relevant for national development (Oguejiofor & Ezeabasili, 2014).

Vocational technical education can be seen as an educational training which comprehends knowledge, skills, competencies, structural activities, capabilities, abilities and all other educational structural experiences acquired through formal, on the job or off- the job which is capable of improving recipient's job opportunities in various sectors of the economy as well as enabling the persons to be self-reliant capable of creating jobs (Ozomena S.A, 2013).

According to Cambridge Dictionary (2022), technical means relating to knowledge, machines or methods used in science and industry. Also, it relates to practical skills and methods that are used in a particular activity. Technical education provides trained manpower in applied sciences and technology, and it provides technical knowledge and vocational skills necessary for industrial, agricultural, commercial and economic development (Odu, 2017). Furthermore, technical education is a means of preparing individuals for effective participation in the world of labour force as well preparing responsible citizens as instruments for enhancing sustainable national development (Agbowuro, Oriade and Shuaibu; 2015).

Concept of Science Education

Science: According to Oxford Dictionary (2022) science is the intellectual and practical activity encompassing the systematic study of the structure and behavior of the physical and natural world through observation and experiment. Therefore, science education is the teaching and learning of science to school children, college students, or adults within the general public (Wikipedia, 2022).

In addition, science for Igboanugo and Egolum (2017), science is universally regarded as an organized study of natural phenomena. To Sulai and Kaluri (2018) science is defined as an intellectual activity carried out by human, designed to discover the ways in which this information can be organized to benefit race. In fact, a scientifically literate individual should possess a body of scientific knowledge, a set of scientific skills and behave scientifically by providing solutions to scientific problems. One of the significant objectives of science is to equip individuals with scientific knowledge and to develop manpower to meet up with the world advancement in science and technology.

Goals of Science Education

1. To develop students' understanding and experience of the scientific methods and to understand its values or benefits so that they will be able to apply the method. (Mohammed, 2017).
2. To be effective and skillful at practical work and skillful at practical scientific equipment.
3. To make people understand their natural world.
4. To provide students adequate evidence-based knowledge to be able to make informed personal judgment with the view to live healthy, safe, comfortable and environmentally sustainable life.
5. To understand and apply important scientific theories were necessary.

Concept of National Development

According to UNESCO (2022), National Development strategies are comprehensive focusing not only on economic development but also consider social, political and environmental dimensions in combination and ensure a synergy among the various policies and programmes

that contributes for the common strategy goals.

National development strategies (NDS), according to UNESCO include:

1. Promote equality and empowerment of women.
2. To develop global partnership for development.
3. To eradicate extreme poverty and hunger.
4. Achieve universal primary education.
5. Combat HIV/AIDs, malaria and other diseases
6. Ensure environmental sustainability

The Role of Science, Technical and Vocational Education for National Development

Science, technical and vocational education have been playing significant roles in human life. Therefore, man's ability to produce high quality goods and services have tremendously improved. In Nigeria, the most remarkable areas science, technical and vocational education have their impacts include:

a. Health: Considering the health sector, a lot of drugs and vaccines have been developed and these have done a great deal in increasing the life span of people. Many sophisticated tools or equipment have also been produced which are helping in the diagnosis and treatment of various diseases that would have claimed lives (Che-We Wang and Chin-Fang Chang, 2016).

b. Agriculture: Science and technology have created positive impact by improving food production. In fact, human sufferings have been reduced by in motivation and use of machines like tractors, harvesters, sprayers, ploughs. Today, agro-chemicals like pesticides, herbicides and so on are used to kill pests and unwanted plants or vegetation espectively for higher productivity (Mohamed Sikkander; 2022). In addition, high yielding varieties of plants and animals have greatly developed as well as disease prevention and resistant method. Furthermore, fertilizers have been developed to improving the yields of plants or crops by providing essential nutrients.

c. Information and Communication Technology (ICT): Science and technology have made tremendous impact on ICT development. Therefore, the world has now become a global village as a result of development in science, technology and vocational education. It is very easy to communicate with someone in another part of the world in matter of seconds using mobile phones. Moreover, people have access to information all over the world. Interestingly, ICT provides employment opportunities for the youths through the acquisition of the skills. Also, ICT provides information, entertainment and business life-changing opportunities through ICT. Information can be received through SMS, internet, email, twitter, whatsapp, facebook, etc (Ratheeswari K. 2018).

d. Industrial Productivity: Industrial productivity has been enhanced because of advances in science and technology which has immensely provided a sophisticated machines and equipment that are now being used for industrial production or manufacturing purposes.

e. Transportation: Science and technology education have improved our transportation system. Today, people can travel far and near using cars, aeroplanes, ships, etc. and this has tremendously reduced suffering in transportation sector of the economy (Kim and Schonfield, 2015).

f. Building: Shelter is one of the man's basic needs and this can easily to be achieved through science and technology for instance, through science and technology modern buildings that provide comfortable accommodation for people have evolved and architects or builders are embarking on scientific and technological research to showcase more sophisticated buildings for the world.

Challenges of Science and Technical Education in Nigeria

In Nigeria, there is a setback in the implementation of effective science, and education policies. Therefore, the government's present approach to education has failed to encourage innovation and efforts through research and development of ideas into problem-solving device for which science and technical education is known for. From the foregoing, some of the challenges of science and technical education include:

1. **Inadequate basic infrastructure:** Many public schools lack basic infrastructure and therefore not conducive for effective teaching and learning (Akighir, 2015).

2. **Inadequate Qualified Science Technology teachers:** In many public and private schools in Nigeria, there is shortage of qualified science and technology teachers. In most cases, they are poorly trained that is, they lack adequate professional development and they are not professionally qualified. As a matter of fact, they may have the knowledge of science and technology, but lack knowledge of effective method of teaching using modern instructional materials (Kola, 2012).

3. **Poor Attitude towards Science and Technology:** Many Nigerian students have negative attitude towards science and technology subjects and they believe that science subjects are very difficult especially mathematics, physics and chemistry. This wrong attitude has negative effects on science and technology in national development (Okere, 2022).

4. **Lack of Well-equipped Library for Research Work/Project:** Science and technical college teachers that are ready to carry out some research work/projects cannot do this successfully or effectively because the libraries lack up-to-date textbooks and periodicals in their area of specialization and interest (Omeluzor, Dolapo, Agbawe Onasote and Abayomi, 2017).

5. **Poor Implementation of National Educational Policies:** When policies are made and documented are fair and genuine, but the implementation often suffers delay and negative manipulations hence the objective and goals are eventually rarely not met. In Nigeria, problems associated with educational policy and planning includes negative political influence interference at directive at stage of planning, poor preparation and costing as well as poor evaluation of science and technical educational projects (Enyiazu F.A, 2022).

6. **Lack of basic Workshops/Equipment:** Many vocational and technical schools in Nigeria lack adequate workshops/equipment for training and re-training of people for practical skills.

CONCLUSION

The paper examined science and technical education as tools for national development. With the huge population of intelligent children and youths, Nigeria is a country of great promise and hope. Therefore, given the right environment and leadership quality as well as utilization of available resources. Nigeria could develop into a significant nation-state of prosperous, united, happy and glorious people, since the benevolent nature has provided the Nigeria with the human and material resources and conditions for national development. However, the challenges is that of educating pupils/students in responsible thoughts, skills and expertise as a starting point to serve as the essential tools to transform the poor economy. Therefore, effective science and technical education are the right tools needed to ensure the achievement of national development objectives.

RECOMMENDATIONS

On the basis of the focus of this paper the following recommendations are proffered:

1. The government of Nigeria should adequately implement science and technical education policies to achieve national development objectives.
2. Science and technical teachers should be trained in modern methods and techniques of teaching science and technology. Teachers should develop measurable, learning outcome and access them using a variety of methods.
3. The government of Nigeria should also ensure that every primary school has access to at least two specialists' subject teachers in both science and technology subjects.
4. School authorities at all levels of education should expose pupils/students to role models, such as professional scientists, technologist and engineers. This will encourage them to embrace scientific and technological ideas and knowledge.
5. Government through the Ministry of Education should provide adequate fund for the promotion of science and technical education at all levels of educational institutions in Nigeria. Also, effective supervision should be employed towards ensuring judicious use of the fund provided.
6. Both Federal and state governments should improve the sincerity and commitment in planning and governance on science, engineering, technology, and invention for national development.
7. We should strengthen the education, knowledge, and skill education, knowledge and skill building institutions to demonstrate high level of ability geared towards competing with the very best in the world of science and technology.

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CAUSES OF MASS FAILURE OF MATHEMATICS IN SENIOR SECONDARY SCHOOL CERTIFICATE EXAMINATION IN BAYELSA STATE.

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ABSTRACT
Mathematics being one of the most important subject in all areas of human endeavors. It must be practicable understood at all levels of academic in well conducive environments of learning which without pass in Mathematics, it is impossible to further one education because of its important. The article titled causes of mass failure of Mathematics in senior secondary school certificate examination in Bayelsa state which focused on some basic causes and efforts of mass failure in SSCE (Mathematics) in some selected schools in Yenagoa local government area. Total number of 120 questionnaires were randomly sent to these selected schools and found out that unqualified Mathematics teacher and non-availability of instructional materials are some of the causes among others. The study also revealed reduction in number of Mathematics teachers and loss of interest in academic pursuit by students as some of the effects of mass failure in SSCE Mathematics.

Keywords: Mass Failure, Analysis of the Causes, Teaching Methods

INTRODUCTION
For Nigeria to realize her dream in the development of senior secondary school, the citizens of the country must show outstanding performance in all secondary school subjects in recent years, student academic achievement in senior secondary school certificate examination special in Mathematics has not be encouraging has expected by educational evaluators. The word mathematics" is a Greek word, meaning things that are learned, Majasa (1995) further defined it as the science of counting, measuring and describing of the shape of objectives. It simply deals with logical reasoning and quantitative calculations. Mathematics as a school subject is recognized as the foundations of science and technology without which a nation will never become prosperous and economically independent. This one of the reason for making Mathematics compulsory and one of the leading core subjects in the secondary school's curriculum. Despite the effort put in by government, and various stakeholders of education, mathematics still remains one of the most difficult subjects in schools.

There is general impression that Mathematics is difficult by its very nature, and because of this impression, there is poor performance among senior secondary school students who are focus of this study. This poor performance in Mathematics has been attributed to two broad factors which include:

1. Hereditary
2. Environmental factors.

According to Ola (1998) that this factors can be subdivided into student, home, teacher, and school factors.

In the aspect of the student toward the Mathematics learning indicate that many student reason that Mathematics is highly structured and; is so abstract and required special intellectual attitude this; students see the subject as something esoteric. You will find out that if a student has a

positive attitude toward Mathematics, he will definitely be interested in it teaching and learning. On the other hand, if he has negative attitudes toward mathematics, he will not be interested in the subject in this cease you see that negative attitude of student toward learning of Mathematics make them to performance very low and poor generating more failure in the subject area.

Parent attitude toward their children also determine a great success in the subject area. Parent need to monitor the activity of their children after school, they play an important role in guiding their children to read and in doing their assignment. Even some parent too has; their own negative ideal about Mathematics which, willingly or unwillingly they transfer to their children. The children emulate such attitudes consciously or unconsciously: and carry them to school. Most parents indoctrinate their children that Mathematics is difficult or that, is not useful to them with respect to the course they will study. Parent hardly required their children to explain the problem or joy found in their mathematics classes.

This count as one of the causes of poor performance of student in Mathematics.

Teacher's attitude can hinder learning especially when one does not present oneself as a high intellectual and formidable person. It is a common defect in our educational setup that most of the subject teachers are not adequately qualified in the subject concerned. It is an essential ingredient for good Mathematics teaching. Nigeria is faced with the problem of competent teachers in Mathematics which is one of the major causes of mass failure among the students in Mathematics. Some Mathematics teachers create the impression to students that Mathematics is difficult and not meant for everybody to study except for those with exceptional qualities like themselves who teach the subject. Some also exhibit extreme neurotic behaviors either in the class or outside the classroom. Student also see some Mathematics teachers as mad people, those who cannot dress well or comb their hairs; those who are impatient or hot tempered. Teachers been very fast while teaching could also serve as one of the factors which make the students not to understand the subject very well, because individual differences exist between students. Some teachers do not have the patience of time to work out problems in different ways or methods so that students can adapt to a convenient method; all this negative attitude of the teachers also contribute to most of the failures of the students in the subject area.

The school administrators also have a direct role to play as relates to the disciplinary of the students and the teacher supervision of teaching, learning and preparation of student well enough for examination. According to Ekemia "an effective metal health for principal includes emotional, stability, maturity of character and a large capacity of frustration tolerance with the strength to withstand the strain and stress inherent in running today's Nigeria secondary school without undue fiscal of psychological dispullibrai" many principals are faced with managerial difficulties especially those who lack human relationship cannot execute effective administrative duties in the schools. Through these factors enumerate above, it could be seen that, there are many causes attributed to mass failure in Mathematics examination in senior secondary school certificate examination. The senior S£con4ary school certificate examination is an external examination organized and conducted by the ministry of education. The establishment of this senior secondary school education by the state government in Yenagoa local government, area of Bayelsa state like any other states has the same aims and objectives as the national policy on education specified that secondary education is the education received after primary education and before the tertiary institution. Perhaps, not much attention has been given to the performance of students in senior secondary school subjects in recent: years. This neglect no doubt has relegated these senior subjects to the background in our senior secondary examination. A close look at the 2004/2008 SSCE result records, confirms that student's performance has been very poor generally and the increase number of school dropout in the area of study is a clear pointer of the theme.

The poor performance is caused by many factors such as:

a. Students ineffective study techniques
b. Quality of teachers and method of teaching
c. The parent's inability to provide useful materials like textbook, exercise note books and school fees.
d. Problem of inadequate instructional materials for teaching and learning of Mathematics in schools.

In philosophy view of these causes, this study there for is specifying designed to assess the causes and effects of mass failure of Mathematics in senior secondary school certificate examination in Yenagoa local government area of Bayelsa State.

Finally, it is obvious that the findings of the study will definitely aspire the researcher to seek for possible suggestions and recommendations to students, teachers, parents, sponsor and government to bring any end to student mass failure of Mathematics in a such external senior certificate examination and to improve student performance in the future examination in these schools and other part of the country having similar educational problems.

The main purpose of this study is to find out the causes and effect of mass failure of Mathematics in senior secondary school certificate examination. The interests of the researchers are to examine critically and identify the causes and effects of mass failure of Mathematics in senior secondary school certificate examination, specially, the study sought to find out if:

a. There are sufficient number of qualified Mathematics teachers and instructional materials for teaching of Mathematics
b. The previous socio-economic background of the students; affect them in studying Mathematics.
c. The attitude and interest of students toward the; nature of Mathematics contribute deeply to their mass failure in "SSCE" especially in Mathematics. Parent inability to provide useful learning material also affects the effective learning of Mathematics.
d. Teaching methods employ by the teacher during the teaching learning process contribute to the mass failure Mathematics.

THE FOLLOWING RESEARCH QUESTIONS AIDS THE RESEARCH:

Research question one: ls lack of qualified Mathematics teacher the cause of mass failure of student in SSCE Mathematics?

Research question two: Is lack of instructional materials in teaching Mathematics a cause of student's mass failure in SSCE Mathematics?

Research question three: Does the Socio-economic background of the students affect them in the study of Mathematics?

Research question four: Does poor attitude and low interest of students toward the learning of Mathematics contribute deeply to their mass failure in SSCE Mathematics?

Research question five: Does teachers'/students relationship contribute to the mass failure-of student in SSCE Mathematics?

Research question six: What are the possible effects of mass failure of Mathematics in SSCE to both the students and society at large?

RELATED LITERATURE

Concept of causes of mass failure of Mathematics in senior secondary school certificate examination in Bayelsa State. Therefore, let us reflect of the origin and meaning of the concept Mathematics. The word Mathematics is a Greek word meaning things that are learned. Majasa (1995), further defined it as the science of' counting, measuring and describing of this shape of object. It deals with logical reasoning and quantitative calculation. Mathematics as a school subject is recognized as the foundation of science and technology without it a nation will not be industriously prosperous and economically independent. Still stressing on the scientific importance of Mathematics. (Ababio 1989) stated that the general idea of science subject lies on the fundamental knowledge of Mathematics; this is to say that the study of science requires the basic knowledge of Mathematics. This underscores the important of Mathematics competence of all learners at all levels of education and a reason for making Mathematics compulsory and one o£ the leading core subject in the secondary school's curriculum. Secondly, as we have traced the origin, important and meaning of Mathematics, we can now look at the causes of mass failure of this very subject-Mathematics, mass failure means when the greater percentage (say 70%) of the student that registered for a particular examination fail that examination, so as a result of this mass failure, saw it as a social problem in our society, that is why we have found interest to find out some lasting solution to this mass failure of students in Mathematics. In this process the researcher has observed that any generation who does not review or make reference to the related works of our heroes past make more mistakes than their fore-father (Ozochi 2009). The related topic we are looking at with respect to this our study is identification and Remediation of the causes of student's poor performance in Mathematics.

According to Etuk N. Eluk., and Maria Afangideh (2013), Studies on Student's perception of Teacher's characteristics and their attitude towards mathematics in Ovon Education Zone, Nigeria The study Sought to find out the relationship between how students perceive their teachers in respect of knowledge of Mathematics content, communication ability, use of appropriate teaching strategies and teachers classroom management skills and students attitude towards mathematics. The population of the study comprised all the second year students in senior secondary school in Ovon Education zone. The study sample consisted of 640 students selected through cl8uster and simple random sampling techniques. Two instruments students perception of teacher characteristics questionnaires (SPTCQ) and students attitude towards mathematics Questionnaire (SATMQ) were developed and administered on the respondents A trial test of 50 students using spilt – half reliability test was carried out which yielded reliability coefficients of 0.86 and 0.94 for SPTCQ and SATMQ respectively Pearson product Moment correlation and test the hypothesis respectively. Findings show that the way students perceive their teachers in terms of knowledge of mathematics contents, communication ability, teaching methods and classroom management skills has a significant relationship with students attitude towards mathematics. When the student's perception of their teacher's characteristics is low, student's attitude towards mathematics is negative.

Olaleye., F.O. (2012). Carried out teacher's characteristics as predictor of academic performance of students in secondary school in Osun State. Nigeria the study investigated the perceptions of students' academic performance. The study was carried out in Osun State senior secondary school. A Population of 1600 purposively selected SSIII students from 16 rural urban schools were for the study questionnaire tagged teachers characteristics and students' academic performance (TCSAP) was used to elicit information from the students. Data collected were analyzed using simple percentage, Pearson product Moment Correlation and Chi – Square to test the hypothesis generated in the study. The findings showed that there was a significant relationship between teacher's characteristics on students' academic performance. It was recommended that a proper evaluation of teachers based on examination and supervision should be well organized before promotion and appointment. A situation where mass promotion based

on year graduation does not argued well for good academic performance of students.
Paula, V.M. and davison. M (2020). Studies causes of poor academic performance in mathematics at ordinary level to determine the causes of poor academic in mathematics at ordinary level. To achieve this, a case study was adopted which targeted one high school in Masvingo province of Zimbabwe. Participants were purposefully chosen and only those learners doing O' level mathematics were selected from the ordinary level group of 250 students. Teachers who taught mathematics at O' level were also targeted. The information was gathered through the use of questionnaire helped the researchers to have a wider view on the research problem. They were also physically administered by the researcher and his facilitated the return rate 100%. The results showed that teaching methods pupils, teachers, and parent's negative attitudes towards mathematics, lack of teaching experience by some teachers and instability of teachers and lack of adequate resources are some of the causes of poor academic performance in mathematics at ordinary level. A number of recommendations have been made which include motivation of students and staff development workshops

Popoola, F.R., and Olarewaju, R.R. (2010); they studies Factors responsible for poor performance of students in mathematics also investigated the factors that are responsible for poor performance of students in mathematics A random sample of 109 students from Best Start College Mango Kaduna was used. The research Instrument was a reliable and validated 20 items Likert type questionnaire which was administered on 109 secondary school students to obtain responses on the factors that are responsible for poor performance of students in mathematics. At 0.05 significant level was 0.469 and t – critical was 2.021. Since t – critical was significant the null hypothesis was retained. Thus, there was no significant difference among the respondents concerning the factors that are responsible for poor performance of students in mathematics in Nigerian Secondary Schools. One of the recommendations made was the need for efficient and effective teachers who are professionally and academically qualified to promote mathematics learning in schools.

Satish, K.K. and Azad M. (2013); they also studies causes of failure in Mathematics at high school stage stated stat, the present study was carried out to identity causes of failure in mathematics at high school stage. A Sample of 125 (50 girls and 75 boy) failure students were selected reveals that the failure students were found to be older in age and low in socio – economic status, it seems that their parents being illiterate and poor, are not able to care for the education of their children by sending them to the school of appropriate age.

Salman, M.F., Mohammed, A.S., Ogunlade, A.A., and Ayinla, J.O., (2012); causes of mass failure in senior secondary school certificate mathematics examinations as viewed by secondary school teachers and students in Ondo, Nigeria. The senior secondary schoolteachers and students were involved as population for the study. 100 teachers and 400 senior secondary two students were purposively selected. The descriptive survey research was adopted for the study. The sampled teachers and students responded to researchers prepared questionnaire titled "Causes of student's mass failure in SSCE Mathematics examination". The causes considered were those by teachers, students, parents, and society, government, school and examination bodies. A sample of the items in the questionnaire include; lack of frequent practice by students, poor mathematics background, laziness on the part of student and teachers, among others. The response scales are; strongly agree, agree, disagree, and strongly disagree. Frequent counts and percentages were employed to answer the seven research question generated. Findings indicated that 98% of teachers and 76% of students viewed laziness on the part of students as a major factor responsible for student's mass failure in SSC mathematics examinations while 97% of teachers and 79% of students viewed lack of frequent practice by student as another responsible factor for mass failure in mathematics among others. The identified causes could be ameliorated through enhancing the teachers quality in terms of subject contents, providing them opportunities for

further studies, attending seminars and workshops for update because their quality has significant role to play in teaching and learning of the subject.

Umar, A.A., Ahmad Y., and Awogbenu C.A. (2013) carry out effects of teachers qualifications on performance in further mathematics among secondary school students and they examined the effects of teacher's qualifications on performance in further mathematics among secondary school students in Kaduna State. By purposive sampling 12 senior secondary school were selected from four inspectorate divisions in the state namely Anchau, Kaduna, Kafnchan and Zaria which participated in this study. In the selected stage, a random sample of 160 further mathematics students was finally selected across the four divisions. Two instruments teacher self-assessment test (TSAT) with reliability index of 0.87 and a 30 – items four option multiple-choice further mathematics Achievement Test (FMAT) constructed by the researchers (with Cronbach's alpha of 0.87 and item difficulty of $0.40 < p < 0.82$) were administered. Two research questions and one hypothesis were formulated to guide the study. The analysis of variance (ANOVA) revealed that significant difference exists between students' performance on account of their teachers qualifications.

Yusuf Suleiman and Arba Hammed (2019); studies perceived cause of students failure in Mathematics in Kwara State Junior Secondary School. Findings of the study revealed probable causes of student's failure in mathematics, which include insufficient number of qualified teachers in mathematics, lack of teaching aids/instructional materials, frequent transfer of mathematics teachers from one school to another , poor socio-economic background of the students, poor teaching methodology. The findings also indicate that inappropriate period allocated for mathematics, as well as overpopulation of students in classroom caused students failure in mathematics. Based on the findings, it is suggested that educational managers need to avoid mass failure in mathematics teachers are available in their schools at all times so that students can be taught mathematics at all levels. Also, managers should ensure decongestion of classroom so as to enhance effective teaching and learning in mathematics.

MATERIALS AND METHODS.

The sample of the study was initially drawn from the post primary schools Education Board (PPED) of Bayelsa State: which comprised total number of all the candidates that sat for the 2018 Senior Secondary School Examination. Stratified random; sampling technique was used in selecting (12) senior secondary school out of the various schools that register for the 2018 Senior Secondary School Certificate Examination. The names of the randomly selected senior secondary schools for this study includes the following:

- B.D.G. S Yenagoa
- Community Secondary School Famgbe
- S.J.G.S. S Amarata
- Community Secondary School Kpansia
- Community Secondary School Tombia
- Community Secondary School Bumoundi
- Community Secondary School Pulaku
- Community Secondary School Obuna
- Community Secondary School Zarama
- Community Secondary School Okordia
- Community Secondary School Biseni
- Community Secondary School Egbiri

Ten (10) respondents including teachers were chosen from the 12 Senior Secondary Schools through random sampling giving total of (120) respondents.

Research Types

The study adopted descriptive survey types using of probability sampling techniques:

Statisticians have devised various methods of selecting the members for easy data analysis. Sampling techniques simply mean the style or system of choosing respondents or samples from the entire population for the purpose of generating data for a given study. There are two broad categories of sampling techniques. These are probability and non – probability sampling techniques but with respects to this study we are making use of probability sampling techniques.

Probability sampling techniques:

This is the general name given to all forms of sampling techniques in which the sample are selected according to know law of chance such that every member of the probabilities sampling techniques are:

- Simple Random Sampling
- Systematic Sampling
- Cluster Sampling
- Stratified Sampling

Simple Random Sampling

This is the process of selecting simple from population whereby every member of the population has equal chance or probability of being selected in the sample. It is done through game of chance or same mechanical devices. Sample random sampling is of two kinds. These are random sampling with replacement and simple random sampling without replacement.

Systematics Sampling

This method involves the selecting of the nth subjects or item form serially listed population or units where N= the total number of the population divided by sample size. For instance, if our population for a particular study is 100 and our sample size is 10 we automatically get our nth by 100⁄10 -10. So 10 becomes our Sample interval. This decision to choose samples by systematic means is hardly done ambit rally. Before a researcher settle for a systematic sampling that mean, he must have list of the entire elements in the population.

Cluster Sampling

This is a process of selecting sampling from subsets or group that may not necessarily be homogenous. In this case, member of the population of student be grouped in cluster before the actual sampling can be affected the members of a population are divided into subsets based on share commonalities.

Stratified Sampling

This method deals with selecting sample from a population which involves restriction of heterogeneous population into relatively homogenous group base on some specific characteristic liker age, income, level, qualification, etc. it helps to reduce sampling error by grouping elements in a population into homogeneous subjects before selecting samples from each of the subjects.

This study makes use of stratified techniques in selecting the number of senior secondary schools. Stratified random sampling was use in selecting 12 senior secondary schools from Yenegoa L.G.A in other to cover the whole Yenegoa two schools where selected form each clan giving a total of 12 Secondary Schools. The reason why we use stratified sampling techniques is that the scope of the study is very large and for us not to be bias in the selection of school. Stratified random sampling will help to obtain a sample population that will best represent the entire population that is being studied.

The Arithmetic Mean

Scores can be gotten by dividing the sum of individual observation by the Dumber of observation.

Mean = X = (∑x)/N

Where, N = total number of responses.

∑x = Likert value multiplied by corresponding response category all summed up.

Demonstration of how the mean (arithmetic mean) will be calculated or Applied in this study. In this study Likert scale or otherwise palled summated rating scale is used. A Likert scale measures the degree of agreement or disagreement by the respondent to a statement that describes a situation, or item. Likert scale is used to test whether a research question is positive (accepted) or negative which dependent on the responses generated through the questionnaires. The number of items or answer scale that will be used. For this very study we use five point Likert scales which are;

Strongly Agree	SA = 5 points
Agree	A = 4 points
Strongly Disagree	SD = 3 points
Disagree	D = 2 points
No Response	NR = 1

Analysis of Research Question

Table I: Response on research question one

S/N	Research	SA	A	SD	D	NR	N	?**?**	Remark
a.	Are there Mathematics teachers in your school?	30	20	30	20	0	100	3.6	Accept
b.	Does lack of qualified Mathematics teacher make you loss interest in mathematics?	40	35	10	10	5	100	3.95	Accept
c.	Frequent transfer of Mathematics teachers affects students in studying mathematics	40	33	17	10	0	100	4.83	Accept
d.	Lack of exposition of Mathematics teachers also new skills and routines within the teaching profession can lead to poor academic of student performances.	33	29	19	12	7	100	4.69	Accept
e.	Lack of self-confidents some Mathematic teachers could lead to poor transfer of knowledge.	34	41	8	13	4	100	3.88	Accept

Grand mean =3.6+3.95+4.69+3.88+4.83 = 20.95 (since we have 5 row) $\frac{20.95}{5}$= 4.19. From the above table the Grand mean of research question one (a) is 4.19 which is above 3.0 which is to say that research question one (a) |is positive and accepted. Thus, we can conclude that lack of qualified Mathematics teacher can cause mass failure of student in SSCE Mathematics?

S/N	Research	SA	A	SD	D	NR	N	?**?**	Remark
1.	Do Mathematics use instructional materials in your school?	33	20	30	17	0	100	4.86	Accept
2.	Does the use of instructional materials help you in Mathematics class?	50	35	7	5	1	100	4.28	Accept
3.	Does adequate use of instructional materials have any impact on students' academic performance.	57	28	10	5	0	100	4.3	Accept
4.	Lack of instructional materials due to non-availability can also affect student in study of Mathematics.	52	30	11	5	0	100	4.27	Accept

Grand Mean 4.86+4.28+4.37+4.27=17.78 (since we have 4 rows) $\frac{17.78}{4}$ = 4.45. From the above tables, the grand mean of research question one (b) is above 3.0 which is to say that research question one (b) positive and accepted. This indicates that lack of instructional materials in teaching Mathematics can affect students in the study of Mathematics.

Table 3: Response on research question three

S/N	Research Question items	SA	A	SD	D	NR	N	?**?**	Remark
1.	Lack of study materials (Textbook) can affect students in studying Mathematics.	70	25	5	0	0	100	4.55	Accept
2.	Lack of encouragement from parts due to poor academic background can also contribute to failure of students in Mathematics.	30	25	20	5	0	100	3.6	Accept
3.	Does extra moral classes have any positive effect on students' academic performance?	32	46	3	8	0	100	3.8	Accept
4.	Do financial background of students affects them in study Mathematics?	28	42	8	10	0	100	3.68	Accept
5.	Can student inability to attend standard school due to lack of finance affect them in the study of Mathematics?	19	23	20	23	0	100	3.08	Accept

Grand mean = 4.55+3.6+3.8+3.68+3.08 = 18.71 (since we have row)$\frac{18.71}{5}$ = 3.74. From the above table the grand mean of research question two is 3.74 which implied that it is accepted. This means that socio-economic background of the students affects them in the study of Mathematics.

S/N	Research Question items	SA	A	SD	D	NR	N	?**?**	Remark
a.	Students hate Mathematics it affect them in learning mathematics	30	46	10	10	0	100	4.28	Accept
b.	Students lack of constant study of Mathematics contributes to their failure	60	20	7	3	0	100	407	Accept
c.	Lack of student interest in Mathematics due to their poor background right from primary school also contributes to their failure in Mathematics.	23	35	20	20	0	100	3.42	Accept
d.	The period allocated for the teaching of Mathematics most time is, not appropriate for its easier assimilating.	28	39	15	10	0	100	3.39	Accept
e.	Poor teaching methodology of some Mathematics teacher can scare students from learning Mathematics.	18	30	17	35	0	100	3.31	Accept

Grand mean= 4.28+4.07+3.42+3.69+3.31 = 18.77. (since we have 5 rows) $\frac{18.77}{5}$ = 3.75. From the above table, the grand mean of research question three is accepted because it's above 3.0. Thus we can conclude that poor attitude and low interest of students towards the learning of Mathematics contribute deeply to their mass failure in SSCE Mathematics?

S/N	Research Question items	SA	A	SD	D	NR	N	?**?**	Remark
1.	Frequent use of cane teaching Mathematics can affect the student negatively.	28	34	14	19	0	100	3.61	Accept
2.	The methodology the teacher uses in teaching the students can affect the learner in the study of Mathematics.	27	30	20	16	0	100	3.54	Accept
3.	The teacher approach to the student in the classroom can also make the student to lose interest in Mathematics.	40	30	16	17	0	100	3.87	Accept
4.	The use of foul language to the student by some Mathematics teacher can lead to loss of interest in mathematics	26	35	20	14	0	100	3.55	Accept
5.	Student negative attitude forward there Mathematics teacher can also contribute to their failure in Mathematics.	50	20	12	10	0	100	4.26	Accept

Grand mean = 3.61+3.54+3.87+3.55+4.26 =18.83 (since we have 5 rows) $\frac{18.77}{5}$= 3.77. From the above table, we can see that the grand mean is above 3.0 from this we can conclude that teachers' / students relationships contribute to student mass failure of students in SSCE Mathematics.

S/N	Research Question items	SA	A	SD	D	NR	N	?**?**	Remark
1.	Repeated failure of Mathematics in SSCE to loos of interest in education	34	30	20	16	0	100	3.82	Accept
2.	Can mass failure of Mathematics in SSCE lead to drug addiction?	23	27	24	19	0	100	3.4	Accept
3.	Mass failure of Mathematics in SSCE can lead to examination malpractice.	40	50	10	0	0	100	4.3	Accept
4.	Mass failure of SSCE Mathematics could lead to lack of Mathematics teachers in the education sector.	28	50	7	5	0	100	4.16	Accept
5.	Mass failure of Mathematics in SSCE can lead to over -loading of the few Mathematics teachers in the secondary schools.	40	50	7	3	0	100	4.27	Accept
6.	Mass failure of Mathematics SSCE could lead to unqualified Mathematics teachers coming in to the education sector.	29	21	30	12	0	100	3.6	Accept
7.	Mass failure of Mathematics in SSCE could lead to wastage of resources.	60	30	7	3	0	100	3.47	Accept

From the above table 6 we can see the mean of all the research question 6 items fall on the acceptance side. Thus we can conclude that all these effects listed from the research question items are likely to occur among others as a result of student's mass failure in SSCE mathematics.

DISCUSSION OF FINDINGS

The findings revealed that non-available or shortage of instructional material for teaching mathematics contributes to student's mass failure of Mathematics in Senior Secondary School Examination, we are meant to understand that the students understand the subjects well whenever the teacher uses charts, models and specimen during teaching and learning. Also insufficient number of unqualified Mathematics teachers also serves as one of the major factor contributing to student mass failure in SSCE Mathematics. However, student in their own way see Mathematics as subject that is difficult and this impression has made them to develop hatred for the subject which invariably contribute to their poor performances in the subject area. From the finding we are meant to understand that socio-economic background of students also affects them in the study of Mathematics and teacher/students relation (that is how they relate right in the class) also have great influence on the student's academic performance.

Furthermore, the findings also revealed that repeated failure of SSCE Mathematics could lead to loss of interest in education. And mass failure of SSCE Mathematics could lead to lack of Mathematics teaches in the education sector which is not healthy for a developing nation. This implied that repeated failure of SSCE Mathematic will lead to shortage of Mathematics teacher in the near future to come. Finally, the finding also reveals that mass failure of Mathematics in SSCE could lead to wastage of resources.

CONCLUSION

As earlier stated, this research work was designed to find out the causes of mass failure of mathematics in Senior Secondary School Certificates Examination in Bayelsa State. From analysis of the data obtained, the researchers found out that shortage of instructional materials, poof student's motivation in the classroom by the teachers, poor mathematics background from primary school, insufficient number of qualified teachers are the factors that cause the mass failure in Senior Secondary School Certificate Examination. Also provision of adequate instructional materials by the government to schools, teachers should motivation the student, proper use of Mathematical textbooks and conducive classroom environment where some strategies that are deducted from the study that can be used to improve student academic performance. It is believed that if the points mentioned above are given urgent attention, then an improved performance of students in mathematics may be insight, teaching and learning Mathematics starting from lower level of learning that is from nursery schools to the higher level of learning that is from nursery schools to the higher level of learning so that the rose of the Mathematics as foundation in science and technology development in Nigeria will also be recognized.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

I. State governments should make available to schools all needed basic educational facilities, learning materials, libraries, standard classroom blocks and laboratories to enhance teaching and learning.
ii. School principals should see that they carry out effective supervision in their schools regularly.
iii. Parents should be able to access their children's progressive in Mathematics and other subjects regularly.
iv. A conducive classroom for Mathematics teaching should be created.
v. Enough qualified and professional teachers should be employed to teach these discipline right from primary to secondary level and they should be motivated that is to pay their salaries when due and provide them incentive periodically.
vi. Teachers should also be given regular training on new skills and routines about their teaching profession. The researcher suggests that further research work should be carried-out to find the causes of mass failure in Mathematics in Senior Secondary Certificate Examinations. The research suggests also that since only questionnaire was used as the instrument for data collection in this study, other researchers who want to engage in this type study in addition should use oral interviews the instrument for data collection.

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CORPORATE GOVERNANCE STRUCTURES AND COST OF DEPOSITS OF NIGERIAN BANKS.

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ABSTRACT
This study investigates corporate governance structures and cost of deposit of Nigerian banks. The study employed secondary sources of data. Data were gotten from the audited annual reports and accounts of commercial banks in Nigeria such as First Bank plc, Guaranty Trust Bank plc and First City Monument Bank and Zenith Bank Nigeria Plc, over the period 2012–2020. This study used estimated technique of Descriptive statistics, Pearson Product Moment Correlation analysis and Ordinary Least Square- Multiple regression method with the aid of using E- view 9 to analyse the data. The study utilized both -Multiple Regression method with the aid of using E-view 9 to analyse the data. This period was chosen so as to determine the pattern in which the corporate governance (CG) has been influence on Return on Assets of banks in Nigeria for five years financial summary. The study found that corporate governance structures relatively affects cost of deposit of Nigerian banks. It established that there is a relationship between corporate governance and the performance of banks in Nigeria. The board of directors and its characteristics hold many implications for the value of a firm. The degrees of qualifications or skills possessed by persons appointed to these boards and various committees can influence their performance in a dynamic business environment.

Key words: Corporate Governance, Structures, Cost of Deposit, Banks.

INTRODUCTION
Over the years, emphasis has been placed on the use of effective governance to ensure corporate discipline in maximizing the interests of all relevant stakeholders of an organization.
Nevertheless, success of procedures globally entails transparency, accountability, and regard for the set down rules. In the section (1) of the Corporate Governance Code for Nigerian banks following the consolidation process of 2019, it was affirmed that the consolidation of industry creates more disputes regarding corporate governance given rise from the process of integration, culture and information technology Adepoju, (2017). An indication from the code reveals that about 70 percent of mergers globally are not successful because of lack of ability to integrate systems and personnel as well as due to the contradictory variances in management and corporate culture, which gives rise to in Board of Management arguments. All these measures notwithstanding, the corporate governance challenge still lingers unsolved amid banks in Nigeria and resulting into an increase in fraud by so doing (Schjoedt, 2010).

The banking crises of 2019 in Nigeria has been related to unprofessional conduct of governance among the consolidated banks, this has incessantly become a norm majorly in the banking sector. In several banks, corporate governance failed due to misconduct of boards to these practices on the basis of issues including misleading attitudes by executive management, participation in acquiring loans that are not secured to the detriment of depositors and also their incompetence in enforcing excellent governance in managing the bank.

Corporate governance is an important concept that relates to the way in which financial, material and human resources available to an organization are judiciously used to achieve the overall corporate objective of an organization Adeusi, et al., (2019). It keeps the organization in business

and creates a greater prospect for future opportunities. The overall effect of good corporate governance should be the strengthening of investor's confidence in the economy of Nigeria. Corporate governance is therefore about building credibility, ensuring transparency and accountability as well maintaining an effective channel of information disclosure that would foster good corporate performance (Onakoya, et al,2018)

Corporate Governance generally refers to the process or mechanism by which the affairs of businesses and institutions are directed and managed, with a view to improve long term value of shareholders while taking into account the interests of other stakeholder interested in the well-being of an entity (Sanda, et al,2015; Central Bank of Nigeria, 2019; Chuku,2019) as cited in (Yauri, Muhammad and Kaoje 2019)
Yauri, et al (2019) opined that the central issue in corporate governance from the perspective of the agency theory is whether managers can be trusted to carry out the function of the firm in the best interest of shareholders. Sanda et al (2015) further explains that, corporate governance is concerned with ways in which all parties interested in the well-being of the firm attempt to ensure that managers and other insiders take measures or adopt mechanism that safeguard the interest of stakeholders.

Given the fury of activities that have affected the efforts of Banks to comply with the various consolidation policies and the antecedents of some operators in the system, there are concerns on the need to strengthen corporate governance in Banks. This will boost public and investors confidence and ensure efficient and effective functioning of the banking system (Soludo, 2014a). Heidi and Marleen (2019) viewed that, the banking supervision cannot function well if sound corporate governance is not in place. Consequently, banking supervisors have strong interest in ensuring that there is effective corporate governance at every banking organization.
Mayes, et al, (2018) opined that the changes in bank ownership during the 2010s and early 2010s substantially altered governance of the world's banking organization. These changes in the corporate governance of banks raised very important policy research questions. The fundamental question is how do these changes affect bank performance?

Corporate governance is therefore, about building credibility, ensuring transparency and accountability as well as maintaining an effective channel of information disclosure that will foster good corporate performance. Corporate governance is the system of checks and balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activities Muhammed, (2019) cited in (Onakoya, et al 2018)
Return on assets is a profitability ratio that provides how much profit a company is able to generate from its assets. It measures how efficient a company's management is in generating earnings from the economic resources or assets on their statement of financial position (Adepoju 20107).Return of assets is an important indicator of the performance of the bank since it determine the profitability of the banks. It is defined by net income to total asset McRitchie, (2018). Therefore, Pitt and Tucker (2018) see organizational performance as a vital sign of the organization, showing how well activities within a process or the outputs of a process achieve a specific goal". It is also defined as "process of assessing progress towards achieving pre-determined goals, including information on the efficiency by which resources are transformed into goods and services, the quality of these outputs and outcomes, and the effectiveness of organizational objectives" (Amaratunga & Baldry, 2019)

Statement of the Problem
Poor corporate governance has resulted in decline in shareholders' wealth and corporate failure. The sequence of cases that are extensively publicized regarding misconduct of accounting procedures witnessed in the banking industry in Nigeria relate to the absence of cautious

supervisory functions by the boards of directors, the board delegating management to corporate managers who follow their own selfish motives and these persists without check due to the negligence of the board and their persistent inability to be accountable to stakeholders.
Nigerian Banks are faced with myriad of problems despite the mandatory action of banks consolidation pronounced by CBN in 2015 so as to make banks more effective and strengthen their performance Bino and Tormar, (2010). However, several banks collapses resulting from weak systems of corporate governance and internal control system have highlighted the need to improve and reform corporate governance at an international level. (Onakoya, et al 2018)

The corporate governance problems in the Nigerian banking sector include: weak internal control system and non-compliance with laid down internal control and operational procedure, ignorance of and non-compliance with rules, laws and regulations guiding banking business; passive shareholders, disagreement between board and management giving rise to board squabbles; ineffective board oversight function; fraudulent and self serving practices among members of the board, management and staff; over bearing influence of chairman or MD/CEO; non-challant attitude of owners, poor risk management practices, resulting in large quantity of non-performing loans including insider-related credit; sit tight directors-even where such directors fail to make meaningful contribution to the growth and development of the banks; succumbing to pressure from other stakeholders like shareholders appetite for high dividend and returns and depositors quest for high interest on deposits, technical incompetence, poor leadership and administrative inability, inability to plan and respond to changing business circumstance as at when due and ineffective management information system.
(Yauri, et al 2020)corporate governance was seen manifesting in form of weak internal control system, excessive risk taking, override of internal control measures, absence of or non-adherence to limits of authority, disregard for cannons of prudent lending, absence of risk management processes, insider abuses and fraudulent practices remain a worrisome feature of the banking system (Soludo, 2014b).

Several researches have been undertaken in this area and each researcher gave a different view and results. Emeka and Alem (2019) studied empirical investigated the effects of corporate governance on bank's financial performance in Nigeria for period of 2014-2019.
Due to this fact, several reforms of corporate governance have been distinctively highlighted regarding the required changes needed to be made to the board of directors relating to the structure, composition and size.
In view of the highlighted challenges, this study focused the impact of corporate governance systems on the financial performance of deposit money banks in Nigeria and aimed to answer questions such as: to what extent (if any) what is the relationship between board members size and Return on Assets. What is the relationship between board independence size and Return on Assets. What is the relationship between board of composition size and Return on Assets. What is the relationship between proportion of shareholders and Return on Assets. What is the relationship between board management meeting and bank size and Return on Assets.

Aim and Objectives of the Study
The main objectives of this study is to investigate corporate governance structures and cost of deposit of Nigerian banks. Other specific objectives are as follows to;

1. investigate the relationship between corporate governance measured as (board members size, board independence size, board of composition size, proportion of shareholders more than 10,001 share, board management meeting and bank size) and cost of deposit measured as Return on Assets.

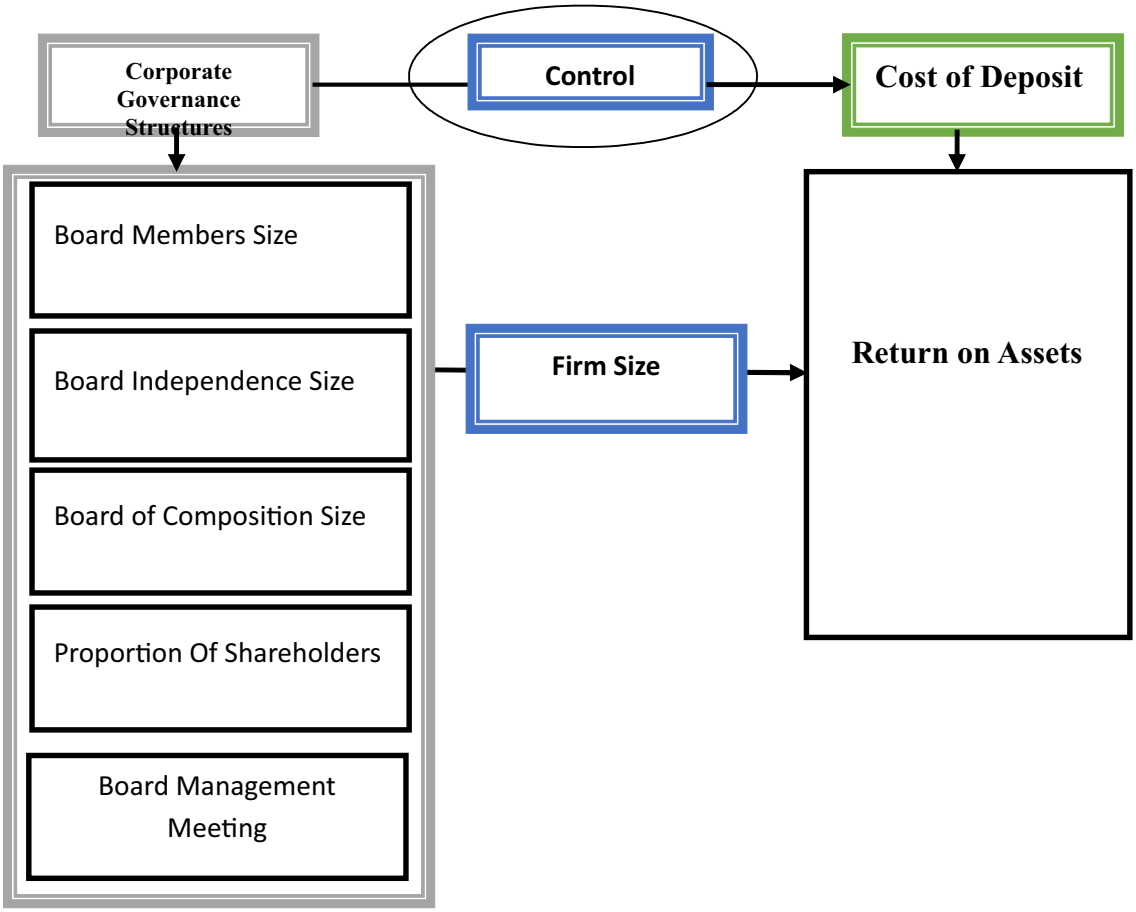
Research Questions

1. What is the relationship between board members size and Return on Assets.
2. What is the relationship between board independence size and Return on Assets.
3. What is the relationship between board of composition size and Return on Assets.
4. What is the relationship between proportion of shareholders and Return on Assets.
5. What is the relationship between board management meeting and bank size and Return on Assets?

Hypotheses

H01: There is no significant relationship between board members size and Return on Assets.
H02: There is no significant relationship between board independence size and Return on Assets.
H03: There is no significant relationship between board of composition size and Return on Assets.
H04: There is no significant relationship between proportion of shareholders and Return on Assets.
H05: There is no significant relationship between board management meeting and bank size and Return on Assets.

Conceptual Framework



Sources: Pandey (2019)
Figure 1.1: Conceptual framework of the relationship between corporate governance structures and cost of deposit of Nigerian banks.

Corporate Governance Structures

Kwakwa and Nzekwu (2019) sees governance as a 'vital ingredient in the balance between the need for order and equality in society; promoting the efficient production and delivery of goods and services; ensuring accountability in the house of power and the protection of human right and freedoms'. Governance is, therefore, concerned with the processes, systems, practices and procedures that govern institutions, the manner in which these rules and regulations are applied and followed, the relationships created by these rules and nature of the relationships (Akingunola, et al ,2015). Corporate governance, on the other hand, refers to the manner in which the power of a corporate is exercised in accounting for corporation's total portfolio of assets and resources with the objective of maintaining and increasing shareholders' value and the satisfaction of other stakeholders while attaining the corporate mission (Kwakwa et al, 2019). In other words, corporate governance refers to the establishment of an appropriate legal, economic and institutional environment that allows companies to thrive as institutions for advancing long-term shareholders' value and maximum human centered developmentOkoye, et al,. (2017). The corporation has to achieve this while remaining actively conscious of its responsibilities to other stakeholders, the environment and the society at largeOjeka, et al., (2017).

Thus, corporate governance is also concerned with the creation of a balance between economic and social goals on one hand and between individual and communal goals on the other handYung, (2019).To achieve this, there is the need to encourage efficient use of resources, accountability in the use of power as well as the alignment of the interest of the various stakeholders, such as; individuals, corporations and the society Corporate governance structure entails the distribution of rights and responsibilities among different participants in the corporation, such as, the board,managers, shareholders and other stakeholders and spells out the rules and procedures for making decisions on corporate affairs and other mattersYermack, (2019). This provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance.

Rachinsky, (2018) affirmed that the corporate governance is to investigate how to secure or motivate efficient management of corporations by the use of incentive mechanism, such as contracts, organizational design and legislation. This is often limited to the question of improving financial performance i.e profitability, for example, how the corporate owners can secure or motivate so that corporate manager will deliver a competitive rate of return? Pandey (2019) asserts that corporate governance implies that the company would manage its affairs with diligence, transparency, responsibility and accountability and would maximize shareholders wealth. Akinsulire (2019) corroborated that, corporate governance as a term covers all the general mechanism by which management are led to act in the best interest of the company owners Asaolu, (2015). A perfect system of corporate governance would give management all the right incentives to make value maximizing investment and financing decision and would assure that cash is paid out to investors when the company runs out of viable projects i.e. investment with positive NPV In general terms, however, corporate governance deals with the way corporate bodies utilize their funds to generate financial wealth for shareholders and social wealth for the community in which they are located (Uwuigbe,2018).It is therefore observed that corporate governance deals with issues of accountability and fiduciary duty, in the main advocating the implementation of policies and mechanisms to ensure good behaviour and protect shareholders.

Corporate Governance and Banks

Corporate governance is a crucial issue for the management of banks, which can be viewed from two dimensions. One is the transparency in the corporate function, thus protecting the investors' interest (reference to agency problem), while the other is concerned with having a sound risk management system in place (special reference to banks) (Uwuigbe,2018) The Basel Committee

on Banking Supervision (2019) states that from a banking industry perspective, corporate governance involves the manner in which the business and affairs of individual institutions are governed by their boards of directors and senior management. This thus affect how banks:

i) set corporate objectives (including generating economic returns to owners);
ii) run the day-to-day operations of the business;
iii) consider the interest of recognized stakeholders;
iv) align corporate activities and behaviours with the expectation that banks will operate in safe and sound manner, and in compliance with applicable laws and regulations; and protect the interests of depositors.

MEASURES OF CORPORATE GOVERNANCE

a. Board members size: A board of directors is an executive committee that jointly supervises the activities of an organization, which can be either a for-profit or a nonprofit.

b. Board independence size: An Board independence size is a size of the member of a board of directors who does not have a material or pecuniary relationship with company or related persons.

b. Board of composition size: Board Composition. Means that for so long as at least 25% percent of the initially issued shares of Preferred Stock remain outstanding.

c. Proportion of shareholders: The amount of shareholders' funds can be calculated by subtracting the total amount of liabilities on a company's balance sheet from the total.

d. Board management meeting: is an executive committee that jointly supervises the activities of an organization.

THEORETICAL FRAMEWORK

The theoretical focus for the study. The theories were treated; namely follows:

The agency theory: .

This theory sees shareholders as the principals and management as their agents. Agents will, however, act with rational self-interest as employee directors of a company, they will aspire to maximize their monetary compensation, job stability and other perks, and do no more than seek to appease shareholders. They cannot, in other words, be expected to act in the interests of the shareholders. They need, instead, to be monitored and controlled to ensure that the principals' best interests are served. This theory is the basis for most of today's corporate governance activity.

The stewardship theory

This upholds that, because people can be trusted to act in the public good in general and in the interest of their shareholders in particular, it makes sense to create management and authority structures, because they provide unified command and facilitate autonomous decision making, enable companies to act (and react) quickly and decisively to market opportunities. This approach leads, for instance, to the combination of the roles of chairman and CEO, and for audit committees to be either non-existent or lightweight. Resistance to the modern corporate governance movement to a day tends to be based on this theory.

Empirical Review

Kyereboah-Coleman et al (2019) examined how corporate governance indicators such as board size, board composition and CEO duality impact financing decisions of 47 firms listed on the Nairobi Stock Exchange. They found that firms with larger board sizes employ more debt and the independence of a board correlates negatively and significantly with short-term debts.

Uwuigbe (2018) examined Corporate Governance and financial performance of Banks in Nigeria. He measured variables for corporate governance as board size, the proportion of non-executive directors, directors' equity interest and corporate governance disclosure index. Financial performance of the banks measures as return on equity (ROE) and return on asset

(ROA). His study revealed that a negative but significant relationship exists between board size, board composition and the financial performance of these banks, while a positive and significant relationship was also noticed between directors' equity interest, level of governance disclosure and performance.

Adeusi, et al, (2019) studied Corporate Governance and firm financial performance used a sample of 10 selected banks' annual reports covered 2015-2010. They used return on asset, board size, board composition that is, number of executive directors and number of non-executive directors. They discovered that improved performance of the banking sector is not dependent on increasing the number of executive directors and board composition.. They concluded that there is a need for increase in board size and decrease in board composition as measured by the ratio of outside directors to the total number of directors in order to increase the bank performance.
Emeka and Alem, (2019) investigated the effects of Corporate Governance on Bank's Financial Performance in Nigeria, covered years 2014- 2019. They discovered that there were effects of relative size of non-executive directors and the board size on return on investment (ROA). They found that the relationship between corporate governance and bank performance in Nigeria is quite significant as a unit change in the board size and the relative size of non-executive directors increases the return on assets.

Dzingai and Fakoya (2017) assessed the effect of corporate governance structures on firm financial performance in Johannesburg Stock Exchange (JSE).They used panel data analysis of the random effects model to determined the relationship between board independence and board size and the return on equity (ROE) for the period 2010–2015. They found that a weak negative correlation between ROE and board size but positive correlation between ROE and board independence. They further disclosed that there is a positive, but weak, correlation between ROE and sales growth, but a negative and weak relationship between ROE and firm size. They suggested that, effective corporate governance through a small effective board and monitoring by an independent board result in an increased firm financial performance

Akingunola, et al (2015) examined the corporate governance and banks' performance in Nigeria. They used earnings, return on equity and return on assets as variables. They employed the ordinary least squares regression method to analyze their data. They revealed that bank deposits mobilized and credits created over this period increased over the years but were more positively related to bank performance during the period of consolidation although not significant. They concluded that, to minimize financial and economic crime in the system, banks must embrace fiduciary duty which includes transparency, honesty and fairness (corporate governance codes) in dealing with all its stakeholders.

METHODOLOGY

The study employed secondary source of data. Data were gotten from the audited annual report and accounts of commercial banks in Nigeria which is, First Bank plc, Guaranty Trust Bank plc and first City Monument Bank and Zenith Bank Nig Plc, over the period 2012– 2020Soludo, (2014). This period was chosen so as to determine the pattern in which the corporate governance (CG) has been influence on Return on Assets of banks in Nigeria for five years financial summary. This study used estimated technique of Descriptive statistics, Pearson Product Moment Correlation analysis and Ordinary Least Square- Multiple regression method with the aid of using E- view 9 to analyse the data.

MODEL SPECIFICATION

This study adopted the models used by Duke & Kankpang (2018); the models seek to link corporate governance and financial report reliability with firm performance. Thus, the models are specified as follow:

ROA = f (CG) ----------.(1)
Where;
ROA :Return on Assets
CG : Corporate Governance
Equation (1) presents the functional relationship between ROA) and (BOS), (BIS), size (BCS), (SMT), (BMM) (BAS).

The above equation can be re-specified in an explicit form as shown below;
ROA = f(BOS, BIS, BCS,SMT,BMM,BAS, ε)----------(2)
ROAt = β0 + ∑n β1BOSt+ β2BISt+ β3BCS t + β4SMTt + β5BMM t + β6BAS t + ε ----------(3)
Where; ROA = Return on Assets
CG= is a vector of corporate governance variables which include board members size (BOS), board independence size (BIS),board of composition size (BCS), proportion of shareholders more than 10,001 share (SMT), board management meeting (BMM) and bank size(BAS) represent natural Logarithm of total assets of each bank , β0 = Constant Parameter, β1 –β6 = Coefficient of explanatory variables , ∑ = Summation, e = Error Term , i = Cross section , t = Time series
A priori Expectations: β1 to β6 +/-

Thus, the method of analysis adopted is the panel regression involving ordinary least square estimation techniques. The correlation coefficient is used to measure the degree of association between the governance variables and profitability indices; while a robust estimator panel corrected standard error (PCSE) for the regression analysis is used to investigate the impact of corporate governance indices on banks' financial performance.

Presentation of Results or findings
This section deals with the analysis of data analysis and presentation of results.

Table 1: Descriptive statistics

	ROA	BOS	BIS	BCS	SMT	BMM	BAS
Mean	3.807333	12.20000	2.800000	6.600000	23.48267	4.933333	2.764667
Median	3.670000	12.00000	3.000000	7.000000	24.58000	4.000000	2.440000
Maximum	6.590000	16.00000	4.000000	8.000000	30.10000	7.000000	3.480000
Minimum	1.670000	9.000000	2.000000	6.000000	16.03000	4.000000	2.330000
Std. Dev.	1.527891	2.274078	0.774597	0.632456	5.456381	1.162919	0.508469
Skewness	0.231520	0.461711	0.343622	0.490990	-0.334918	0.695354	0.625696
Kurtosis	1.954384	1.948338	1.846939	2.357143	1.506356	1.943216	1.478582
Jarque-Bera	0.817325	1.224189	1.126158	0.860969	1.674783	1.906788	2.425434
Probability	0.664539	0.542214	0.569453	0.650194	0.432838	0.385431	0.297388
Sum	57.11000	183.0000	42.00000	99.00000	352.2400	74.00000	41.47000
Sum Sq. Dev.	32.68229	72.40000	8.400000	5.600000	416.8093	18.93333	3.619573
Obs	15	15	15	15	15	15	15

Source: Authors' computation Using E-view 9

Table 1 provides the summary of descriptive statistics of ROA, BOS, BIS, SMT, BMM and BAS for the study. Given the scope of the study (2012-2020) and the frequency of the annual data, all the variables have 15 observations. As shown in Table 1, the sum, range, mean, maximum and minimum, standard deviation and variance as well as the skewness and kurtosis of our variables of interest are evident Mak and Kusnadi, (2015). The various statistics indicate that, the variables

have different distributions. The skewness and kurtosis statistics provide useful information about the symmetry of the probability distribution of various data series as well as the thickness of the tails of these distributions respectively Kama, (2019). These two statistics are particularly of great importance since they are used in the computation of Jarque-Bera statistic, which is used in testing for the normality or asymptotic property of a particular series. All of the variables in the study are positively skewed showing that they have a long right tail and SMT which is negatively skewed indicates a long left tail. Kurtosis statistics of the all variables are less than 3 implying the extent of flatness of the distribution of the data series relative to normal.

	ROA	BOS	BIS	BCS	SMT	BMM	BAS
ROA	1.000000						
BOS	-0.583674	1.000000					
BIS	-0.139296	-0.300070	1.000000				
BCS	0.412758	-0.735019	0.554051	1.000000			
SMT	-0.284168	0.878461	-0.550304	-0.800491	1.000000		
BMM	-0.782005	0.815688	-0.174449	-0.621545	0.691315	1.000000	
BAS	0.850069	-0.163947	-0.398258	-0.000444	0.184985	-0.468130	1.000000

Source: Authors computation

Using E-view 9 From result table 2, the independent variables of board members size (BOS), board independence size (BIS), proportion of shareholders more than 10,001 share (SMT) and board management meeting (BMM) were negative correlated while board of composition size (BCS) and bank size(BAS) were positive correlated hence multi-colinearity in the result with the dependent variable (ROA) constant with 1.The interpretation was that the level of multi-colinearity between the independent variable was not very high which meant that the influence of each variable in the regression equation could be isolated easily.

Table 3: pooled OLS result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.863917	3.248096	-0.573849	0.5818
BOS	-0.157389	0.168857	-0.932080	0.3786
BIS	-0.078174	0.232648	-0.336017	0.7455
BCS	0.447293	0.365895	1.222464	0.2563
SMT	0.015420	0.094576	0.163046	0.8745
BMM	-0.257406	0.276028	-0.932536	0.3783
BAS	2.085569	0.528816	3.943850	0.0043
R-squared	0.946231			
Adjusted R-squared	0.905905			
S.E. of regression	0.468679			
Sum squared resid	1.757284			
F-statistic	23.46425			
Prob(F-statistic)	0.000115			
Durbin-Watson stat	1.525160			

Table 3 presents summary of the estimated regression model:
ROA= -1.86 -1.60BOS-0.08BIC+ 0.45BCS+ 0.02SMT- 0.26BMM+ 2.09BAS
From the table 3 , it was observed that, the coefficient of determination for the regression as

depicted by the R2 value of 0.91 suggests that about 91 percent of the systematic variation of the dependent variable is accounted for by the explanatory variable.
There are positive impact of some variables of proportion of shareholders more than 10,001 share (SMT), board of composition size (BCS) and bank size (BAS) on Return on Assets, while Board Members Size, (BMS) Board Independence Size (BIS), and Board Management Meeting (BMM) have negative influence on Return on assets . However, it was only (BAS) that has significant influence on ROA at 5% significance level.

These findings concur with those of Dhar and Bakshi (2019) who found that independence directors have negative effect on ROA of listed banks in Indian. Nguyen, et al (2017) disclosed that firm size affects positively firm performance while number of employees has a negative impact on profitability.
The Durbin Watson statistics of 1.53 which fall within the value of 1.5 to 3.5 shows absence of serial correlation in the model

DISCUSSION OF FINDING

The study found that corporate governance structures relatively affects cost of deposit of Nigerian banks. The research analysis comes from the regression of components of corporate governance disclosure based on the analysis of annual audited report and account of Zenith Bank plc, Guaranty Trust Bank plc and United Bank for Africa plc over a period of 2012-2020. The work analyzed the descriptive statistics and used panel data econometrical approaches to verify whether corporate governance disclosures could influence Return on Assets. Findings revealed that the proportion of shareholders more than 10,001 share, board of composition size and bank size exert a positive and considerable relevance to return on assets of quoted banks in Nigeria.

CONCLUSIONS

The study examined corporate governance structures and cost of deposit of Nigerian banks.It establishes that there is a relationship between corporate governance and the performance of banks in Nigeria. The board of directors and its characteristics hold many implications for the value of a firm. The degrees of qualifications or skills possessed by persons appointed to these boards and various committees can influence their performance in a dynamic business environment. The research work infers that econometric tests be implemented on a set of data that is greater and covers more firms for a longer range of time for an external corporate governance model. This may lead to a new viewpoint on the association amid the efficiency of a firm and corporate governance, alongside new policy implications. For a least developed nation like Nigeria to attain growth and development in the economy that is rapid, there is need for a solid, secure financial system, and to retain the stability of this system and maintain high competitiveness, it calls for firms that are governed well to achieve maximal resource utilization and peak performance.

RECOMMENDATIONS

It was recommended that:

1. regulatory authorities must persuade firms to sustain a realistic size of board because an excessively outsized board could be unfavorable to the performance of the firm.
2. The regulatory agencies should reconsider the processes for the selection of directors to the board so as to ensure uniform standards; transparency, accountability and stability exist in these financial markets.
3. It is important that structures and agencies are set up to ensure that corporate laws and standards set in place are strictly complied with to achieve effective governance of financial firms.
4. The board of director's size of quoted banks in Nigeria should not be too large and should be meeting regularly to effectively and efficiently carry out their oversight functions and responsibilities.

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EVALUATON OF HEAVY METAL WATER QUALITY POLLUTION OF THE MIDDLE REACHES OF ORASHI RIVER, NIGER DELTA

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ABSTACT
River water is an essential source of water for organisms in and around the river. The study was conducted to investigate river water quality pollution from five stations between October 2017 and September 2019 with the aim of evaluating concentration of heavy metals in the aquatic ecosystem. Cd, Cr, Fe, Zn and Pb were selected. Heavy metals in water samples were determined using an Atomic Absorption Spectrophotometer. Concentration was < 0.001 mg $L^{-1}$for Pb and Cd across all stations. Fe ranged from 1.54 – 4.97 mg L^{-1}, Zn 0.01mg/l – 0.34 mg L^{-1}. Cr was <0.001 in stations 1, 4 and 5, while stations 2 and 3 had their range and mean values to be 0.003 – 0.08 mg L^{-1}. Results were compared with WHO permissible limits and NESREA standard. Concentration of Cd in all stations was less than WHO permissible limit of 0.05 mg L^{-1} and NESREA standard of 0.01 mg L^{-1}. NESREA standard indicates the study area is Cr while WHO indicates stations 2 and 3. All stations were Fe polluted when compared with both standards. Zn and Pb were below both standards indicating that the middle reaches of Orashi River are free of Zn and Pb. To determine the harmful effect of these metals in the study area two indices were selected. These are Contamination Factor (CF) and Pollution Load Index (PLI). The study site is in a low state of Cd and Pb pollution ($1 \leq CF$). Fe was moderately polluted ($1 \leq CF < 3$). Stations 1 and 4 was $1 \leq$ CF suggesting low Cr pollution while Stations 2 and 3 experienced high level of Cr pollution ($CF \leq 6$). Decreasing order of PLI was station 2 > station 3 > station 1 >station 4. It is therefore pertinent for the Ministry of Environment to monitor anthropogenic activities especially at Odiobor and Mbiama.

Key words: aquatic, concentration, compare, elements, river

INTRODUCTION
Activity close to rivers releases elements that have led to stress on the river. The water is polluted with increase in the stress level, which eventually worsen the health status of the environment. Elements that have high density and toxic at low concentrations are known as heavy metals. Both anthropogenic activities and geochemical processes are responsible for heavy metal contamination (Li et al; 2007) which eventually ends in the aquatic ecosystem. Meeting of water quality expectations for streams and rivers is required to protect drinking water resources, recreational activities and to provide good environment for fish and wildlife (Amadi et al;2010).
Heavy metal pollution of the aquatic environment has become a worldwide problem in recent years, since they are indestructible and most of them have toxic effects on organisms. Among environmental pollutants, metals are of particular concern, due to their potential toxic effect and ability to bio accumulate in aquatic ecosystems (Censi et al., 2006). Pollution of these heavy metals in river may cause effects on the ecological balance of the aquatic environment. With the increase in contamination, the aquatic organisms become limited (Ay T et al; 2009). Due to human civilization, the element content in water rises. Such elements are cadmium, lead,

mercury, zinc and chromium. Unlike chemicals, there are some metals that cannot be converted into compounds with lesser toxicity, and one of its characteristics is loss of biodegradability.
Some heavy metals such as copper, iron, chromium and nickel are essential metals since their play an important role in biological systems, whereas cadmium and lead are non-essential metals, as they are toxic, even in trace amounts (Fernandes et al., 2008). For the normal metabolism of the fish, the essential metals must be taken up from water, food or sediment (Canlı and Atlı, 2003). These essential metals can also produce toxic effects when the metal intake is excessively elevated in the water .

The Orashi River is one of the major rivers in the Niger Delta and plays host to several communities along its bank. It therefore serves as a major transportation root for motorized river crafts and canoes, transporting goods and humans from various points. The river serves as a breeding and nursery area for several important commercial fishes, which supports huge artisanal fisheries. Other human activities in the river catchment include artisanal and industrial sand mining (dredging). Recently, there had been incidents of illegal artisanal oil theft and refining (locally called kpofire) in the river catchment, which results in oiling of the environment. The river serves as a source of water for domestic uses of the riparian population.

Presence of some of these toxic metals in rivers is a course for concern. It is therefore pertinent to assess, monitor, and control the release of these metals into the environment through various socio-economic and industrial activities because the quality of the water where aquatic organisms live need to be studied and protected. The objective of the present study was to determine heavy metals pollution in the middle reaches of Orashi River.

MATERIAL AND METHODS

Study area

The study was conducted along the middle reaches of Orashi River and lies between longitude 06^0 26' 32.5" to 06^0 30' 05.^{0}" E and latitude 05^0 26'32.5" to 05^0 08' 24.6" N . The sampling stations were arranged from downstream of the river to the upstream section as follows: OdiekeUgbobi, station 1 (05^o 01'20.4'' N,0 6^o 26' 32.5''E); Odiobor, station 2 (05^o 02' 41.3'' N and 06^o 27'07.6''E); Mbiama, station 3 (05^o 3' 41.8'' N and 06o 27' 02.9'' E); Akinima, station 4 (05o 05' 14.3'' N and 06^o 28' 17.9'' E) and Oshiobele, station 5 (05^o 08' 24.6''N and 06^o 30' 05.^{0}''E).

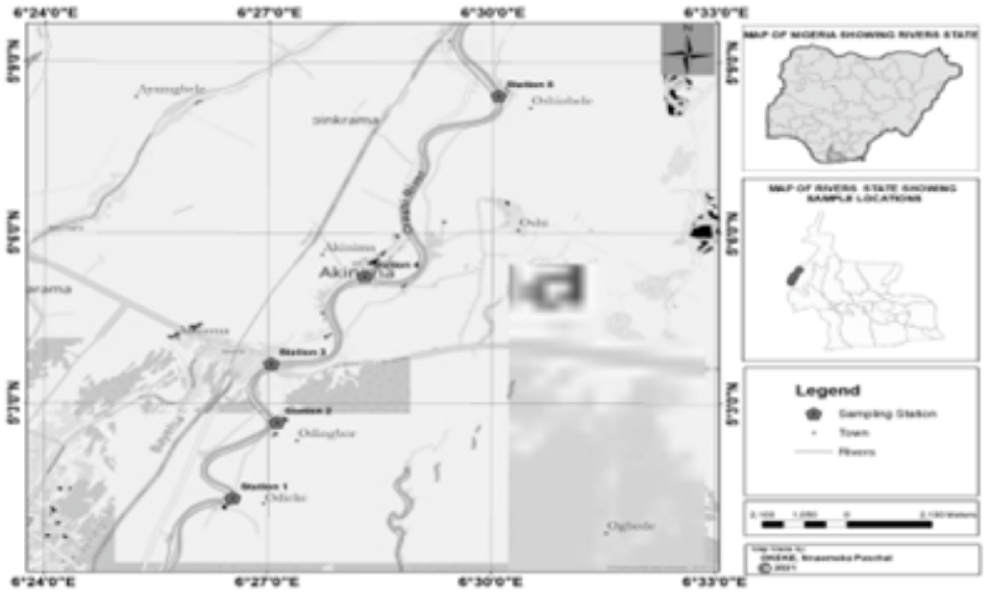

Fig 1: Map of study area

Orashi River is a major flood plain river system on the eastern flank of the lower Niger Delta (NEDECO, 1961). The headwater where Orashi River originated is far up Imo State after Oguta

Lake, and flow towards the southern direction where it joins the Oguta Lake water system. The water from Oguta Lake discharges into Orashi River both in dry and wet seasons and serves as the second main source of the Orashi. The hydrology of Orashi River is strongly influence by seasonal flooding. The water from Orashi River drains in one directional flow into the sea through the St Bartholomew and St Barbara rivers into the Atlantic Ocean.

Quality Control Assurance

Standard field methods were used for sample collection at every point with the appropriate equipment/materials. Plastic containers and glassware used for samples were soaked in nitric acid for period not less than twelve hours. The containers were washed with detergent (teepol) and rinse with clean tap water and concluded with de-ionized water as stipulated by (Onianwa, 2001). Water collected was preserved with the appropriate preservatives before being stored in ice-packed cool box in accordance with (APHA, 2005). All equipments (in-situ meters) were calibrated with the appropriate reagent before use.

Surface Water Sample Collection

The samples for trace metals analysis were placed in 150 ml plastic container and treated with concentrated trioxonitrate (V) acid (HNO3) to adjust the pH of the sample to 2.

Determination of Heavy metals in Water

Heavy metals in water samples were determined using an Atomic Absorption Spectrophotometer (AAS) as described in APHA, 1998.3111B and ASTM D3651. Water samples were collected 0.5 m below water surface, in 250 ml pre-cleaned polythene bottles. For trace element analysis, a 200 ml sample was immediately filtered through a What man's0.45 nm glass fibre filter and transferred into an acid-cleaned 250 ml polypropylene bottle, and then acidified with concentrated nitric acid to pH less than 2.0. For the determination of Cd, Cr, Pb, Fe, and Zn in water samples. Air-acetylene flame was used for the analyses, using an Atomic Absorption Spectrophotometer (AAS), Perkin 2280 model. This involved direct aspiration of the sample into an air/acetylene or nitrous oxide/acetylene flame generated by a hollow cathode lamp at a specific wavelength peculiar only to the metals programmed for analysis. For every metal investigated, standards and blanks were prepared and used for calibration before samples were aspirated. Concentrations at a specific absorbance were displayed on the data system monitor for printing. Limit of detection is <0.001 mg/L.

Laboratory (Analytical) Procedures

The analysis for trace metal concentration was carried out by the use of Atomic Absorption Spectrophotometer (AAS Unican, 969). Total hydrocarbon concentration, exchangeable cations and anions were measured by the use of flame photometer and UV/visible spectrometer (Unican Helios Gamma, UVG: 073201 and Spectronic 21D).The trace metals Cadmium, Chromium, Lead, Iron and Zinc.

Analysis of heavy metals

All data collected were subjected to statistical analysis using Analysis of variance (ANOVA) to determine their variations at stations.

Pollution assessment

Contamination Factor (CF)

The contamination factor (CF) was used to determine contamination of heavy metals in water samples (Graça et al., 2002; Zemełka,2019). Contamination factor (CF) was calculated by Eq. (1)

$CF = C_{sample/Cbackground}$ (1)

C_{sample} = mean metal content in water sample,

$C_{background}$ = mean natural background value of the metal.

The natural background sample was collected from station 5 with minimal anthropogenic activities. The area is assumed to be free from the known anthropogenic source of heavy metals. Ratio of the measured concentration to the natural abundance of a given metal had been proposed as the index CF. Contamination factor is categorized into four classes for monitoring the pollution of a single metal over a period of time (Ali et al.,2016; Shen F, et al; (2019): low degree (CF < 1),moderate degree (1 ≤CF < 3), considerable degree (3 ≤ CF < 6), and very high degree (CF ≤ 6).

Pollution Load Index

Pollution Load Index (PLI) is used to assess the water quality. PLI of the combined approaches of the heavy metals was calculated according to Islam et al., (2017). The PLI is the nth root of the multiplications of the contamination factor of the target heavy metals (CF).

PLI = (CF1 × CF2 × CF3 × . . . × CFn) 1/n (2)

CF1 = concentration of first metal

CF2 = concentration of second metal

CFn = concentration of metal nth

n = total number of studied heavy metals in the sample.

PLI = 0 means excellence; PLI = 1 suggests the presence of only a baseline level of pollutants and PLI > 1 indicates progressive deterioration of the site and estuarine quality (Tomlinson et al.,1980). The PLI evaluated the overall toxicity status of the sample and its contribution to the contribution of the five metals.

RESULTS

Results from Table 1 indicate heavy metals recorded a < 0.001 mg L−1for Pb and Cd across all stations. Bothe metals were below the WHO permissible limit and the NESREA (Table 2).

Table 1: Variation in range, mean, and standard deviation of heavy metals of surface water in different stations in the middle reaches of Orashi River

Parameter	**Odieke (Stn_1)**	**Odiobor (Stn_2)**	**Mbiama (Stn_3)**	**Akinima (Stn_4)**	**Oshiobele (Stn_5)**	**NESREA Standard**
Cd	<0.001	<0.001	<0.001	<0.001	<0.001	
(mg L^{-1})	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
Cr	<0.001	0.003-0.08	0.032-0.062	<0.001	<0.001	
(mg L^{-1})	0.001±0.00	0.009±0.02	0.007±0.017	0.001±0.00	0.001±0.0	0.5
Fe	3.135-3.816	2.483-4.749	3.257-3.981	2.205-4.966	1.542-3.528	
(mg L^{-1})	3.53±0.18	3.52±0.39	3.58±0.25	3.55±0.49	2.9±0.47	0.5
Zn	0.01-0.238	0.028-0.32	0.009-0.322	0.003-0.24	0.008-0.338	
(mg L^{-1})	0.08±0.07	0.09±0.08	0.07±0.07	0.07±0.07	0.06±0.07	0.2
Pb	<0.001	<0.001	<0.001	<0.001	<0.001	
(mg L^{-1})	<0.001	<0.001	<0.001	<0.001	<0.001	-

Table 2: Standards for heavy metals

Heavy metal	WHO permissible limit (mg L^{-1})	NESREA standard (mg L^{-1})
Cd	0.05	0.01
Cr	0.003	0.50
Fe	0.30	0.50
Zn	3.00	0.20
Pb	0.01	-

Chromium (Cr) had <0.001 in stations 1, 4 and 5, while stations 2 and 3 had their range and mean values to be 0.003 – 0.08 mg L^{-1}. Stations 1,4 and 5 recorded low Cr values when compared with

WHO permissible limit of 0.003mg L^{-1} while stations 2 and 3 were higher. The mean values of all stations were below the NESREA standard of 0.5 mg L^{-1}.
Fe ranged from 1.54 – 4.97 mg L^{-1} (Table 1) and was above both the WHO permissible limit and NESREA standard of 0.30 mg L^{-1} and 0.5 mg L^{-1} respectively (Table 2) from the mean in all stations. Zn ranged from 0.01mg/l – 0.34 mg L^{-1}. The mean concentration of Zn was below the WHO permissible limit of 3.00 mg L^{-1} and NESREA standard of 0.2 mg L^{-1} (Table 2) in all stations.

Table 3: Estimates of contamination level (CF) in Middle reaches of Orashi River

Station	Cd	Fe	Cr	Zn	Pb
OdiekeUgbobi (station 1)	1	1.22	1	1.33	1
Odiobor (station 2)	1	1.21	9	1.50	1
Mbiama (station 3)	1	1.23	7	1.12	1
Akinima (station 4)	1	1.22	1	1	1

DISCUSSION

The concentration of Cadmium (Cd) in all the study sites was<0.001.The value obtained in the study was less than the World Health Organization (WHO) permissible limit of 0.05 mg L^{-1} and the National Environmental Standards and Regulations Enforcement Agency (NESREA) standard of 0.01 mg L^{-1}. This suggests that the study area is free of Cd pollution. Cd is homogeneously distributed in the earth crust at an average concentration of between 0.15 to 0.2mg/kg (Hiatt and Huff, 1975). Its concentration in pure fresh water is generally less than 0.001 mg L^{-1}which agrees with Fleischer et al.,(1974) but disagrees with Wangboje and Ikhuabe (2015) who recorded a range of 0.00-0.14 mg L^{-1} in their study of heavy metal content in fish and water from River Niger at Agenebode, Edo State, Nigeria.

Chromium (Cr) concentration in this study ranged from <0.001-0.08mg L^{-1} (Table 1). As recorded by Batayneh (2012), surface water range is from 0.004 to 0.007mg/L.This value suggested that only station 2 is polluted with Cr. The standard NESREA value is 0.5 mg L^{-1} while WHO permissible limit is 0.003 mg L^{-1}. The NESREA standard indicates the study area is Cr free since all the sites are below the concentration of 0.5 mg L^{-1}. According to the WHO the concentration of Cr in the water, indicates that the water is Cr polluted in stations 2 and 3 because the mean concentration is higher than the WHO value of 0.009±0.02 and 0.007±0.017 respectively. This could be due to the serious anthropogenic activities in these areas. Station 2 was observed to have some much human activities such as sand dredging, bunkering, illegal artisanal crude oil refineries (kpo – fire) and waste dump area. Station 3 experienced more serious anthropogenic activities. There were lots of dredging activities in the area coupled with the landing and sale of illegal refined crude oil products in.
In this findings, Iron (Fe) varied between 1.54 – 4.97 mg L^{-1} (Table 1). Fe presence in water is due to the use of iron coagulants or the corrosion of steel and cast iron pipes during water supply and from mineral industries (WHO, 2006). WHO permissible limit for Fe is 0.30 mg L^{-1}, while the NESREA standard is 0.5 mg L^{-1}. The concentration of Fe in all water samples were found above these standards which implies that the middle reaches of Orashi River was Fe polluted.

The element Zinc (Zn) is always present in all igneous rocks. It is an essential micronutrients. The concentration of Zn as determined in the middle reaches of Orashi River was in the range 0.01mg/l – 0.34 mg L^{-1} (Table 1). The ranges of Zn investigated in all stations of the river were

within the permissible limits of 3.00 mg L^{-1} set by World Health Organization (Table 2). Mean concentrations in all stations were also below WHO permissible limits. This suggests that the middle reaches of Oradhi River are not Zn polluted by the WHO standard. The NESREA limit is contrary to that of WHO if the range is to be considered because all stations recorded a maximum value above the NESREA standard of 0.2 mg L−1. When the mean concentrations of the different stations were compared to the NESREA standard all stations were below NESREA standard. This indicates that the study area is not Zn polluted. Concentration of lead (Pb) in all study stations were below the WHO standard. This indicates that the middle reaches of Orashi River are free of lead.

Concentration of heavy metals alone does not provide enough information on potential toxicity and mobility of contaminants or the possible harmful effects on the environment. Different chemicals can inactivate and promote synergistic effects. CF and PLI were used to determine the potentially harmful effect of heavy metals in the environment (Table 3) because these indices provide basis for assessing the effects of contaminants compared to the values concerning each index (Moore et al., 2011).

The CF of Cd and Pb in all stations was 1. This indicates the river water is in a low state of Cd and Pb pollution ($1 \leq CF$). Fe was between 1.21 and 1.23 indicating that the water is moderately polluted ($1 \leq CF < 3$). CF of Cr in stations 1 and 4 was ($1 \leq CF$) suggesting low pollution level. Stations 2 and 3 experienced high level of pollution ($CF \leq 6$) because the CF values were 9 and 7 were respectively. Zn in all stations was ($1 \leq CF < 3$) indicating that the river is moderately polluted.
The PLI values for each station show the decreasing order of contamination: station 2 > station 3 > station 1 >station 4. Stations 1 and 4 PLI value were less than 1 suggesting zero pollution of the stations. Stations 2 and 3 PLI values were more than 1 (PLI > 1) suggesting pollution from anthropogenic sources in the areas. This indicates progressive deterioration of the area and river quality (Tomlinson et al.,1980).

CONCLUSION

Concentration of Cd suggests that the study area is free of Cd pollution. The CF value indicates all stations were in a low state of Cd and Pb pollution ($1 \leq CF$). Chromium (Cr) concentration in this study ranged from <0.001-0.08 mg L−1. The NESREA standard indicates the study area is Cr free. WHO concentration of Cr in the water, indicates that the water is Cr polluted in stations 2 and 3. CF of stations 2 and 3 experienced high level of pollution ($CF \leq 6$).Concentration of Fe in all water samples were found above these standards which implies that the middle reaches of Orashi river was Fe polluted. CF value of Fe was ($1 \leq CF < 3$) in all stations indicating moderate pollution. The middle reaches of Oradhi River is not Zn polluted by the WHO and NESREA standards. Zn in all stations was ($1 \leq CF < 3$) indicating that the river is moderately polluted. Stations 2 and 3 PLI values were more than 1 (PLI >1) indicating progressive deterioration of the river quality due to anthropogenic activities. The results from the study suggested that the middle reaches of Orashi River are moderately polluted especially in Odiobor and Mbiama axis. It is therefore pertinent for the ministry of environment to monitored anthropogenic activities, most especially in Odiobor and Mbiama.

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PROMOTING HOME ECONOMICS PRODUCTS THROUGH ONLINE SALES AS A STRATEGY FOR SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT

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ABSTRACT
Sustainable development will be difficult to attain if entrepreneurs who practice one skill or the other do not embrace self-improvement in their businesses. This paper seeks to provide an insight on how repackaging of home Economics based products using ICT resources for online sales and marketing for Sustainable Socio Economic Development. It was concluded that there is need for a transition from the present analogue system of sales and marketing to the advanced method of digital marketing. It was recommended that there is a need for greater collaboration between Home Economics based entrepreneurs and the ICT based expert in order to help enhance Digital marketing and sales skills for greater sales and profitability to enhance sustainable development.

Key word: Home Economic, Entrepreneur, Online sales, Sustainable development.

INTRODUCTION
Nigeria is endowed with both human and material resources but has been affected by so many socio economic problems. youths unemployment, high inflation, poverty, insecurity, prostitution, child trafficking etc. These problems are linked to the inability of our present economy to guarantee work and income for every citizen in addition to our over reliance on one source of income (Crude Oil) and the inability of Government to diversify the economy to enhance wealth creation and guarantee Socio Economic development ((Ahiauzu,2010). There has been an increasing need for a change in the mindset of Nigerians to look beyond government and develop self help skills and their potentials in making ends meet for individuals, families and society in general.

Entrepreneurship as defined by Ejiofor (2016) is the willingness and ability of an individual to seek out investment opportunities, establish and run an enterprise. The activities include identification of investment opportunities, decision making as to the opportunities for exploration, promotion and establishment of business enterprise, aggregation of scarce resources required for production and distribution, organization and management of the human and material resources for the attainment of economic objectives. For those who put the factors together towards a business, Akpan (2014) stated that an entrepreneur is a person who has the ability to see and evaluate business opportunities, gather the necessary resources to take advantage of them and initiate appropriate action to ensure success. This reveals that they are the risk takers, who shoulder uncertainty to create businesses and industrial activities where none has been in existence.

According to Onodugo (2014), entrepreneurship is an attitude of mind, a way of thinking and of behaving. It can involve one starting his own business and rising with it. Awojobi (2015) refers to entrepreneurship as the process of bringing together creative and innovative ideas and combining them with management and organization skills in order to combine people, money and resources to meet an identified need and thereby create wealth. Furthermore, Aruwa (2016) explained that there are individuals with the capacity, ability and courage to take calculated risk if he or she is innovative enough to establish and manage a business for purpose of profit, growth

and wealth creation.
However, in the present dispensation, a lot of skills are needed by the entrepreneur for good production; there has been greater need towards innovation and improvement in the sales of products through packaging because every aspect of life is digitalized. This innovation, improvement and repackaging of products by entrepreneur have brought better potentials for marketing products and making profits by bringing about sustainable development.

Need for ICT Knowledge
The Technological era in which we are living is characterized by increasing demand for the use of computers and this being experienced in virtually every aspect of human endeavor of which entrepreneurs are inclusive. It's education helps in positive change of an individual and everything that concerns him bringing meaningful contribution to the development of the society.

Information and communication technology (ICT) is presently essential for all public and private business enterprises. It brings about business opportunities and open links for business owners to their customers towards a relationship that enhances business exchanges. ICT has a better way of making management and operation more efficient. Companies today, advertise most of their products online using a variety of method, by paying for online advert that pop up on websites, placing adverts in special sections offered by major commercial online services or adverts in certain internet news group which are basically for commercial purposes. The ICT has now become a serious challenge for people intending to move with current trends but this has been impactful on economic social and all around development of people who value its contributions.
Kozima (2015) stated that its emergences have created significant social and economic opportunities. This has made information and communication technology (ICT) to be regarded as a fundamental skill every person needs for sustainable development. Hence, digital skills application in sales and marketing of home economics products has become imperative since there is a significant shift and transition from physical means of doing businesses to digital ones.

Repackaging of Entrepreneurial Products
Repackaging refers to putting something into a new look by trying to present it to the public in a new or more attractive manner. This act of rebranding has a high potential of improving sales of products for business owners. Entrepreneurs who really want to survive in the business world, or be ahead of other competitors of similar products ought to think about repackaging. Home economics entrepreneurs have variety of products which could assists towards earning a living. This has made it pertinent to improve the ways of doing business Technology advancement, especially the introduction of ICT which has brought improved ways of selling and purchasing practices through online sales by company manufacturers/dealers. Some of these online market places include: Ebay: which is the largest consumer auction site, Amazon: The largest internet retailer, Kickstarter: largest crowd-funding website, Esty: Marketplace for handmade items, AliExpress: New consumer whole marketplace from Alibaba that allows one to order in small quantities, Jumia marketplace for different goods/services, Konga purchases and delivery of goods/services.

Online sales has greatly enhanced products sales, making it possible to have customers nationwide and internationally. The benefit cannot be overemphasized because it has made business highly efficient by displaying product on website or registration of businesses online. Repackaging products has to be done by entrepreneurs in order to upgrade themselves for the challenges posed by online sales through: Making sure the packaging reflects the product: Every entrepreneur should ensure that the packaging represents the product inside the pack and have an improvement in terms of efficiency and efficacy, transportation, delivery, sizes and appearance are enhanced when product are adequately branded to meet current and future global demands.

Furthermore, one of the most efficient way to multiply your profit is to rebrand what you have. Some of the items that could be used repackaging in Home Economics by entrepreneurs includes: Static-free plastic bags, Bubble wrap (air cellular), Loosefill foam peanuts, Decorative carton box, Sealed wraps.

Patel (2014) suggested some key factors entrepreneurs should follow in order to become successful in online sales, they includes: Produce content, Putting calls to action, Creating a mailing list, Be social, Help people, Be all about customer retention.

CONCLUSION

Economic transformation can be accelerated when we begin to transit from manual to digital form of doing business in order to be successful and achieve good results. It is therefore necessary for entrepreneurs to make their businesses meet present day challenges in order to increase sales and profitability that will bring about sustainable development of the economy. Entrepreneurs should improve their online sales and marketing skills through training in specialized ICT programs. Improve and increase profit by packaging their products in such ways that would meet current global standard. Training on new products development strategies should be mandatory to meet the increasing dynamic changes in consumer preferences. Greater collaboration between ICT expert and entrepreneurs in Home Economics should be enhance to transform the sector.

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IMPACT OF MULTIPLE STRESS MANAGEMENT INTERVENTION ON MOTIVATION AND ACADEMIC PERFORMANCE OF AUTOMOBILE TECHNOLOGY EDUCATION STUDENTS IN UNIVERSITIES IN SOUTH-SOUTH, NIGERIA

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ABSTRACT
The study sort to determine the impact of multiple stress management intervention on motivation and academic performance of Automobile Technology Education students in Universities in South-South, Nigeria. 2 purposes with corresponding research questions were generated, answered respectively. The study employed quasi-experimental design. The population for the study was 97 first year Automobile students. The structured questionnaire and automobile technology performance test instruments were used for data collection. The instruments used for data collection were validated by 3 experts and has overall reliability coefficients of 0.78. Data analysis was carried out using mean and standard deviation. MANCOVA was used to test the hypothesis. The findings revealed significant effect of the intervention on student's health status and improved academic performance. It was therefore recommended among others that multiple stress management intervention should be integrated in Automobile technology education and other engineering/technology based programmes to foster effective stress management practices among students. Also, there is the need for stress management training for all levels of Automobile students with involvement of capability within the university.

Keywords: Automobile Technology Education, Academic Performance, motivation and Multiple Stress Management Intervention.

INTRODUCTION
Automobile Technology is one of the trades offered as an option in technical education in the tertiary institutions in Nigeria. The programme of Automobile Technology in tertiary institutions including universities in South-South Nigeria is designed to produce competent graduates-technologists in various Automobile trades despite the stressful nature of the university education (Poripo, Ede, Nwaodo & Youdiowei, 2020). Automobile is a self-propelled vehicle that is used for the transportation of goods and passengers on the ground. However, Automobile Technology Education involves the application of scientific knowledge in the design, selection of materials, construction, operation, maintenance and pedagogical skills acquisition of automobiles (Poripo, Ede, Nwaodo & Youdiowei, 2020; Poripo & Youdiowei, 2014).

Automobile Technology Education is one of the professional course areas in the university. The course, in addition to the usual daily classroom lessons requires student's participation in the compulsory and highly technical workshop practice with varying automobile related practical sessions apart from higher academic requirements, greater time pressure, financial demands and lesser time for recreational activities in the university environment (Lee, Ahmed, Pathirana & Papier, 2016). University students including those studying Automobile need to adapt to various psychosocial changes besides motivation and coping with the academic and social demands in preparing for their professional careers (Poripo, Ede, Nwaodo & Youdiowei, 2020; Uehara, Takeuchi, Kubota, Oshima, Ishikawa, 2010). Literature however, revealed that students with

high stress level face various negative consequences of stress including sleeping problems (Akerstedt, 2006), burnout (Maslach & Leiter, 1997), increased risk of anxiety and depression among students (Melchior, Caspi, Milne, Danese, Poulton & Moffitt, 2007), suicide thoughts and anger (Elgard & Arlett, 2002; Al-Qaisy, 2011), risky health behaviours and poor dietary patterns (Lee, et al., 2016). This is an indication that stress would most likely have negative consequences among Automobile university students especially health challenges and poor academic performance (Poripo, Ede, Nwaodo & Youdiowei, 2020).

However, Automobile Technology Education students are not exempted from the stressful nature of life, especially those in the first year of their academic programme in the South-South Nigeria universities. The period of transition from secondary school to higher institution is a remarkable stage of human development (Poripo, Ede, Nwaodo & Youdiowei, 2020; Boujut, Bruchon, Schweitzer, & Rascle, 2004). During this stage, university students are considered to be in the last period of transition before adult life (Towbes & Cohen, 1996). Their psychological and physical discomfort due to stress can manifest in various ways, including mood, sleep, fear, depression and eating disorders (Boujut, Bruchon-Schweitzer & Dombrowski, 2012). In essence, this group of individuals is vulnerable to stressful events which affects their mental health, academic performance and can be detrimental to their progress (Grebot & Barumandzadeh, 2005; Stanley & Manthorpe, 2001). Thus, students at this level require expert's assistance to cope with and handle their stressful experiences (boujut, Koleck, Bruchon-Schweitzer, & Bourgeois, 2009). Compass, Connor-Smith, Saltzman, Thomsen and Wadsworth (2001) asserted that several psychological interventions for the treatment and prevention of detrimental outcomes of stress should be designed to enhance the mental health status and academic performance of Automobile students. It implies that stressful experience among first year students is imminent which include those studying Automobile Technology Education in university. This is also because of their age and transition from secondary education to higher education (Poripo, Ede, Nwaodo & Youdiowei, 2020).

Academic performance in the University is no doubt the measure of students' success. Academic performance points to the extent to which Automobile students have gained from a particular curriculum, subject or task based on relatively standardized experiences, such as a class test (Akinade, 2001). Effective learning and sound academic performance are said to constitute an integral part of the goal of schooling for students optimal performance (Hassan 2006). Student's academic performance however, have high tendency to be drastically affected or influenced by academic stressors manifestation which include lack of concentration in the classroom, absence from lectures, examination tension, fear of failure and academic grading system, inability to complete multiple assignments among others (Awino & Agolla, 2008; Bataineh, 2013). According to Nkem (2015), vocational and technical subjects including Automobile Technology Education students face the following, course stress, class work overload, shortage of course reference materials, unsatisfying learning experiences and assignment and project deadlines, lack of coverage of course contents before examinations, lockers to keep belongings, delays/transportation to and from the school etc. In this study, academic performance means the total or overall output of individual Automobile Technology Education student after assessment for participating in required academic activities at the end of the session. Automobile students need to be motivated in order to perform well. In this study, stress implies events or psychological difficulties which Automobile Technology Education students encounter during the course of study as a result of combining multiple demands which include academic, personal, social, economic, and workshop practice that poses serious threat and challenge to their mental wellbeing and influence their academic effectiveness in various Automobile courses. In this study, academic performance means the total or overall output of individual Automobile Technology Education student after assessment for participating in required academic activities at the end of the stress management intervention and be motivated.

Motivation is a fundamental recipe for academic success. It involves internal and external factors that stimulate desire, attention, needs, goals and interests which all focuses on stimulating individual learners and raising their interest and attention towards engaging in an action or behaviour and the accomplishment of such actions or goals. Dornyei (2001) argued that motivation explains why people decide to do something, how hard they are going to pursue it, and how long they are willing to sustain the activity. In order words, motivation is what gets students going, keeps students going, and determines where students are trying to go. Alderman (2004) stated that students who have optimum motivation have an edge and less prone to stress because they have adaptive attitudes and strategies, Furthermore, motivational beliefs are very essential to the academic performance of students because they help to determine the extent to which students will consider, value, put in effort, and show interest in the task.

Motivation plays a significant role in student's academic life and their performance. Motivation reflects in learners choices of academic tasks, the time and effort they allocate to each task, their perseverance in academic tasks. In order for stress levels to be controlled and maintained, Automobile Technology Education students should create expectations and goals for themselves that are realistic and achievable. After accomplishing these set goals, the goals can be raised pushing the students further, making them more challenging until these goals are reached. Goals should be set to be realistic in order for progress to be noticeable increasing students motivation and stress management.

However, most Automobile students in Southern Nigeria lack stress management strategies with reason to the common experience of negative stress outcomes which indicate trial and error strategies because of lack of educative management intervention for handling stressful and related challenges. The requisite skill in stress management at present may be very low among Automobile students which may have resulted into bad reactions to most of the stressors in university. According to Grant, Compas, Thurm, McMahon & Ey, (2000), the ways in which university students (Automobile students) cope with stress are potentially important mediators of the impact of stress on current and future mental health status as well as overall academic performance. This implies that Automobile Technology Education students could acquire stress management skills through appropriate stress training intervention such as multiple stress management intervention.

However, multiple stress management intervention is a structured, psycho-educational and intervention therapy in form of a training programme offers to students. This approach is a face-to-face training which, according to Heber, Lehr, Ebert, Berking, Cuijpers and Riper (2016), is the most effective method of stress management therapy. It involves didactic teaching components as well as learning exercises with basic objective of ensuring that Automobile students develop the capacity to effectively execute coping strategies and academic performance. Boujut, Bruchon-Schweitzer and Reascle, (2004) confirmed that "despite reports of many symptoms including somatic (tiredness, headaches, backaches), psychological (e.g. depression, suicidal tendencies), and behavioural disorders (e.g. eating habits, addictive behaviours) among first year students, very few studies have focused on student's motivation, mental health and academic performance. Previous Studies however reported that higher institution students perceive academic life as stressful, demanding report experience of emotional and cognitive reactions to stress, especially due to external pressures and self-imposed expectations (Hicks & Miller, 2006; Veeser & Blakemore, 2006).

Thus, Automobile students with provision of an educative assistance such as stress and health management models stress management would most likely use appropriate mechanism to prevent the gross negative consequences of stress (Bataineh, 2013; Stevenson & Harper, 2006; Chang, 2007). Therefore, carrying out this intervention study could be a life time opportunity for students who participate in overcoming the defects of stress in their entire life.

Statement of the Problem

The goal of Automobile Technology Education in Nigerian universities is to produce Automobile graduates or technologists with sound theoretical and practical knowledge who can test, diagnose, service and repair faults relating to Automobiles. The Automobile graduates have the prospect of either being employed or becoming self-employed. Achievement of this aim and objective requires adequate provision of learning facilities, stress free or less stress and always in a right state of mind to be able to cope with the demands of the courses. However, Automobile Technology Education students in Southern Nigeria Universities are exposed to a large number of academic stressors with continued stressful experiences. As a result of these stressors, student cognitive effectiveness is affected with various negative behavioural display and reduced academic competencies and performance. For instance, there are frequent reports of high level of stress experience with symptoms and manifestations including signs of depression, felling overwhelmed, sad, hopeless, behavioural disorder, relational conflicts, anger, incessant sickness, mental declination, poor academic performance and suicide thought among students in Universities in South-South, Nigeria which often leads to their inability to achieve academic aims and goals. However, a major concern is the inability of students most especially Automobile Technology Education students in first year to manage these multiple academic demands, expectations and unavoidable stressors within university education which causes stressful experiences with detrimental effect ranging from lack of motivation, mental health failure and poor academic performance. This problem, if not addressed would continue to lead to graduation of half-baked, unskilled and irrelevant Automobile Technology Education graduates from Universities in South-South, Nigeria.

Moreso, to prevent or avoid severe psychological effects and its implications among the Automobile Technology Education students, effective stress management intervention is needed which could help or assist students in handling stressful university events appropriately, thereby avoiding its harmful effects which could affect or jeopardize student's academic performance and future working ambitions. This stress management intervention should help Automobile students with a better perception of the university environment and identify appropriate ways which will help to reduce the severe negative effect of stress among students. Therefore, the problem of this study is how to reduce stress and the negative manifestations that are noticeable among Automobile Technology Education students in their study habit and other school activities in order to improve their academic performance.

However, if Automobile students are not exposed to stress management treatments especially at this early stage of their university life before adult life, stress may jeopardize their academic ambition, force them to adopt maladaptive behaviours, frustrate their mental health stability and make them one of the potential future frustrated Automobile employees. Thus, it becomes urgent to find out the effect of multiple stress management intervention on mental status and academic performance of first year Automobile students in Universities in Southern Nigeria.

Purpose of the Study

The general purpose of this study is to determine the mental health status and academic performance of automobile technology education students in universities in southern Nigeria. Specifically, the study determines:

l. The effect of multiple stress management intervention on motivation among Automobile Technology Education students.
2. The effect of multiple stress management intervention on Academic performance of Automobile Technology Education students.

Research Questions

The following research questions were answered in the study:

1. What is the effect of multiple stress management intervention on motivation among Automobile Technology Education students?

2. What is the effect of multiple stress management intervention on academic performance of Automobile Technology Education students?

Methodology

A quasi-experimental design was adopted for this study. The study was conducted in Universities offering Automobile Technology Education in South-South zone of Nigeria. The population for this study consists of 97 first year students of Automobile Technology Education in four universities offering the course as an option in the Technical Education Programme in South-South zone of Nigeria. The first year Automobile Technology Education students was used for this study because they are the most vulnerable to stress in the Universities. The entire population of the subject was used for the study because of the relative small size which is manageable and accessible by the researcher, hence there was no sample. The instruments used for data collection in this study include; a questionnaire titled "Questionnaire on Automobile Technology Students' Stress experience, Motivation and Mental Health Concern (QATSSEMMHC)" and an Automobile Technology Achievement Test (ATAT). The instruments used for collection of data in this study were validated by three experts from the University of Nigeria, Nsukka. Statistical Package for Social Sciences (SPSS) version 20.0 was used to analyzed the data collected from the respondents. Cronbach alpha reliability coefficient index was used to determine the internal consistency of the instruments. The overall reliability index for the instruments was 0.77. The data collected from the administration of both pre-test and post-test, were analyzed and interpreted using mean (X) and standard deviation (SD). The multivariate analysis of co-variance (MANCOVA) was used to test the hypotheses at 0.05 level of significant.

RESULT

Research Question 1

What is the effect of multiple stress management intervention on motivation among automobile technology education students?

Table 1: Pretest/Posttest Mean scores of Students on the effect of multiple stress management intervention on motivation among automobile technology education students

Groups		**Pretest**		**Posttest**			
	N	**??**	**SD**	**??**	**SD**	**Mean Gain/Loss**	**Remarks**
Experimental	51	50.38	4.56	58.75	3.19	8.37	Increases
Control	46	56.14	3.38	53.86	3.84	-2.28	Decrease

The results presented in Table 1 shows the mean difference between the pretest and posttest responses of students in the experimental and control groups on motivation responses of Automobile Technology Education students in Universities in South-South Nigeria. The Table shows that the pretest mean score (M=50.38) and standard deviation (SD=4.56) of the responses of Automobile students in the experimental group on motivation responses is less than their posttest mean score (M=58.75) with a mean gain of 8.37 which is an indication of improved motivation response among Automobile Technology Education students in Universities in South-South Nigeria. In the same vein, the Table 2 also, shows that the pretest mean score (M=56.14) of responses of Automobile Technology Education students in Universities in South-South Nigeria in the control group is greater than their posttest mean responses (M=53.86) with a mean loss of -2.28 which shows decrease in their motivation responses among Automobile Technology Education students in Universities in South-South Nigeria. Therefore, the mean increase of 8.37 among the students in the experimental group is an indication that the multiple stress management intervention seems to positively influenced the improvement in students motivation responses during stressful experiences. Moreso, the control group with mean

decrease of -2.28 implies a decrease in students motivation responses among Automobile Technology Education students in Universities in South-South Nigeria during stressful experiences in the absence of multiple stress management intervention therapy. Standard deviation scores of 3.19 for the experimental group and 3.84 for the control group imply that the scores of the experimental group were close to each other than the scores of the control group. Mean gain score of 8.37 and mean loss score of -2.28 for the experimental and control groups respectively imply that multiple stress management intervention strategy had more positive effect on the mean rating score of the experimental group than the control group.

Research Question 2

What is the effect of multiple stress management intervention on academic performance of automobile technology education students?

Table 2: Pretest/Posttest Scores of Students on the effect of multiple stress management intervention on academic performance of automobile technology education students

Groups		**Pretest**		**Posttest**			
	N	**??**	**SD**	**??**	**SD**	**Mean gain**	**Remarks**
Experimental	51	53.57	4.39	58.14	4.18	5.54	Increases
Control	46	50.60	3.99	56.14	3.38	4.57	Increases

The results presented in Table 2 shows the mean difference between the pretest and posttest responses of students academic performance in the experimental and control groups among Automobile Technology Education students in Universities in South-South Nigeria. The Table shows that the pretest mean score (M=53.57) and standard deviation (SD=4.39) of Automobile students in the experimental group increase to 58.14 at the posttest with a mean gain of 4.57. On the other hand, the pretest mean score (M=50.60) and standard deviation (SD=3.99) of the control group increases to 56.14 at the posttest with a mean gain of 4.57. However, the experimental group with mean increase of 58.14 has higher increase in their academic performance than the control group with mean increase of 56.14 which implies that the multiple stress management intervention seems to effectively influence the marginal increase in the academic performance of the Automobile Technology Education students in universities in South-South Nigeria in the experimental group compared to those students in the control group with no stress management experience or absence of multiple stress management intervention therapy among Automobile students.

CONCLUSION

Based on the findings, this study concludes that multiple stress management intervention will be effective in training Automobile students in stress management thereby limiting and reducing the detrimental effects of stress among students most especially those in the first year visa-vi, level of stress, motivation, and their academic performance.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1. Multiple stress management intervention should be integrated in Automobile Technology Education and other engineering/technology based programmes to foster effective stress management practices among students.
2. There should be stress management training for all levels of Automobile Technology Education students with involvement of professional therapists and educational stakeholders to improve students stress management capability within the university education.

3. To promote effective stress management practices among students, general sensitization and specialized training programmes should be organized at least per semester for both students and university staff towards effective stress management practices and application.

4. Stress management centers with required facilities should be made available in the tertiary institutions for helping students who are victims of stressful circumstances.

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THE EFFECT OF ART EDUCATION ON CHILDHOOD DEVELOPMENT AND ACADEMIC ACHIEVEMENT IN RIVERS STATE

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ABSTRACT
The study aimed at determining the effect of art education on childhood development and academic achievement in Rivers State, Nigeria. A research question was formulated and one hypothesis was tested at 0.05 alpha levels. A descriptive survey design was used for the study. The research concentrated on the South-East Senatorial Districts which covered seven Local Government Areas. Namely; Andoni, Eleme, Gokana, Khana, Opobo/Nkoro, Oyigbo and Tai. The population for this study comprised four selected local government areas from Rivers South-East Senatorial District. They are: Andoni, Khana, Gokana, and Eleme local government areas with a population of 217924, 292924, 233813, and 190194 respectively bringing it to a total population of 934855 (National Population Census, 2006). A sample size of 400 was arrived at through the use of Taro Yamane Formula and used in the study. The instrument for data collection was a structured questionnaire. It was validated. Pearson Moment Correlation Coefficient was used to determine the reliability of the instrument. A value of r=0.84 was realized. Descriptive statistics such as Frequency count, Mean and Standard deviation, were used to analyze the data collected while inferential statistics of Z-test was used to test the formulated hypothesis. The findings of this study revealed that art education have impact on childhood development in Rivers State. The study recommended that efforts aimed at making sure that the impact of art education on childhood development is achievable should be made. Also, children learning art should be encouraged to enhance their skills and self-development.

INTRODUCTION
Children's experience in different branches of arts, their learning of art concepts are of importance in their attaining artistic and aesthetic perspective. In terms of arts education, its features provide ideas in order to bring cognitive and sensual expressions for the purpose of making children transfer their feelings and thoughts to each other. In addition, children's self-esteem improves when teachers talk about the features and qualities of their works and they learn how to look at artistic work of others, see the aesthetic features and discuss about them. The art works produced in groups provide children with making plans and realizing them together in cooperation. While working in cooperation, they learnt such skills as how to share objects, listen to others, how and when to work. With the art education given in this way, multi-ways development and particularly the development of childhood is supported (Ulutas & Ersoy, 2015). rts have always been an integral part of early learning (Ardle & Wright, 2016). Ardent supporters of arts in the early years often present that it is an important, if not critical building block, in early childhood development (Edwards, 2020). Arts learning and practices from visual arts, music and dance arts in early childhood have been seen to influence achievements of identified learning outcomes as well as enabling behaviours and attitudes which support later learning amongst children.

Consequently, in recent years, there has been great interest among educators in the links between arts-based learning and human development. Research initiatives of the past decade have linked arts participation to cognitive growth and academic skills, including the strengthening of long-

term memory and reading ability (Gazzaniga et al., 2018), creative thinking skills and writing fluency (Deasy et al., 2020). Arts participation has additionally been linked to positive social outcome, including overall engagement in school. In this study, the impact of art education on childhood development and academic achievement in Rivers State, Nigeria will be examined. Musical Arts Education is an activity that is as old as general educational practice itself. The teaching of Music in Nigerian schools and colleges according to is as old as the beginning of western system of education in the country. Since then educational system in the country has undergone several changes with the principal aim of improving the quality of teaching provided for the learner and arousing continued interest in the school subjects (Faseun, 2001). However, one looks at it, the benefit of music in the society is numerous and quite obvious, this can be seen in the amounts of values placed on music products and services and in the rate at which these are consumed. Music pervades every aspect of our daily life and whether we know it or not, participation in any musical activity has a direct impact on our body's internal processes and psyche (Timothy & Emenike, 2013). Perhaps the basic reason every child must have an education in music according to MENC and Emdash (2002) is that, music is a part of the fabric of our society. The intrinsic value of music for each individual is widely recognized in the many cultures that make up American life; indeed, every human culture uses music to carry forward its ideas and ideals. The importance of music to our economy is without doubt. And the value of music in shaping individual abilities and character are attested in a number of places. The present paper is on the impact of art education on childhood development and academic achievement in Rivers State.

Aim and Objective of the Study

The aim of this study was to identify the effect of art education for childhood development and academic achievement in Rivers State.

Research Question

What is the effect of art education on childhood development and academic achievement in Rivers State?

Research Hypothesis

Ho1: There is no significant difference between the mean responses on the effect of art education on childhood development and academic achievement in Rivers State.

Significance of the Study

It is worthwhile that the paper highlights the significance of this study as it impacted on the lives of the children. Therefore, this work shall be a useful tool for parents, students/scholars in art education as research elements. It will also enlighten individuals, parents and Nigerians, especially in Rivers State on the need and benefits of employing art education on childhood education. It will also educate the society on the effective ways of training a child through art education.

Definition of Terms

i. **Childhood:** This is a time of remarkable growth with brain and a period from birth to eight years old.
ii. **Development:** This is a process that creates growth, progress, positive change or the addition of physical, social and other components.
iii. **Art Education:** This refers to the process of learning about different artistic expression, including different media and formats for artwork and different movements and styles throughout art history.
iv. **Childhood Development:** This refers the biological, psychological and emotional changes that occur in human beings between birth and the conclusion of adolescence.

Literature Review

This study takes a look at the contributions of some outstanding scholars in relation to the effect of art education on childhood development and academic achievements, which includes Boyd and Cutcher (2015), Knight, Zolio, Macardle, Cumming, Bone, and Ridgeway-Li (2016), Phillips, Gorton, Pincioni, and Sachdev (2010), Kiese-Himmel, Witte, Islam, and Steinbuchel (2015), Cuthbertson, Harton, Minyard, Piver, Todd, and Birchfield (2007), Pavlou (2013), Rolling (2008), Peppler (2010). From the available literature the following conclusions are drawn. The artistic development of the child is the reflection of the society. When children are allowed to develop artistically, it helps them to improve in their academic achievement. Children therefore, are creative people with exceptional skills who take meaningful ideas and embody them into a visual form. It was also maintain that if the children are creative during their childhood stage, they make a better society in the future. Several researchers have carried out studies in impact of art education on childhood development and academic achievement. For instance, Boyd and Cutcher (2015), found out that the educators relied on communication to learn more about the interest of the children attending their programmes and other creative activities. Based on the qualitative data obtained from the educators and children, that approach increased the children's motivation to engage in artistic creation and explore the application of materials and techniques on their own.

Other researchers such as Knight, Zolio, Macadel, Kumin, Bone and Richway (2016), Phillips, Gorton, Oinciotti, and Schdev (2010), Kiese-Himmel, Witte, Islam, and Steinbuchel (2015), carried out studies in childhood development in art education. The clue from their studies, indicates that art education plays a major role in a child's development.

Also one discovers that art education in the visual arts for acquisition of skills and knowledge for productivity if the learner. Improvements in creative expression and team work skills were observed at the end of the programme (Cuthberson, Hatton, Minyard, Piver, Todd, & Birchfield (2007). Also one found out that literature did not state the impact of art education on childhood development and academic clearly which this study will still investigate among other things. Indeed, there is no empirical evidence to show that impact of art on childhood development and academic achievement, has been studied at any other time in Rivers State, especially in the South East Senatorial District.

Emphasis on Integrated Learning and Students Competencies on Academic Achievements

Knight et al. (2016) identified the benefits of collaborative drawing for adults and preschool age children, and teachers can implement intergenerational drawing by including parents in their children's education or inviting professional artists as guests to their classrooms. However, the applications of intergenerational drawing in the classroom should be further investigated because previous studies did not report conducting those types of interventions in the classroom. It is also recommended that future research investigate the effectiveness of intergenerational collaborative drawing for students in primary education as well as for those at more advanced stages of education. Art projects in the classroom can be used to facilitate integrated learning by combining arts with other fields of study. Rolling (2008) demonstrated that children have the ability to express their opinions regarding social issues, whereas Cuthbertson et al. (2007) integrated arts and technology to teach students about visual arts and new media, simultaneously. Various artistic fields can also be integrated to improve the children's understanding of multiple creative forms of art, and the topics covered in these programs can facilitate learning outcomes in other fields of study, such as literature or linguistics (Phillips et al., 2010). Based on the findings from current research, art education can be used to support the development of an integrated curriculum and to enhance students' motivation and learning outcomes in multiple areas of the national and school curricula. Another possible application of visual arts research in education is to enhance learning outcomes associated with the development of student competencies. Contemporary education is concerned with the development of student competencies that are not

discipline-specific but that can be applied in any context or situation. Creativity is the most obvious competency that can be used to solve problems in a variety of fields and can be developed through participation in the arts. The positive effect of arts on the development of communication and teamwork competencies when working with peers was also observed in both early childhood and primary education students (Boyd & Cutcher, 2015; Cuthbertson etal., 2007; Knight et al., 2016). Therefore, findings from current visual arts research in education suggest that arts have an important place in modern education, one which emphasizes integrated learning and student competencies over learning theoretical information and skills separately for each school subject.

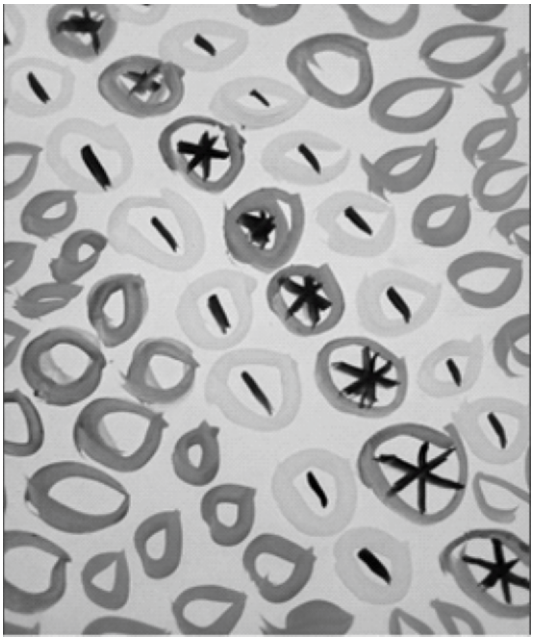

Plate 1: Showing school child experimental design for skill development.

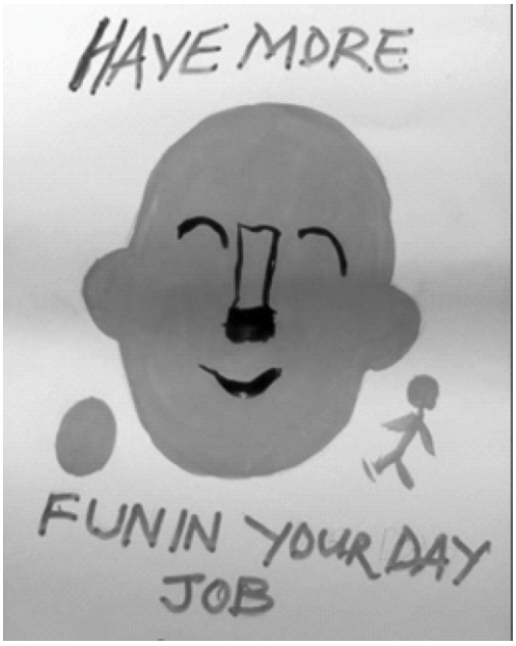

Plate 2: Showing school child experimental design for skill development.

$$n = \frac{N}{1+N(e)^2}$$

Where; n= Sample size
N= Population
1= Constant value
e = Margin of Error given as (0.05).
Hence the population (N) = 934855, e = 0.05

$$n = \frac{934855}{1 + 934855\,(0.05)^2}$$

$$n = \frac{934855}{2338.1375}$$

= 399.8, which by approximation is 400
Because of the issue of instrument mortality, the sampling size was increased from 399.8 to 400. The sample size becomes 400. The proportionate stratified random sampling technique as shown in table 1 below will be used while carrying out the sampling.

Table 1: Showing Proportionate Stratified Random Sampling Technique

LGA	Population	Proportion	Sample
Andoni	217924	217924/934855=0.2331099475	0.2331099475 x 400 = 93.2
Khana	292924	292924/934855=0.3133362928	0.3133362928 x 400 = 125.4
Gokana	233813	233813/934855=0.2501061662	0.2501061662 x 400=100.0
Eleme	190194	190194/934855=0.2034475935	0.2034475935 x 400 =81.4
Total	934855	1.0	400

Two main sources of data were used in this study. They are the primary and secondary sources. While the primary source was made up of questionnaires which were administered on the respondents, the secondary source of data came from published journals, other scholarly works, magazines, newspapers, proceedings from seminars, conferences, textbooks, symposium, workshops, etc. The instrument for data collection was a structured questionnaire titled, "Impact of Art Education on Childhood Development Questionnaire (IAECD)". It was made up of two parts. Part A was concerned about the demographic data of the respondents while Part B was concerned about the variables under investigation. It was further divided into 4 sections. Section A looked at the types of art education that would enhance childhood development in Rivers State, Section B looked at the impact of art education on childhood development in Rivers State, Section C considered the strategies that could commit skill development of children in their career. While Section D looked at motivational interest in artistic development.The questionnaire was a self structured type and modified 4 -point likert rating scale of Strongly Agee (SA)-4; Agree (A)-3; Disagree (DA)-2; and Strongly Disagree (DA)-1 were used. The research instrument was submitted to face the research experts. Two of the experts were lecturers from department of fine art and Applied Arts, Ignatius Ajuru University of Education, Port Harcourt, while the other research expert was of the faculty of Education in department of Measurement and Evaluation, in the same University of Education. The research experts were asked to check the instruments and determine if they would be used to get good information that will provide answers to the research problem. The researchers who did the face validation were again asked to consider the objectives of the work and determine the importance of the content of the instrument to the researcher. By this technique, some students and teachers were used for the field trial. Based on the responses received during the field trial, correction were made in order to move on

the clarity of the instruments. In order to determine the reliability of the instrument, the test retest method was carried out on a pilot study group of thirty (30) respondents from Port Harcourt local government area of Rivers East Senatorial District. Two weeks after the administration of the instrument, the same instrument was taken to the pilot group. The collected data were analyzed using Pearson Moment Correlation Coefficient to determine the consistency of the instrument. A value of r=0.84 was realized. The researcher visited the respondents from Andoni, Khana, Gokana, and Eleme Local government areas to give them the questionnaire. The copies of the questionnaire were distributed with the help of a research assistant and collected the same day they were given out. Descriptive statistics such as frequency count, mean and Standard deviation were used to answer the research questions. Any mean above 2.50 was accepted, and any one below 2.50 was rejected. While Z-test was used to test the hypotheses at 0.05 level of significance. The hypothesis is accepted if the Z-calculated is less than the Z-critical table.
Data Presentation and Analysis

Descriptive Analysis on Age Characteristics of the Sample
This study identified the age profile of the respondents in the Senatorial District under study. The summary of their responses are as shown in table 2.

Table 2: Showing Age Distribution of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25years	22	6.0	6.0	6.0
	26-33 years	30	8.2	8.2	14.2
	34-41 years	60	16.5	16.5	30.7
	42-49 years	132	36.3	36.3	67.0
	50-Above	120	33.0	33.0	100
Total		364	100	100	

Source: Field Work, 2021.

From the table 2, it can be observed that 22 of the respondents representing 6.0 percent were within the age bracket of 18-25 years. 30 of the respondents indicating 8.2 percent were within the age bracket of 26-33 years. 60 of the respondents indicating 16.5 percent were within the age bracket of 34-41 years. 132 of the respondents indicating 36.3 percent were within the age bracket of 42-49 years. And 120 of the respondents indicating 33.0 percent were within the age bracket of 50-above years. This implies that most of our respondents fall within the age bracket of 42-49 years.

VARIABLES OF THE STUDY

Research Question: What are the effect of art education on childhood development in Rivers State?

Data to provide answer to this research question were gathered in respect of items 6-13. The analysis is presented in Table 3.

Table 3: Showing Responses on the Effect of Art Education on Childhood Development

S/No	Items Related to Impact of Art Education	Respondents/Responses					
		Male			Female		
		Mean	SD	Decision	Mean	SD	Decision
1.	Art education helps the children to learn how to address and embrace societal diversity.	3.44	0.65	Accepted	3.42	0.67	Accepted
2.	It teaches the children on how to present emotions and differentiate values in the world.	3.44	0.68	Accepted	3.38	0.67	Accepted
3.	It helps in providing the children with knowledge of ethics.	3.45	0.63	Accepted	3.41	0.63	Accepted
4.	It helps in providing the children with social realities.	3.41	0.67	Accepted	3.42	0.64	Accepted
5.	Art education helps in the development of the creativity of the children.	3.44	0.66	Accepted	3.44	0.65	Accepted
6.	It helps the children in decision-making.	3.45	0.66	Accepted	3.40	0.67	Accepted
7.	Children can easily solve their problems with the aid of art education.	3.45	0.63	Accepted	3.40	0.69	Accepted
8.	Art education helps in the development of the social skills of the children.	3.41	0.66	Accepted	3.42	0.64	Accepted
Grand Mean		3.44	0.65	Accepted	3.41	0.66	Accepted

Source: Field Survey, 2021.

From Table 3, it can be observed that all the eight questionnaire items had mean ratings more than 2.50, and were, therefore, accepted as the impact of art education on childhood development.

Testing of Hypothesis

Hypothesis: There is no significant difference between the mean responses on the effect of types of art education on childhood development in Rivers State.
The test for this hypothesis two was conducted. The result is presented in Table 4.

Table 4: Z-test Analysis of Responses on the Impact of Types of Art Education on Childhood Development.

Group	Mean $\overline{X}$	Std. Dev.	N	Df	Std. Error	A	Z-cal. Z value	Z-tab. value	Decision
Male	3.44	0.65	200	362	0.07	0.05	0.43	1.96	Ho Accepted
Female	3.41	0.66	164						

Source: Field Survey, 2021.
Table 4 identified that Z-calculated value = 0.43, Z-table value = 1.96, alpha level of significance $P < 0.05$, degree in freedom = 362. Based on the above stated criterion for the acceptance or rejection of the null hypothesis and considering the fact that the Z-calculated value is less than the Z-table value, the null hypothesis is hereby accepted. This simply means that there is no significant difference in the mean responses on the effect of types of art education on childhood development in Rivers State.

Summary of Finding
The findings of this study revealed that art education have effect on childhood development in Rivers State.

Discussion of Findings
As can be seen from the results of the analysis of the data that were collected for this study, it was found that the hypothesis was accepted and also solidly supported by various literatures that were reviewed. Based on this, it was found out as supported by authorities that:

Table 4 which provided answer to the research question, showed that these types of art education have effect on childhood development in Rivers State. This is in line with the views of Punzalan (2018) that globalization necessitates people from different continents to form connections despite having different norms and culture. It is imperative for the people of every country to understand one another along with their standards, and traditions. A way to achieve this understanding is through arts education. Through the arts education, people may learn to address and embrace diversity, present emotions and differentiate values in the world. Arts education allows schools to provide the students with knowledge of ethics, see social realities and understand their rights and responsibilities. And Jolley (2016) as cited in Punzalan (2018) who recapped that arts education promotes some benefits in a variety of ways. Some of the advantages of arts education are: developing the students' imagination and creativity; allowing them to understand and express their feelings and ideas; aiding them to understand and visualize other core subjects; helping them to observe the world around them; supporting them in the decisions-making and in solving problems; and in developing values such as concentration and persistence. Ochshorn (2016) as cited in Punzalan (2018) asserted that Arts Education is important because it improves performance. She claimed that it improved learning skills, school attendance, critical thinking skills and creativity. A good arts education is built on and reflects recognition of the specific and unique way that the arts shape people's thinking and their lives. (Eisner, 2013). The noteworthiness of art is immeasurable and innumerable. Booth (2016) as cited in Punzalan (2018) asserted that the techniques are ways of learning, of exploring, of responding, of revealing and demonstrating, of imagining, and of depicting and making meaning. They belong to the school curriculum as they belong in the minds and hearts of lifelong learners.

SUMMARY AND CONCLUSION

This paper centered on the types of Art Education that will enhance Childhood Development in Rivers State, Nigeria. In order to carry it out, a descriptive survey design was used, and a population of Three hundred and Sixty four (364) was taken from selected local government areas from Rivers South -East Senatorial District. They were: Andoni, Khana, Gokana, and Eleme local government areas in Rivers State. Questionnaire served as the research instrument. It was revealed that these types of art education have impact on childhood development in Rivers State. From this study, it is inferred these types of art education have impact on childhood development in Rivers State.

RECOMMENDATION

1. Efforts aimed at making sure that the impact of art education on childhood development is achievable should be made.
2. Children learning art will be encouraged to enhance their skills and self-development.

LIMITATIONS OF THE STUDY

This research work was limited to its content scope and geographical scope. As such the findings of the study may not be generalized to other senatorial district in Rivers State. Some respondents may have given false responses to the questions asked. It was very hard to convince the respondents of the intentions of this research in a bid to collect information from them, mainly due to the sensitivity. There were some constraints encountered as a result of reluctant respondents who believed that the study would expose them in regard to personal information. To curb against this the respondents were guided on the purpose of the study and assured of confidentiality and anonymity. Some of the respondents were also not co-operative and attempted to ignore the questionnaires which threatened to reduce the response rate. The researcher minimized non response cases by taking and collecting questionnaires by hand from some respondents.

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RELEVANCE OF SLAVE HISTORY MUSEUM CALABAR AND NATIONAL WAR MUSEUM UMUAHIA IN NIGERIA CULTURAL HERITAGE, PRESERVATION AND NATION BUILDING

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ABSTRACT
The paper highlight the relevance of slave history museum calabar and national war museum Umuahia in the preservation of Nigeria cultural heritage and nation building. It presents the meaning of museum, advent of museum in Nigeria, importance of museum in nation building and preservation of Nigeria cultural heritage. since museum is an essential component of preserving history, educational and research center. The existence of museum has contributed to the development of every developed nation in terms of education, art practices, scientific discovery, human development and generating of income through tourism. It is on this note this paper was design to understand the rule of museum in nation building and cultural heritage preservation. It therefore concludes on ways to improve the existence of museum in Nigeria for the benefit of future generation.

Keywords: Museum, Culture, Heritage, Preservation.

INTRODUCTION

Museum is found all over the world and its main objective is to preserve country antiquities, scientific objects, historical relics, artifacts and cultural objects. Nigeria as a country could have been a mirage if there is no museum in the country, because all her cultural heritage would have been sold by individual or looted by foreigners just as must of the works was taking away by the colonial masters. In the second taught, most people would find it very difficult to trace their origin. Museum existence have made research easier, because it enables the researcher to see the objects of interest the way they are, thereby gathering the first hands information. A nation can improve through researches made on old objects found in the museum. Museum play important rule in preserving the nation cultural heritage and building a nation through the objects displayed in the museum.

According to Ibrahim (2000:154). The preservation of important old and new objects and happenings are important to every society. The old object enlightens the society about their past achievement, while the new ones are a record for the present as much as they are for future generations. Museum is controlled by some officials, who serves as keepers as well as educationists.

Chukueggu (1998:235) opines that the museum is headed by a curator and has many other units or department, coordinated by professionally trained staff who receive and prepare the objects or artefacts for exhibition. Some museums even supervise or carry out excavations if need be. A museum is mostly headed by artist, historian, archeologist, anthropologist, ethnographies.

In Nigeria today, Government has the sole right to establish a museum or to approve the establishment of museum by individual. In most Africa countries, individuals, clubs or organization's find it very difficult to finance or support the day to day running of a museum except government who from time to time finance the museum through the National Commission for Museum and Monuments which is the body approved by the government to run museums in Nigeria.

Meaning/Origin of Museum

The term "museum" was derived from the Greek word mouseion. It was applied to a sacred place dedicated to the muses of Greek mythology, believed to be the nine virgin daughters of Zeus and Mnemosyne whose temples later served for the gathering of religious and educational objects (Okita, 1985:64). Chukueggu (1998:234) ascertain that the word museum was adopted from Greek word "mouseion". It was temple of the Muses, the goddesses of art and science in ancient Greek and Roman mythology, he further postulates that the word museum was adopted for a Library and Research institute-the museum of Alexandria in Egypt in 200 BC.

After the destruction of Alexandrian Museum nothing was known for long of any attempt at establishing an institution like it anywhere else. The oldest surviving museum on a sound basis is the Ashmolean – Oxford. Apart from this the great and typical museum was established in the year 1753. Much later the Fitz William Museum of Art and Archaeology was established at Cambridge and it is now a department of the Cambridge University. In Europe towards the latter part of 16th century and beginning of 17th century, the collection of amusement led to the actual beginnings of some of the great museums of today. Derefaka (2002:250) defines a museum as "a permanent institution in the service of society and its development, and open to the public which acquires, conserves, researches, communicates and exhibits for the purpose of study, education and enjoyment, the material evidence of man and his environment". Today, museum serve different purpose in all field of study. It brings about development and institution pleasure, amusement, preservation of cultural heritage and nation building.

Okita (1985) defines museum as "a non-profit making permanent institution in the service of society and its development, and open to the public for purposes of study, education and enjoyment". The International Council of Museums (ICOM) cited in Okita (1985) defines museum as "any permanent institution which conserves and displays for purposes of study, education and enjoyment collections of objects of cultural or scientific significance". Thus, museum could be seen as a place open to the general public for entertainment, educational enquiries and collections of useful objects. Museum as an institution tells the story of man, the world over and how humanity has survived in its environment over the years. It houses things created by nature and by man. In our modern society today, museum holds the cultural wealth of the nation in trust for all generations and by its function and unique position, it has become the cultural conscience of a nation.

As a result of their historical beginnings in many "developing" nations, museums are seen as places where unwanted objects or materials are dumped; They are regarded as places where objects associated with worship and fetish religions are preserved. This deleterious interpretation of what museums mean has continued to inhibit their development in most countries today.

Advent of Museum in Nigeria

The advent of museum in Nigeria can be traced to the colonial era. The individuals who fight for the establishment were mainly expatriates of British nationals and were teachers, political officers and miners. Their main aim was to preserve the material cultural heritage of Nigerian people wrought in Ivory, bronze, clay, wood and terracotta which depict Nigeria's artistic

creativity. It was through the tireless effort of three British nationals such as K. C. Murray, E. H. Duckworth and B. E. B. Fagg.

K. C. Murray is seen as the originator of the public museums in Nigeria. His name was first stated in connection with Nigerian art and was in reference to late Chief Aina Onabolu, who, after completing his Diploma programme in Fine Arts in London travel back to Lagos Nigeria and introduced art into the school curriculum through the approval of the government. According to Okita (1985:2) a more significant achievement of Onabolu was that he succeeded in persuading the then Director of Education to employ Art teachers from the United Kingdom to take teaching appointments in the secondary and teacher training schools in Nigeria. Accordingly, in 1927 Kenneth C. Murray, a well-qualified Art teacher came to Nigeria and was allocated to teach Art in government schools.

He dedicated himself studying traditional pottery and its methods of production in Nigeria and was influenced that there was a crucial need to collect traditional art objects and record the context of their manufacture and uses before these traditions disappeared under the influence of European culture (Eyo and Willet, 1980:1). According to the address read by Murray who was then surveyor of Antiquities at the opening of the Antiquities Commission, on September 10, 1954, he recalled that in 1930's there was a group of officials in the Education Department who were interested in starting museums. They include Mr. E. H. Duckworth, M. J. D. Clarke, Mr. Huntcooke, Mr. S. Mulburn and himself, Murray. These people especially Murray believed that contemporary Nigerian art should develop from the traditional art of Nigeria. But there was no collection of traditional art which the students could examine and thus considered it necessary to show the students of some art piece.

Murray did not limit himself to collecting art objects for teaching alone, but wrote many articles for publications in Nigeria and England about the situation of arts and crafts in Nigeria and requested for an immediate action for the establishment of museums in Nigeria. Reference to an article titled "Art in Nigeria: The Need for Museum", Murray applauded the French, Germans, Belgians and Americans in their efforts towards the recognition and appreciation of African Art especially on sculpture and noticed that much work has not been done by the British and the art work in African countries controlled by the British was not in a good state. Murray complained about the bad condition of artifacts in Nigeria.

In this time, Igbo Ukwu and Ife bronzes were excavated with assistance of Murray his interest was appreciated. Murray seriously warned by pointing out that a tale of destruction awaits art work in every province in Nigeria such as the ancestral figures in Oron, Anang, Ibo, Benin, Ife among others. Moreover, he was the preservation of Old works of arts as principally the work of a museum. Such a museum would collect and display art works and works illustrating the history, natural history and geology of the country. In an appeal to his British audience he noted that a museum was necessary to be established since museum gathered together the evidence of past civilization and achievements in art that can help a Nigerian have pride and confidence.

It should be recalled that while he was a teacher, he produced a number of art objects for teaching since there were no collections of art works as at then. These teaching materials in art became the nucleus of the National Museum, Lagos in its early years (Okita, 1985:3). Apart from publication of papers in journals in England to seek support for museums in Nigeria, he organized an exhibition in July 6 and August 7, 1937 entitled The Exhibition of Wood-Carvings, Terracottas and Water-colours. From the sales of some of the works and more importantly, the press interest the exhibition generated, the approval for art education in Nigeria started to be looked upon. The presence of the secretary of state for colonies, Mr. Ormsby-Gore and Sir William Rothenstein made the exhibition more interesting.

Other exhibitions staged in England include: an exhibition of Benin Art held in Berkeley Galleries in 1947. In the opening speech by Lord Milverton he 1q1pleaded to owners of specimens of Nigeria art in Britain to make arrangements for the return of such works to Nigeria. There was also the exhibition of Masks and Head-Dress of Nigeria in London in 1947. These exhibitions helped in receiving a general support for cultural collections and activities in Nigeria. As a result, Murray was invited by the government to undertake a survey of Nigeria antiquities and make recommendations on the practical steps for the preservation of our antiquities and the establishment of museums. He became the First Director of the Survey of Antiquities and retained the headship throughout the period when the name was changed, first, to the Antiquities Service and later, to the Antiquities Department. K. C. Murray rightly deserves to be called the founder of Nigerian museum while also acknowledging the contributions of other individuals like Oba of Benin, Ooni of Ife, religion heads and groups to the advent of public museum in Nigeria. Murray tireless effort brought to light the existence of museums as we can see today in Nigeria.

OVERVIEW OF SLAVE HISTORY MUSEUM CALABAR AND NATIONAL WAR MUSEUM UMUAHIA

Slave History Museum Calabar

Plate 1: showing the side view of the slave history museum and the calabar river
Photographer: Wiche, Johnson Bekwele

Plate 2: showing the front view of the slave history museum calabar
Photographer: Wiche, Johnson Bekwele

Slave History Museum was established in 2011 by Donald Duke the then executive Governor of Cross River State, Nigeria. It is located at Marina Resort, Moore Road, Calabar, Cross River State. The museum is remarkable as one of the major tributes to the tragic history of the transatlantic slave trade between 17th to 19th century. It brings a realistic view of the slave trade era and teaches one of the colonization of the South-East Nigeria. The museum has

some historic galleries that review the slave trade era. The entrance of the museum showcases the statues of slaves packed in the white man ship ready to be transported to the western world (new world).

Plate 3: showing slaves packed in a ship ready to be transported to the western world.
Photographer: Wiche Johnson Bekwele

The second face of the museum showcase objects used for exchange of goods and services, which includes manila, cowries, copper rods, cloths, mirror, alcohol, guns, spears, sword etc., the white man introduced them to black and attach value on them which motivated the chiefs and wealthy black men. After this section of the museum the next gallery showcase the slave victims and the merchants, on display are statues depicting sales and branding of negroes with hot iron, this parts of the museum remind us the tragedy of slave trade from 15th to 19th century witnessed in Africa and all over the world. This gallery is also containing a voice record of old calabar people crying and consoling themselves in pains on the how the white man's land will look like. The museum constantly reminds its visitors about the slave trade as a whole in other not to involve in slave related activity like kidnaping, abduction respectively. The museum extension is located at Tinapa-Resort-Calabar which is the Old Residency Calabar, Cross River State

The old residency building is located in Calabar, Cross River State of Nigeria. It was built in the year 1884 on top of Consular Hill, the building is a prefabricated structure of Scandinavian red-pine wood shipped in knockdown parts from Britain to old Calabar.

Plate 4: Showing the Old Residency Museum Calabar
Photographer: Wiche Johnson Bekwele

The old residency building was the seat of the British colonial administration for the Southern Protectorate of Nigeria. The old colonial building in Calabar is well preserved and has been drawing tourists from different parts of the world. It was put in place about 130 years ago, and it is still in good shape and gives one a better understanding of the type of buildings the colonial masters lived on during the colonial era.

This building originally known as the Government house was prefabricated in Britain in 1884 and erected at old Calabar town to accommodate the early British administration of the Niger Coast Territories. Here was the seat of the Oil Rivers and the Niger Coast Protectorates, the protectorates of Southern Nigeria and after 1914 the Resident of old Calabar Province. In 1950, it served as a ministerial Guest house and after the Nigeria Civil War as the offices of the New South Eastern State of Nigeria. The walls and the entire top floors are made of Scandinavian red pinewood, which was considered to have high resistance to termites' attack. The wooden walls are made of overlapping boards. A framework of cast iron columns and brass supported the structure while nails keep the corrugated iron sheets roof in place. Efforts to preserve the buildings was as early as 1953 through the initiatives of the then Antiquities Department. It was in the list of declared national monuments and handed over to the National commission for museum and monuments for preservation and restoration. Omole and Ogundiran. (2011:86)

According to Nigeria Galleria (2017) Hewett, a stern-faced man with a drooping moustache, was the first resident of what is now known as the Old Residency, a building prefabricated in Britain and then shipped to Calabar in 1884. The ground floor was the headquarters of the enlarging British Protectorate that would eventually become the southern part of the British colony Nigeria. In 1960, during the Nigeria's independence, the colonial rulers left the country, without removing anything from the building and the building survived the taste of time and its Scandinavian red-pine wood walls survived the Calabar climate, the Biafran War. The building is a historical relics and its currently serve as a museum, known as old residency museum.
The old residency museum is divided into six exhibition galleries which commence from the ground floor (down Stairs) to the 1st floor (up Stairs) of the building.

Types of Galleries in the Old Residency Museum Calabar
The galleries are:

Down Stairs:
(i) Making of the Nigerian protectorates
(ii) Palm oil production and export

Up Stairs:
(iii) the story of the old Calabar
(iv) Colonial Rule
(v) Missionary Activity
(vi) Road to Independence

Making of The Nigerian Protectorates
In the first gallery, the exhibition opens with the darkest page of the slave trade era from the 15th to 19th century: the four centuries of Transatlantic slave trade during which the Portuguese, Spanish, Dutch, French, and British shipped millions of Africans across the Atlantic to sell as slaves. In this gallery, objects used as a medium of exchange are on display. Such objects include Alcoholic drink (Whisky) which the white men latter increased the Alcoholic contents and label it "Africa" to enable them cheat the Africans Chief and local business men at large, other objects in this gallery are, cowries, copper rod, manila, sword, Dane guns etc. This gallery also showcases the receipt use in selling negroes and palm oil by the Marchants (British).

Palm Oil Production and Export

In the second gallery. Objects use for palm oil business like, climbing rope, pots, knife, drums, and a bicycle are on display. From this gallery, one move to the right side of the building on exhibition are boat used during the palm oil business after the abolition of the slave trade. This gallery focused on the activities of the palm oil business.

Plate 5: Replica of the boats used during the palm oil production and exportation
Photographer: Wiche Johnson Bekwele

The Story of the Old Calabar

This gallery displays the Calabar story and culture. On display Calabar Ekpe masquerade tradition, the musical instruments and the Ekpe Masquerade. According to the curator. Mr Ade. Some of the slaves were Ekpe cult members which they form the Ekpe society in the white man's land. This gallery also displays the old calabar community, river and market. It also exhibits traditional Nigeria art, like the ugbo-Ukwu, Ibibio, Efik, Benin etc.

Colonial Rule

This gallery displays the colonial ruling system, election ballot box, symbol of colonial political parties and photographs of colonial leaders.

Missionary Activity

This gallery displayed the activities of the missionaries in the likes of Mary Slessor who stoped the killing of twines. During this era, missionary introduced and build churches, school and medical centers. One of the notable school is the Hope Waddell Institute Calabar whose flag is on display in the museum. The museum also showcases a motorcycle use by a teacher in Hope Waddell Institute Calabar which is displayed at the front of the building.

Plate 6: A Velocatte Motorcycle used by Colin Macdonald a teacher at Hope Waddell Institute Calabar on display at the front of the old Residency Museum.
Photographer: Wiche Johnson Bekwele.

Road to Independence:
In this gallery, on display are photographs of great men who spearheaded the abolition of slave trade, colonial rules and indigenous leaders during the late 19th century. In the second gallery. Objects use for palm oil business like, climbing rope, pots, knife, drums, and a bicycle are on display. From this gallery, one move to the right side of the building on exhibition a boat used during the palm oil business after the abolition of the slave trade. From this point to the front of the building is a motorcycle use by a teacher in Hope Waddell Institute Calabar. From thence is a step case to the first floor of the residency building.

In the 1st floor (up floor) the first gallery showcase objects use as currencies and exchange of goods services during the slave era. Followed by photographs of slave victims and British merchants. Furthermore, Other objects found in this gallery are map of Nigeria, Flag of Nigeria, Hope Wadel Institute Old Building Photographs and Flag, map of African Country affected by slavery. The fourth gallery of the old residency museum showcase. Photograph of men the spearheaded the abolition of slave trade, election room, utensils used by the colonial masters.
During the slave Calabar used to be Britain's busiest trading post: almost one-third of the total number of Africans the British abducted from the end of the 17th century until the abolition of slavery in 1807 was shipped from here.

National War Museum Umuahia
The National War Museum Umuahia is locate in Umuahia the capital of Abia State Nigeria and Umuahia is one of the Ibo (Igbo) speaking State of the eastern Nigeria, it is bounded in the East by Ebonyi State, Imo State in the West, Akwa Ibom and Cross-Rivers State in the North and Rivers State in the South. The state has rich cultural heritage that serves as a means of recreation and relaxation. There are many tourist center in Abia State which the National War Museum is included. The federal government of Nigeria established the National War museum in the area because the site was used by the Biafra Army as Voice of Biafra (V.O.B) the radio station used by the Major Gen. Odimegwu Ojukwu as a broadcasting station to announced on the level of the Nigeria civil War.

Plate 7: Showing the front view of National War Museum Umuahia
Photographer: wiche Johnson bekwele

The National War Museum in Umuahia was established in 1985 for record purpose, tourist center and peace among Nigerian. The museum has a collection of objects of traditional and modern warfare. There are also outdoor displays of warships, military aircrafts, armored tanks, and "Ogbunigwe" (bombs produced locally by Biafra during the Nigerian Civil War). The relics of war are preserved and maintained by the National Commission for Museums and Monuments (NCMM).

The Nigerian-Biafran war, also known as Nigerian civil war, was a political conflict caused by the attempted secession of the Southeastern provinces of Nigeria as the self-proclaimed Republic of Biafra. The war, which started on July 6, 1967, came to an end on January 15, 1970. While the civil war lasted, various sophisticated weapons were used. Some of these deadly weapons were fabricated due the exigencies of the war. Outside the appurtenances of war, civilians were also involved in the process of not just fighting, but psyching up the minds of the people to forge ahead despite the deprivations that came with war. Different media of mass communication were used.

The war was a watershed in the history of Nigeria as a country. The experience, many agree, is such that makes the resort to arms and war as a means of conflict resolution not an attractive option. It is in this spirit that the Nigerian War Museum, Umuahia was established. The museum's location was chosen because it was where the bunker housing the famous shortwave radio "the Voice of Biafra" was transmitted from. Voice of Biafra was the mouth-piece for Biafra during the war. The National War Museum has the highest collection of the Nigerian civil war weapons that are no longer in used. The weapons are from both the Nigerian military and the defunct Republic of Biafra. The place has become a tourist site that attracts hundreds of people daily. They come from within and outside the country to see the war artifacts on display. To some, it is to relive the period of the war through items on display, while to others, it is for study purposes. There are yet others who come simply for curiosity.

Types of Gallery in the National War Museum Umuahia:
The museum has three galleries that cover traditional warfare, the armed forces and the Nigerian Civil War weapon galleries. War relics housed in the museum include weapons used during the pre-colonial civil disturbances, warfare materials used during communal and inter-tribal wars and those of the Nigerian Civil War.

The traditional warfare Gallery: A tour of the museum kicks off from the prehistoric war section where some of the weapons that were used for war are on display. The traditional warfare Gallery

displayed the traditional way of fighting ranging from Africa to Europe, it showcases different ancient weapon and progress of man in production of weapons such as stone, arrow, dagger to the use of gun by man. On display are spears, shields, bows and arrows. Metal war vests that warriors used to protect themselves are also on display. Different traditional way of fighting is displayed for example, fighting with stones, arrows and guns etc. equestrian are also on display (figures on horses) which shows how man uses animal for war and transportation.

The end of the old war weapons section or traditional warfare gallery leads to the Nigerian The armed forces Gallery: The armed forces Gallery is about the Nigeria arm forces ranging from the establishment of Nigeria Army, Navy and Air force. It also shows the various ranks in the arm forces, on display are photographs of early Nigeria arm forces leaders, official and ceremonial uniforms. Pictures of some past military leaders are also on display. this gallery offers tutorials to those that are unfamiliar with the military insignia that differentiates the ranks in the military.

The arm forces gallery is divided into three sections. Amy section, Air force section and Naval section

1. **Army section:** the army section shows the evolution of Nigeria Army. During the formation of the Nigeria Army in 1922, it was called Soldiers of the West Africa Frontiers Force, in 1926 it was changed by Queens Elizbeth during her visit as Soldiers of the queen own regiment, in 1960, it was called Royal Nigeria Army and was called Nigeria Army in 1963.this displayed various ranks of the Nigeria army ranging from copra to general and field marshal which no Nigeria have attended. It also shows photographs of army leaders such as Lt. Wu Bassey (N1) 1st commission officer Nigeria Army and Lt.JTU Ironsi (N2) 2nd commission officer Nigeria Army and also the 1st Head of state etc.

2. **Air force section:** Air force section shows the establishment of air force in 10th April 1964. It shows different ranks of the air force officers, and various uniforms both ceremonial and official uniform worn by the officers.

3. **Naval section:** The Naval section shows the establishment of navy force in 1955 and was called Nigerian Royal Navy. It was changed to Nigerian Navy in the year 1963. It also shows different ranks and various uniforms, both ceremonial and official uniform worn by the Naval officers.

The Nigerian Civil War Gallery:

The Nigerian civil war museum kicks off from the gate of the bunker that houses the Radio Biafra of the defunct Biafran Republic (V.O.B). voice of Biafra. Just at the entrance is the Biafran flag: red, (blood shed) black (mourning) and green Agriculture) with the rising sun in the middle which means (sun rises from the East). There are also black and white pictures of the Nigerian leaders that were victims of the war, starting with the January 15, 1966 coup d'état of Kaduna Nzeogwu.

The bunker is about 30 feet deep and on both sides of the step as one walks down are pictures of protagonists of the war from both Nigerian and Biafran sides of the divide. Inside the bunker are the transmission studio and the huge transmitter of Radio Biafra. Inside the transmitting station housed the old and new Biafra coat of arms and official furniture of Major General Odumegwu Ojukwu.

The bunker was a perfect decoy and very difficult for any enemy aircraft to locate without any prior information, especially with the undulating hills in the area. The bunker has two stairways for entrance and exit. The tour of this section of the museum is arranged in a way that the tourist would water through the main entrance to the bunker and exit through the back to meet the open

air museum.

THE OPEN AIR MUSEUM: The open air gallery is an outdoor display of the war weapons. Scattered on the expansive premises of the war museum are different obsolete military weapons. Looking at them in their obsolete state, one wonders how many lives some of these weapons must have terminated. the open air museum is in three section, it exhibits the army, air force and the naval hardware weapons used during the civil war. Such as:

- PT boats
- NNS Bonny

Plate 8: NNS Bonny an amored ship used by Nigeria Army during the Civil war.
Photographer: Wiche Johnson Bekwele

Aircraft

- Il-28
- Mig-17
- Do-27

Plate 10: showing the Air fighters used by Nigerian and Biafran Air force during the civil war
Photographer: Wiche Johnson Bekwele

Tanks/AFL's/Artillery

- Biafra Red devil type A4
- Oguta Boy (Panhard AML)
- Alvis Saladin

- Artillery Gun 105mm (Czechoslovakian upgrade of 10.5 cm leFH 18/40)
- Ogbunigwe Launcher
- Ferret armoured car
- Bazooka anti-tank gun

Plate 10: Showing locally made and Imported Nigeria and Biafra Armored Tanks and Ogbunigwe
Photographer: Wiche Johnson Bekwele

Plate 11: Red devil type A4 made by Biafran Army during the Civil war on display at the national war museum Umuahia Abia State
Photographer: Wiche Johnson Bekwele

Some of this sophisticated war weapons are made by Biafran soldiers while some are imported by Nigerian and Biafran during the war from Egypt and Spain.

Ojuku Bunker
This is an extension of the National war museum which is located about a mile away from the main museum. According to Mr. Ndubuka the curator. The compound was owned by Dr. Micheal Okpara and was donated to Biafran government during the Civil War, after the war the Nigerian government still preserved it as part of the museum. The Bunker is a two-bedroom apartment with kitchen and pallor with two escape route. It has a trench underground that lead to the main Museum.

Monument of Dr. Micheal Okpara and Major General Odumegwu Ojukwu. Are displayed in the front of the Bunker as a way of immortalizing the past hero's. See picture.

Plate 12: monument Dr. Micheal Okpara and Major General Odumegwu Ojukwu.
Photographer: Wiche Johnson Bekwele

Relevance of Slave History Museum Calabar and National War Museum Umuahia in Nigeria Cultural Heritage Preservation

The key function of every Museum is preservation of cultural heritage. The primary function of the museum institution on any object it acquires is to conserve, maintain, and guarantee the safety of such object (UNESCO, 1982; 1987; Okpoko, 2006). Generally speaking, the museum is responsible for the care of tangible and intangible natural or cultural heritage. It has a primary responsibility to protect and promote heritage as well as the human, physical and financial resources made available for that purpose (ICOM, 2006).

Both the Slave history museum and National War Museum Umuahia has a collection of objects Historical values. There are displays of objects in both museums The relics of war are preserved. According to Ibrahim (2000:155) Objects that are found in the National War Museum Umuahia includes guns, mortars, explosives, bows and arrows, war planes, knives and other war implements, both local and sophisticated. These objects have been preserved in the museum since its establishment. Through the availability of these objects. Researches have been made on them, thereby serving as a tool for peace keeping. The preservation of cultural heritage has laid a good foundation for societal and sustainable development.

Ways to sustain Slave History Museum Calabar and National War Museum Umuahia

1. Regular maintenance by government, individual and museum staffs
2. Conservation of the museum objects.
3. Continues research on the museum objects
4. The National Commission for Museum and Monument (NCMM) should set up a committee of museum workers to identify other areas of needs in museum to enhance an improved services of care of the cultural objects preserved in the museum.
5. Hosting of seminars and educational programme in museum to attract visitors/tourists
6. Journal publication and paper on the museum objects
7. Sponsors by both government and individual to improve the standard of museum
8. Sensitization of the public on the importance of museum

CONCLUSION

The continues existence of Slave History Museum Calabar and National War Museum Umuahia depends on the Government which is the rightful owners of public museum in Nigera. Secondly is the individual such as me and you. For the continues existence of museum in Nigeria, all hands must be on desk. The contributions of every citizen in Nigeria is highly needed. This can be through visiting museum, making publication on museums and donating fund to the museum nothing the importance of Museum institution in preserving our historical and cultural values. Globally the importance of heritages to countries and even in developing nations like Nigeria cannot be over-emphasized. This is due to its economic, historical, tourist, aesthetic, educational and research significance. For a critical and comprehensive understanding of Nigerian Cultural heritages, tertiary institutions should adopt museum studies in all the department as an elective or compulsory courses. Heritages are cherished characteristic features of a society passed down from generation to generation through conscious preservation.

RECOMMENDATION

The researcher recommends the following for growth of Slave History Museum Calabar and National War Museum Umuahia.

1. Museum staffs should maintain and conserve objects within their rich
2. Advert should be made by the National Commission for Museums and Monument. On state of Museums in Nigeria
3. Government should improve the standard of Museum in Nigeria.
4. Tertiary institutions should adopt museum studies in all the departments as an elective or compulsory courses to inculcate the importance and value of museum to the citizen of a giving country.

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