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EDITORIAL NOTE

Zamfara International Journal of Education (ZIJE) is the official Journal of the Faculty of Education, Federal University Gusau, Zamfara State, Nigeria. The Journal publishes article of diverse fields of interest in education. Papers reporting original research and extended version of already established conference and journal articles are welcomed. Papers for publication are selected through peer review process to ensure originality, relevance and readability. ZIJE is published bi-annually June and December.

The aim and scope of the journal is to provide an academic medium and an important reference for the advancement and dissemination of information that supports high level learning, teaching and research in the fields of education.

This edition, Volume 2, Number 2, December, 2022 is poised to present research reports in the following fields of education: Educational Foundations, Science Education, Educational Psychology, Curriculum & Instructional Technology, Guidance & Counselling, Philosophy & History of Education, Sociology of Education, Entrepreneurship Education, Special and Inclusive Education, Physical & Health Education, Religious Education, Gender Studies, Peace & Security Education among others. The articles in this volume are academic and professional discourse written by reputable scholars in their areas of specialization.

The Board remain indebted to its editorial members for the ceaseless support given towards successful publication of the Journal. In the same vain, we acknowledge quite sincerely the assistance and support of our esteemed consulting editors for ensuring the credibility of this edition. Also worthy of appreciation are the authors and their immense contributions to this publication.

Associate Professor Bashir Suleiman
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CALL FOR ARTICLES

The Editorial Board of Zamfara International Journal of Education (ZIJE) calls for scholarly articles for review and possible publication in its next edition (Volume 3). ZIJE publishes articles that emphasize on research development and application within the field of Education. All manuscripts are reviewed by editorial review committee. Contributions must be original, not previously or simultaneously published elsewhere, and are critically reviewed before they are published. Papers, which must be written in English Language, should have good grammar and proper terminologies. Also note that prospective articles are subjected to plagiarism assessment to estimate the percentage of originality of the papers. Hence, plagiarism threshold of ≤ 20% is recommended.

Editorial Guidelines

1. Manuscripts including references, appendices, tables and diagrams should be double-spaced and single coded on A4 paper with generous margins (at least 1"/2.5cm).
2. Title should be explicit and not more than 19 words.
3. Title page should be arranged as follows: Title, author(s) full name, affiliation, full addresses, email addresses and phone numbers.
4. Abstract should be single line and not more than 250 words.
5. For conceptual papers, the body should have appropriate headings where necessary.
6. For empirical papers, it should be presented in the following order: Introduction, Objectives of the study, Research Questions and/or Hypotheses, Methodology, Results, Discussion of Findings, Conclusion and Recommendations.
7. Acknowledgement (if any).
8. Quotations of more than 40 words should be indented and typed single spacing with indication of the pages where the quotes were lifted.
9. In-text citations should follow the APA 7th edition format.
10. References should be in range with 7th edition of APA Style.
11. Each table and figure should be presented within the manuscripts, with a brief and self-explanatory title.
12. All text within the table should be clearly legible, and all graphics and legends should be easily distinguished when printed in black and white.
13. Tables should be in horizontal lines only, with only blank space to separate columns.
14. Tables and figures that may be included in the main text of the paper should be numbered separately, in the sequence that they are mentioned in the text.
15. Figures should be saved in a neutral data format such as JPEG, TIFF or EPS.

Submission of Manuscripts & Assessment Fee

Manuscripts should be submitted directly to the Editor-in-Chief or Publication Editor through the following e-mail address: zijefugusau@gmail.com. Articles can be submitted between the periods of January to April ending for June publication, while July to October ending for December publication. Assessment fee for manuscript is #5,000.00 only.

Dr. Abubakar Sadiq Haruna
Publication Editor

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An Assessment of the Challenges of E-Learning Utilization by University Undergraduates in Ogun State, Nigeria

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Abstract
This study assessed the challenges of e-learning utilization by university undergraduates in Ogun State, Nigeria. Survey type of descriptive research design was used in the study. 381 undergraduates were randomly selected from three Universities in Ogun State. A questionnaire with test-retest reliability coefficient of value 0.88 was used for data collection. The researcher used frequencies, percentages, mean and t-test for data analysis. Findings from the study revealed that all the fifteen challenges investigated in the study affect e- learning utilization by university undergraduates in Ogun State, Nigeria in varying degrees. The foremost factor is money to purchase e-learning devices followed by limited electricity supply. Moreover, significant difference was found in the challenges of e-learning utilization by university undergraduates on the basis of gender (t= .796, df = 397, P > 0.05). It was recommended that all the identified challenges affecting the e-learning utilization by university undergraduates in Ogun State, Nigeria should be addressed by the government and other stakeholders in education.
Keywords: Assessment, E-learning utilization, university undergraduates

Introduction
Higher education is regarded as an instrument of social, political and economic development. The products of higher education in any nation will determine the development of such nation. Therefore, higher education contributes to national development through high level relevant manpower training in order for individual to acquire both physical and intellectual skills which enable them to be self-reliant and useful in the society (FRN, 2013).

According to Udokang (2006), education is the provision of opportunity for a child to realize his/her potentials, goals and abilities in life. Education includes the acquisition of functional skills, moral identity, and attribution to succeed in life and thereby improve the society (Fareo, 2012). The yearnings, needs, aspirations as well as the cultural heritage and environment of any society determine, to a large extent, determine the kind of knowledge and skills to be acquired (Adebosin, 2004). The National Policy on Education (2013), states that education has been adopted as instrument per excellence for effecting national development.

University is the highest level of education where high-level manpower, intellectuals and future leaders are developed. It is a place where students come together to pursue knowledge and it promotes the development of intellectual capacities of individuals to understand and appreciate their environments (Ajay, 2003). Universities therefore educate future leaders and develop the high-level technical capacities that underpin economic growth and development (Odekunle, 2001).

Information and Communication Technology (ICT) refers to the totality of methods and tools that are used in gathering, storing, processing and communicating information. ICT has found

application in virtually all the available professions in the world and professionals in different field called it by different names. When ICT is used in education or to foster learning, it is called e-learning technology or educational technology. In the broadcasting profession where ICT is used as the communication tool, it is commonly referred to as Electronic Information Technology or Communication Technology. A careful consideration of the meaning and scope of ICT makes it easy to think that hardly can any profession survive or continue to be relevant without the integration of ICT. According to Adeola (2012), ICT encompasses all the technologies used to transmit or disseminate information to an audience. These cover internet services provision, telecommunications equipment and services, media and broadcasting and other related information and communication activities. Modern ICT products include email, voice mail, internet, electronic bulletin boards, cellular phones, video conferencing among others.

According to the National Policy on Information and Communication Technologies (ICT) in Education (2010), ICT refers to an art and applied sciences that deal with data and information. It encompasses all equipment, including computational machinery– computers, hardware, software, firmware, etc and tools, methods practices, processes, procedures, concepts, principles and the sciences that come into play in the conduct of the information activities: acquisition, representation, processing, presentation, security, interchange, transfer, management, organization, storage and retrieval of data and information.

In the teaching profession, e-learning has become an important aspect of modern education, with the advent of internet and other digital technologies. E learning has gained prominence as a means to improve access to education, enhanced learning outcomes, and provide flexibility for learners. E-learning can be described as an innovative platform that enhances the learning situation for learners at their own pace and convenient time (Odunaike, Olugbara & Ojo, 2013). Oblinger (2005) defined e-learning as new learning methods in which the interactions among students and lecturers are online using the internet facilities.

According to Suo (2008), e-learning is an enhanced and efficient method of learning by utilization of multi-media and hypermedia technologies. It limits the expenses such as stationery cost consumed by learners every day in the classroom. E-learning in its broadcast sense refers to any learning that is electronically enabled. In a slightly narrower sense, it is learning that is enabled by the application of digital technologies. Narrowed down further, it becomes any learning that is web-based or internet enabled. Advantages of e-learning technologies according to Bhuasiri, Xaymoungkhoun, Jeung and Cigenik (2011), include increase in accessibility to information, better content delivery, interactivity, increased concentration, self-spacing, personalized instruction and content standardization.

However, the utilization of eLearning in Nigerian universities has been challenged by a number of factors, which have been the focus of few empirical studies. One of the studies on the challenges of e learning in Nigerian universities was conducted by Oyesiku and Adeyemo (2021). The study explored the challenges that students faced in using eLearning platforms in two Nigerian universities. The results showed that inadequate infrastructure, poor internet connectivity, and lack of technical support were the major challenges faced by students in using eLearning platforms. Another study was conducted by Olakulehin, Adeoye, and Adeoye (2019), which explored the readiness of lecturers to use e learning in Nigerian universities. The findings showed that lecturers

faced several challenges in using e learning, including inadequate training and support, lack of motivation, and poor infrastructure.

Similarly, a study by Ogunyemi and Oguntimehin (2018), examined the challenges faced by students in using elearning in a Nigerian university. The results showed that poor internet connectivity, inadequate training and support, and limited access to e-learning resources were the major challenges faced by students. Anene (2014) investigated the challenges and prospects of e-learning in Nigeria tertiary institutions. The study discovered that one of the challenges to the use of ICT was inadequate facilities and infrastructure, the learners complained that Nigerian higher institutions do not have sufficient e-learning library domain for online interactions with lecturers. In addition, the findings of Eze (2018), in the study on the utilization of e-learning facilities in the educational delivery system of Nigeria revealed that attitude of users, inadequate internet facility and inadequate training of partakers affect the successful adoption of e-learning technologies.

Moreover, Aboderin (2015) study revealed that the learners' major problems in using e-learning included inadequate computers, inadequate internet facilities, learners' inadequate access to e-learning instruments and tools, costly software and poor power supply. The outcome of study of Chiaha (2013), revealed that about 42.92 percent of the learners had opportunity to the use of e-learning tools; some learners have privilege to the use only email while some impediments to the use of e-learning tools by learners include poor power supply, slow network connectivity, amongst others.

Furthermore, content and infrastructure development have not been sufficient for successful implementations of e-learning systems (Ndubisi, 2021). Both the lecturers and students in Nigerian higher institutions have been facing a lot of problems that make the use of e-learning not to be effective and efficient. Hence, this study, an assessment of the challenges of e-learning utilization by university undergraduates in Ogun State, Nigeria.

Research Questions

The following questions were raised and answered in the study:

1. What are the challenges of e-learning utilization by university undergraduates in Ogun State, Nigeria?
2. What is the ranked order of the challenges of e-learning utilization by university undergraduates in Ogun State, Nigeria?

Hypothesis

There is no significant difference in the challenges of e-learning utilization by university undergraduates based on gender.

Research Method

The study adopted survey type of descriptive research design. All the university undergraduates in the federal and state-owned universities in Ogun State constituted the target population. The researcher selected three hundred and eighty-one participants using a simple random sampling technique. An instrument titled: "Challenges of E-learning Utilization Questionnaire (CEUQ)" designed by the researcher with four-point likert-type scale and five points was used to collect relevant data from the participants. Both validity and reliability of the

instrument were carried out. The test-retest reliability coefficient value of 0.88 was obtained for the instrument. The researcher along with three research assistants administered the instruments to the participants in the respective universities.

Frequencies, percentage, mean and t-test were used to analyze the data collected at 0.05 alpha level. The variables that had a mean of 2.5 (Midpoint) and above represented "agree" while mean below 2.5 represented "disagree". The extent of variability of the participant responses were determined using the Standard deviation (SD). A standard deviation that is less than 1.0 shows low variability.

Results

Research Question I:

What are the impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria?

Table 1. Percentages of responses on impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria

S/N	Factors affecting the use of e-learning	Mean	SD	Decision
1.	No money to purchase e-learning resources/devices	3.092	1.124	Agree
2.	Skilled manpower is inadequate	2.677	1.121	Agree
3.	Limited electricity	2.884	1.217	Agree
4.	Lack of training on use of e-learning	2.690	1.235	Agree
5.	Appropriate e-learning software is lacking	2.562	1.256	Agree
6.	Lack of good quality of education content on e-learning	2.522	1.253	Agree
7.	Poor networking	2.738	1.209	Agree
8.	Cost of buying data	2.753	1.230	Agree
9.	Fear of e-learning resources usage	2.305	1.280	Disagree
10.	Cost of working in cyber café	2.672	1.220	Agree
11.	Download delay	2.769	1.216	Agree
12.	Problem with credibility of information	2.423	1.204	Disagree
13.	Inability to find information	2.375	1.198	Disagree
14.	Inaccessibility of some websites	2.648	1.150	Agree
15.	Poor skills for operating e-learning resources/devices	2.530	1.208	Agree

Key: SD=Standard Deviation, D=Decision, A=Agree, DA=Disagree.

Table 1 shows that 178 (46.7%) of the respondents strongly agree to item 1 (No money to purchase e-learning devices/devices), 120 (31.5%) agree, 44 (11.5%) disagree, 18 (4.7%) strongly disagree and 21 (5.5%) respondents did not answer item number 1. There are 88 (23.1%) of the respondents strongly agree to item 2 (Skilled manpower is inadequate), 164 (43.0%) agree, 74 (19.4%) disagree, 2 8(7.4%) strongly disagree and 27 (7.1%) respondents did not answer item number 2. Table 1 also reveals that 152 (40.0%) of the respondents strongly agree to item 3 (Limited electricity), 115 (30.3%) agree, 56 (14.7%) disagree, 31 (8.2%) strongly disagree and 27 (7.2%) respondents did not answer item number 3. In addition, 120 (31.5%) of the respondents strongly agree to item 4 (Lack of training on use of e-learning), 119 (31.2%) agree, 79 (20.7%) disagree, 30 (7.9%) strongly disagree and 33 (6.66%) respondents did not answer item number 4. On the other hand, 126 (33.1%) of the respondents strongly agree to item 7 (poor networking), 123

(32.3%) agree, 68 (17.8%) disagree, 37 (9.7%) strongly disagree and 27 (7.1%) respondents did not answer item 7. There are 133 (34.9%) of the respondents that strongly agree to item 8 (cost of buying data), 112 (29.4%) agree, 73 (19.2%) disagree, 35 (9.2%) strongly disagree and 28 (7.4%) respondents did not answer item number 8. Hence,131 (34.4%) of the respondents strongly agree to item 11 (download delay), 127 (33.3%) agree, 59 (15.5%) disagree, 36 (9.5%) strongly disagree and 28 (7.4%) respondents did not answer item number 11.

Research Question 2:
What is the ranked order of impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria?

Table 2. Mean and ranked order of impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria

Item	Factors affecting the use of e-learning	N	Mean	Std Deviation	Rank
1	Money to purchase e-learning resources/devices	381	3,0919	1.12365	1st
3	Limited electricity	381	2,8842	1.21654	2nd
11	Download delay	381	2,7690	1.21577	3rd
8	Cost of buying data	381	2,7533	1.22990	4th
7	Poor networking	381	2,7375	1.20934	5th
4	Lack of training on use of e-learning	381	2,6903	1.23486	6th
2	Skilled manpower is inadequate	381	2,6772	1.12073	7th
10	Cost of working in cyber cafe	381	2,6719	1.22043	8th
14	Inaccessibility of some websites	381	2,6483	1.15037	9th
5	Appropriate e-learning software is lacking	381	2,5617	1.25635	10th
15	Poor skills for operating e-learning resources	381	2,5302	1.20842	11th
6	Lack of good quality of education content	381	2,5223	1.25348	12th
12	Problem with credibility of information	381	2,4226	1.20412	13th
13	Inability to find information	381	2,3753	1.19795	14th
9	Fear of e-learning resources usage/devices	381	2,3045	1.28009	15th

Table 2 reveals that out of 15 impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria listed above: money to purchase e-learning resources ranked first followed by limited electricity which ranked second; download delay ranked third, followed by cost of buying data, poor network, lack of training on use of e-learning, skilled manpower is inadequate, cost of working in cybercafé, inaccessibility of some websites, appropriate e-learning software is lacking, poor skills for operating e-learning resources, lack of good quality of education content, problem with credibility of information, inability to find information and fear of e-learning resources usage.

The least of the impediments to e-learning utilization by university undergraduates is fear of e-learning which means university undergraduates in Ogun State did not have fear of using e-learning resources. Therefore, all other problems ranked 1st to 14th should be solved by governments and each institution management so that university undergraduates in Ogun State,

Nigeria can make use of e-learning resources adequately. This will facilitate their progress in teaching and learning processes.

Hypothesis 1:

There is no significant difference in the impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria based on gender.

Table 3. T-test summary of comparison of impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria based on gender

Variable	N	Mean	SD	SEM	Df	Cal. t-value	Sig. of t-value	Remark
Male	232	39.2371	11.61093	.76229	379	-.796	.427	P> 0.05(NS)
Female	149	40.2297	12.22860	1.00518				

NS= Not Significant

The result in Table 3 shows that no significant difference exists in the impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria based on gender. (t = -.796, Df = 397, P > 0.05). This implies that both male and female students faced the same impediments in the use of e-learning. The hypothesis 1 is hereby retained.

Discussion of findings

The findings from the research questions revealed that all the respondents agree that money to purchase e-learning resources, limited electricity, download delay, cost of buying data, poor network, lack of training on use of e-learning, skilled manpower is inadequate, cost of working in cybercafé, inaccessibility of some websites, appropriate e-learning software is lacking, poor skills for operating e-learning resources, lack of good quality of education content; problem with credibility of information, inability to find information and fear of e-learning resource usage affect their use of e-learning in Ogun State. The findings are supported by Aboderin's (2015) study which found that the open University students' major challenges in using e-learning included inadequate computers, inadequate internet facilities, learners, inadequate access to e-learning instruments, costly software and poor power supply.

The findings from research question 3 shows that significant differences do not exist in the impediments to e-learning utilization by university undergraduates in Ogun State, Nigeria based on gender (t = -.796, Df = 397, P > 0.05). This implies that the impediments faced in the use of e-learning by male and female university undergraduates are not different. The findings were supported by the findings of Olutola (2014) but contrary to the study by Aboderin (2015), which revealed that students' gender significantly differ in attitudes towards computer applications.

Conclusion

Most of the factors considered (money to purchase e-learning resources, limited electricity, download delay, cost of buying data, poor networking, lack of training on use of e-learning, skilled manpower is inadequate, cost of working in cybercafé, inaccessibility of some websites, appropriate e-learning software is lacking, poor skills for operating e-learning resources and lack of good quality of education content) except three (problem with credibility of information;

inability to find information and fear of e-learning resource usage) serve as impediments to e-learning utilization by universities undergraduates in Ogun State, Nigeria in varying degrees.

In other words, respondents generally agreed that 12 out of the 15 factors considered in this study are the factors affecting the use of e-learning. Therefore, there is an urgent need for the government, Universities and other relevant education stakeholders to address the impediments to e-learning faced by universities undergraduates' students in Ogun State and Nigeria in general.

Recommendations

The researcher recommends that:

1. All the identified impediments to e-learning utilization by universities undergraduates in study state and Nigeria should be addressed by the government;
2. Adequate e-learning resources and devices should be provided by the government to all Universities and tertiary institutions in order to enhance students' academic performance.
3. There should be adequate power /electricity supply to support and facilitate the use of e-learning in our universities and other tertiary institutions in Nigeria.

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Availability and Accessibility of Digital Technology for Teaching in the Department of Printing and Mass Communication, Kaduna Polytechnic

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Abstract
The study was designed to assess the availability of digital technology facilities in enhancing teaching and learning in Printing Technology and Mass communication departments Kaduna Polytechnic. A survey research method was used with 57 respondents (the academic staff) as the population of the study. The whole population was used as no sample was drawn. Questionnaire was used as the instrument for data collection. Mean as the statistical instrument was implied for the data analysis. The findings revealed that there are adequate ICT facilities available for teaching and learning in Kaduna Polytechnic, however, there is inadequate electronic smart board for teaching and learning in most of the classes of the two departments. The findings also reveal that there are factors deterring the acquisition of the state of art digital facilities amongst which include inadequate funding, poor maintenance culture. Not all lecturers apply ICT skills in teaching. The study recommends that the state of art ICT tools that are available and accessible to students and lecturers in the department of Printing Technology and Mass Communication Kaduna Polytechnic should be maintained. The study also recommends that there is need for digital technology retraining programme for lecturers so that the departments can meet up with the global standard on digital technology for teaching and learning.
Keywords: Digital, Technology, Teaching, Learning, Printing, Communication

Introduction
The use of Digital Technology in education for training has been a priority in most European countries since the last few decades. A study by Organization for Economic Cooperation and Development (OECD 2016) states that in most developed countries such as UK, schools have embedded the use of Digital Technology in teaching and learning into the curriculum and demonstrate high level of effective and appropriate use to support teaching and learning. Furthermore, UNESCO (2022) reiterates that the developed countries have integrated Digital Technology into their educational system because of its profound implications such as enabling teachers and students to construct rich multi-sensory, interactive environments with unlimited teaching and learning potentials. Unwin, (2004) opined that computers and internet are used to increase teachers' basic skills and subject mastery to provide resources that can be used in classroom, and help the teachers to build familiarity with specific instructional approaches. Internet as the main body that process information for communication was defined by Etim, et al (2013) as the inter connection of system or subsystems of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information. The use of internet in education is

now growing in all parts of the world and their application is becoming an integral part of education in many parts of the globe.

In consideration of the above, Information Communication Technology (ICT) was introduced to add value to education, support pedagogy in providing knowledge for learners and enhance communication that promotes learning. In addition, ICT becomes more pervasive, computer-based equipment, is integrated into every aspect of academic operations, thus having an influence on the students' performance. The introduction of Digital Technology into Colleges of Education, Polytechnics and universities in Nigeria clearly mean to change the way education is being conducted. It paves the way for a new pedagogical approach, where students are expected to play more active role than before i.e. getting more involved in the learning process, being active participants of knowledge creation not mere recipients of knowledge. Using information with the known Digital Technology tools in education allow students to communicate, and interact with colleagues and teachers to meet the goals of learning (Oladokun 2012)

The prevalence and rapid development in Digital Technology has transformed human society from the information age to the knowledge age. The use of Digital Technology in education by staff and students is becoming a necessity as it can be used to improve the quality of teaching and learning in the tertiary institutions. This study is an endeavor to assess the application of Digital Technology for Teaching and Learning by the teachers and students of the Printing technology and Mass Communication Departments in Kaduna Polytechnic Nigeria. The concept of mobile learning (m-learning) is facilitated by mobile devices. Dickson (2012) defined mobile learning as the intersection of mobile computing and communication device. E-learning facilitates and support learning through the use of ICT. M-learning (mobile-learning) takes place through wireless devices like mobile phones, I pad, Mp3 player, and personal digital assistance. M-learning plays a great role in activity-based and technology-based learning. Despite the rapid growth in e-learning, most educational institutions do not contain consolidated curricula for training in ICT. The provision of appropriate framework for full integration of ICTs into the educational system of any nation's educational sector is the responsibility of the federal or central government (UNESCO, 2021). To integrate ICTs and related technology into the educational system there is need for a comprehensive policy document to serve as a guide for stakeholders in the educational sector. Factors such as competence, adequate funding, provision of infrastructural facilities, environmental factors, students' attitude, teachers' skills should be considered.

There are studies on the factors influencing the adoption and integration of ICTs for educational purposes (Oladokun, 2012). In spite of the benefits derived from ICT use, Hamilton, Ekeke, and Mbach et al (2015) hallucinate that Nigeria is still struggling over their counterparts in the world. Thus, this study intends to focus on the adoption of Digital Technology in teaching and learning by provision of facilities and application for educational revolution in Tertiary Institutions in Nigeria with specific focus on Kaduna Polytechnic Kaduna. There cannot be effective teaching and learning without the availability of instructional facilities. The goal of the new curriculum which advocates ICT can only be achieved when instructional facilities are available and accessible to both students and lecturers. Availability of educational facilities enhances students' learning by allowing them to be involved in demonstrations and practice which continue to build their skills (Oyinloye & Oluwalola, 2014).

According to Uzuegbu, et al (2013), the term "availability" relates to how much instructional materials are on hand, to which teachers and learners have access. It refers to the condition of being obtainable or accessible at a particular point in time. It expresses how materials can easily be gotten and used for a particular purpose and time. It also states how operable or usable resources are upon demand to perform its designated or required functions. This refers to the quality, quantity, functionality and disposability of such instructional materials to teachers at a time for utilization. As a concept, it is an umbrella term that denotes the serviceability, resilience, reliability and maintainability of a component instrument.

It is vital to note that the development of education in any society irrespective of its level depends largely on availability and adequacy of educational materials Bongotons and Onyenwe, (2010) expressed that, "one of the pillars of a successful implementation of effective teacher education is the availability and adequacy of teaching and learning materials". These materials are needed to foster skill development to meet standard and to achieve quality in products. The availability or adequacy of teaching and learning materials implies that they are easily, readily, publicly and generally found and enough in quantity and quality for use.

In view of the above, it is clear that ICT heralded a paradigm shift in education in that its use in schools is changing how teachers teach and how students learn, this suggests that teachers require new competencies to be able to integrate the use of ICT in teaching and learning. In assuming their new roles, teachers are expected to upgrade their knowledge and acquire new skills in their pedagogical practices and curriculum development to be able to integrate ICT in teaching and learning effectively.

ICT gives teacher access to information to support them in search of new strategies, thinking, reflecting on practice and engaging with new materials in the science of learning. Teacher needs support in making use of new technologies to enhance their personal work before learning to use them in their teaching. (Gregorie et al, 1996). As part of the significance, the study will promote the use of digital technology for the improvement and advancement of teaching and learning among the students and lecturers alike, it will also assist in informing the management of the institution on the various digital facilities that are currently available with the modern innovation, tools and equipment to help skills improvement and advancement through training and retraining.

The rationale behind this study is to assist institutions to ascertain whether condition for teaching and learning with ICT tools have been fulfilled or not. By so doing, highly skillful and employable graduates from the Nigerian institutions will be produced to be able to function effectively in the graphic, printing and communication sector. The study is scoped on the application of digital technology for teaching and learning in the Printing Technology and Mass Communication departments in Kaduna polytechnic, Kaduna only.

The 21st century educational technology is more modified whereby new technological equipment emerged. This forms the bases of the problem of this study by inspecting the influence of ICT to educational activities to achieve the opportunities offered for teaching and learning in the study area. Categorically, the development in ICT has placed a pressure on educators to consider the transformation institutions made through technology in Nigeria. In line with this, the availability of the facilities and its utilization has become a worrying factor in the department of Printing Technology and Mass Communication, Kaduna Polytechnic for the adoption of Digital

Technology in the educational activities. Observation shows that there is a long queue when it come utilization of digital equipment for practical demonstration with students. This conceivably can affect the students' readiness to use the facilities and thus their performance as well. In view the above, the problem of this study desired to solve is to investigate the availability and utilization of state of the art of educational technology by both teachers and students of the department of Printing Technology and Mass Communication Kaduna Polytechnic to meet the aim of the 21st century educational goal.

Objectives of the study

The aim of the study is to investigate the availability of ICT equipment, its accessibility and willingness of lecturers and students to use them to achieve the expected change in teaching and learning. In view of the aim the following objectives were formulated;

1. To assess the Digital Technology facilities availability for enhancing teaching in the department of Printing Technology and Mass Communication, Kaduna Polytechnic
2. To determine the extent at which lecturers apply Digital Technology skills (ICT) to enhance teaching and learning in Kaduna Polytechnic
3. Assess the degree at which ICT facilities are accessible to teachers and students in enhancing teaching and learning in the department of Printing Technology and Mass Communication Kaduna Polytechnic.
4. To ascertain the factors hindering acquiring the state-of-the-art digital technology materials for teaching and learning in the department of printing technology and mass communication, Kaduna polytechnic

Research Questions

To achieve the goal of the study, the objectives of the study were converted into research questions as follows;

1. What are the digital technology facilities available for enhancing teaching and learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic?
2. What is the extent to which lecturers in the department of Printing Technology and Mass Communication, Kaduna Polytechnic apply digital technology skills (ICT) in enhancing teaching and learning?
3. What is the degree at which ICT facilities are accessible to teachers and students in enhancing teaching and learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic?
4. what are the factors hindering acquiring the state-of-the-art digital technology materials for teaching and learning in the department of printing technology and mass communication, Kaduna polytechnic?

Methodology

Survey research design was used for the study, survey research enables the researcher to have direct contact with the respondents in order to gather information through their opinions for the purpose of solving the research problem (Nworgu 1991). Academic staff of Departments of Printing Technology and Mass Communication Kaduna Polytechnic was the population of the study. The populations of the lecturers were found to be 57 in number whereby the whole

population was used for the collection of data. Two major sources were used to collect data for the study, the primary and secondary sources. The secondary source of data was obtained from reference materials from published and unpublished works, journals, and books related to the study. Closed ended Questionnaire was used for the collection of data for the primary source.

Four Liker's scale type of questionnaire was utilized to get respondents' opinion. The items used in the questionnaire were 17 items questionnaire. The instrument was subjected to face and content validity by three experienced academic staff from the rank of senior lecturer and above who are specialists in the field of education and information and communication technology. Simple percentage was used for the score of the participants' responses and the outcome was 68%. The result of the validation was used for making the necessary correction for the data collection. Mean statistic was used as the statistical instrument for the data analysis (with cut-off mean of 2.5) covering research question one to four. The questionnaire was design and administered personally by the researchers with the help of research assistant. The questionnaire was distributed and retrieved in 2 weeks.

The 57 questionnaires distributed, 50 were retrieved and all were found valid for the study. By implication, the questionnaire retrieved (50) is found to be 88 % whereby the ones found to be valid for the study (50) is 100%. This means that the 50 questionnaires returned were correctly filled without errors.

Result

Research Question 1:

What are the digital technologies Facilities available for enhancing teaching and learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic?

Table 1: The Digital Technology Facilities Available for Enhancing Teaching and Learning in Kaduna Polytechnic (Cut-off mean =2.5)

S/N	Statement	$\bar{x}$	Remarks
1.	Adequate computers are available for teaching and learning in Kaduna polytechnic	3.20	Agreed
2.	Electronic smart boards are available in Kaduna polytechnic	1.58	Disagreed
3.	Few projectors are available in Kaduna Polytechnic	2.58	Agreed
4.	Students and lecturers are partially satisfied with the available tools and equipment	2.24	Agreed
5.	There is need for digital technology tools upgrade in Kaduna Polytechnic	3.40	Agreed

The table above assesses the availability of Digital Technology tools the department of Printing Technology and Mass Communication Kaduna Polytechnic. The table indicates that item 1, 3, and 4 were responded in the positive way. The mean ($\bar{x}$) of the responses were higher than the mean threshold (MT), 3.20, 2.58 and 3.40 found to be higher than 2.5. By implication the mean 3.20 in item 1 indicates that the two departments have adequate computers available for teaching and learning in Kaduna polytechnic to the satisfaction of both students and lecturers. The mean 2.58 in item 2 indicates that there are few projectors available for teaching and learning. The result (3.40) in item 3 revealed that there is need for digital technology tools upgrade in Kaduna

Polytechnic for teaching and learning. However, the result in item 2 (1.58) revealed that there is no availability of smart boards. Item 4 with mean 2.24 shows there is inavailability of ICTtools in some aspect. But the grand mean 2.6 reveals that digital technology facilities are available for enhancing teaching and learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic

Research Question 2:
What is the extent to which lecturers in the department of Printing Technology and Mass Communication, Kaduna Polytechnic apply digital technology skills (ICT) in enhancing teaching and learning?

Table 2: The Extent at which Lecturers Apply Digital Technology Skills (ICT) to Enhance Teaching and Learning (Cut-off mean =2.5)

S/N	Statement	$\bar{x}$	Remarks
6.	All lecturers apply digital technology skills in enhancing teaching and learning	2.28	Disagreed
7.	Only few lecturers apply ICT skills in enhancing teaching & learning	3.16	Agreed
8.	Lecturers attitude towards ICT practical integration is fair	3.52	Strongly Agreed
9.	Lecturers have limited time to prepare for teaching using ICT tools	2.73	Agreed

The table above assesses the extent at which lecturers apply digital technology skills (ICT) to enhance teaching and learning. The mean of items 7,8, and 9 in the table are higher the mean threshold, item 8 is the highest mean with 3.52 followed by item 7 with 3.16. This indicates that item 7, 8, and 9 were all found to be responded positively that lecturers were readily applying ICT skill in enhancing teaching and learning in Kaduna Polytechnic. The result in item 6 also shows that not all lecturers are applying digital knowledge in teaching and learning in the department of Printing Technology and Mass Communication.

Research Question 3:
What is the degree at which ICT facilities are accessible to teachers and students in enhancing teaching and learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic?

Table 3: The Degree at Which ICT Tools are Accessible to Students and Teachers in Enhancing Teaching and Learning in Kaduna Polytechnic (Cut-off mean =2.5)

S/N	Statement	$\bar{x}$	Remarks
10.	ICT tools are placed within the reach of students and lecturers in Kaduna Polytechnic.	2.78	Agreed
11.	Some students do not care to get access to the ICT tools	2.58	Agreed
12.	The lecturer's attitude towards getting access to the ICT practical tools are not encouraging	2.66	Agreed
13.	Poor power supply limits accessibility of ICT tools to students and lecturers	3.26	Agreed

The table above assesses the degree in which ICT tools are accessible to students and teachers in enhancing teaching and learning in Kaduna polytechnic. Despite that, item 13 with mean 3.26 shows that poor power supply limits accessibility of ICT tools to students and lecturers. Item 10 with mean 2.78 revealed that ICT tools are placed within the reach of students and lecturers in Kaduna Polytechnic. The grand mean 2.82 of the table 3 above reveals that the ICT tools are fairly accessible to students and lecturers in Department of Printing Technology and Mass Communication Kaduna Polytechnic.

Research Question 4:

What Are the Factors Hindering acquiring the state-of-the-art Digital Technology Materials in Teaching and Learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic?

Table 4: Factors Hindering the Acquiring the Digital Technology Materials in Teaching and Learning in the Department of Printing Technology and Mass Communication Kaduna Polytechnic (Cut-off mean =2.5)

S/N	Statement	$\bar{x}$	Remarks
14.	Inadequate funding for ICT infrastructures limits the availability of ICT tools in Kaduna Polytechnic	3.52	Strongly Agreed
15.	Poor maintenance culture is another limiting factor to availability of ICT materials in Kaduna Polytechnic	3.42	Agreed
16.	Lack of ICT training programmes in the Kaduna Polytechnic affects the availability of ICT materials	3.32	Agreed
17.	Corruption in Education system affects the availability of ICT materials in Kaduna Polytechnic	3.62	Strongly Agreed

The table above assesses the factors hindering the availability of digital technology materials in teaching and learning in Kaduna polytechnic. The result that the mean of item 14 – 17 weree higher than the mean threshold. Item 17 with mean 3.62 is higher than 2.5 followed by item 14 with 3.52. The grand mean 3.47 reveals that all the factors' items 14-17 on table 4 above were responsible hindering the of acquisition of the digital technology materials in teaching and learning in the Department of Printing Technology and Mass Communication Kaduna Polytechnic.

Discussion of Findings

The result reveals that digital technology facilities are available for enhancing teaching and learning in the department of Printing Technology and Mass Communication, Kaduna Polytechnic. However, despite the availability of the other digital facilities electronic smart boards are not available in Kaduna polytechnic. This go in line with Okoye (2016), which states that studios, laboratories, resource centers and the total environment where technical education is offered must be available and adequately equipped to reflect the actual working environment. The Okoye further maintained that the institution's laboratories should have the equipment, tools and materials in terms of types, designs and specification with the office where the students will work after training.

Among the pervasive changes in professional practice is emerging of ICT in teaching and learning. Having acquired the ICT facilities may not be enough to make progress in teaching and learning but applying the facilities in to use. In view of that the finding from the study shows that

great number of lecturers in the department of Printing Technology and Mass Communication apply digital technology skills (ICT) in enhancing teaching and learning. The link between technological development and the transformation of teaching and learning can said to be achieved moderately. The role of teachers has changed and continues to change from being an instructor to a facilitator, form coach to a creator of learning environments.

The use of Digital Technology in schools should have a positive impact on students in terms of supporting and providing them with relevant technological literacy for learning. In addition, ICT increases the engagement of students and in most cases increase their independence in learning. Accessibility of the digital technology facilities to lecturers and students is another factor this sought to find out. The findings of the study reveal that the available ICT tools in the department of Printing Technology and Mass Communication are accessible to students and lecturers to enhancing teaching and learning in Kaduna Polytechnic. This means that students are willingly adjust to change in their role from receivers to also providers of information. In many cases, the students' role becomes more independent and responsible. They also become co-operative and collaborative, and finally become directive and negotiates.

Factors hindering the acquisition of the state of art digital facilities were among the questions this study interrogates. The study finds that inadequate funding, poor maintenance culture, lack of ICT training programmes, and corruption in Education system hinders acquiring the digital technology materials in teaching and learning in the Department of Printing Technology and Mass Communication Kaduna Polytechnic.

Conclusion

Based on the findings of this research, the study concludes that there is availability of ICT facilities for integration of digital technology into teaching and learning in the department of Printing Technology and Mass Communication Kaduna Polytechnic with negligible shortcomings in some few areas. Both the students and lecturers are ready to apply the ICT into teaching and learning but are faced with electric power problem.

Recommendations

1. Adequate smart board should be provided for teaching and learning
2. Students and lecturers who are lag behind in the usage of ICT facilities should be encouraged to carry all along.
3. The state of art ICT tools that are available and accessible to students and lecturers in the department of Printing Technology and Mass Communication Kaduna Polytechnic should be maintained
4. There should be retraining program for lecturers so that the departments can meet up with global standard on digital technology. There should be adequate funding for ICT facilities, and maintenance culture should be courage among staff and students.

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Educational Policy Implementation in Nigeria: Challenges and the Way Forward

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Abstract
Educational policy implementation in Nigeria has been facing a lot of challenges right from the time of independence. Hence, this paper examined educational policies implementation in Nigeria: challenges and ways out. It explained education as the act of transmitting knowledge, values, and skills required for an individual to personally develop and able to effectively contribute to the development of the society which he or she belongs. Policy was discussed as a plan or programme systemically designed to achieve a specific goal. It elucidated educational policy as a systematically designed programme or plan put in place to achieve a particular purpose in education. Educational policy implementation was defined as the act of operating an educational policy in order to achieve the goal for which it is established. The paper discussed political instability, corruption, inadequate fund, inaccurate data and insufficiency of personnel as the challenges facing educational policy implementation in Nigeria. It was suggested among other things, that forthcoming administrations in Nigeria should cultivate the habit of sustaining the inherited educational policy or policies from their antecedents, instead of abandoning it and come with another one which might not be significantly different from it, to ensure that the inherited policy or policies see the light of the day.
Keywords: Education, Policy, Educational Policy, Educational Policy Implementation

Introduction

Education is very important in human life. It the act of transmitting knowledge, values, and skills required for an individual to personally develop and able to effectively contribute to the development of the society which he or she belongs. Mba and Ugwulashi (2020) defined education as the process of teaching an individual to acquire desirable skills, knowledge, values and attitude, and understanding which will enable him or her to critically think about the various issues in life. Omolewa (2006) stated that the most valuable investment a nation can make on the development of its country is the dedication to the provision of quality education for its citizens. This means that education is the foundation upon which of any country's growth and development must stand for her to achieve desired economic prosperity. Bassey, Ekpo and Edet (2008) maintained that education is a crucial investment in an economy. It improves the quality of the people in a country and this assists to expedite its economic growth and development. Imam (2012) opined that education is the basis for national and human development. It is a tool for getting relevant knowledge, habits, skills, and inculcating cultural values for sustenance. The nexus between education and development has been globally recognized, to the extent that education has been universally regarded as a veritable key for the development of any nation

However, policy is very important to the success of educational system. It is through policies that educational system in any country can achieve the goals for which it is established. Without policies, each aspect of education would not have a clear direction and its purpose might not be well actualized. Nevertheless, it is one thing to formulate policies for education, but it is another thing entirely to ensure that the policies are well implemented. No matter how well a policy is formulated, it becomes meaningless if the implementation is not well carried out. Since the time of independence, Nigerian government has been formulating different educational policies such as Universal Primary Education (1976), Universal Basic Education Programme (2004), National Policy on HIV and AIDS for the Education Sector in Nigeria (2005), National Gender Policy (2006), National School Health Policy (2006) and The Safe School Initiative (2014), National Home-Grown School Feeding Programme (2016) and National Policy on Inclusive Education in Nigeria (2016). Hence, the fact remains that these policies have been facing various challenges which are hindering their effective implementation. It is against this background that this paper examines educational policy implementation in Nigeria: challenges and ways out.

Concept of Policy

Policy refers to a plan or programme systemically designed to achieve a specific goal. Every organization needs to formulate policies. The policies formulated would serve as a guide to its operation. An organization without well formulated policies guiding its operation might continually operate haphazardly. This is because there would be no clear direction of operation which the workers have to subscribe to, for the stated objectives to be realized. According to Okoroma (2006), policy serves the purpose of ensuring that every official action of an enterprise must have a basis or a backing. Miskel (2005) opined that policies should not only be formulated, rather, it should also be based on effective programming, communication, monitoring and evaluation. This is necessary to ensure that policies achieve the purpose for which they are established. Sadiku (2020) defined policy as a plan by some agents to do something in particular, for some purposes whenever a particular condition transpires or is actualized. Uchendu (2000)

elucidated that policy is a central procedure through which an organization achieves stability and realizes order changes as part of its decisive objective. Joel, Ogi and Ikpe (2019) opined that policies are written or unwritten statement that regulates the present and future thinking creativities in an organization. According to Koontz et al (1980), policies are regarded as plans, this is general statements or understandings which direct or channel thinking and action in decision making.

Concept of Educational Policy

Educational policy refers to a systematically designed programme or plan put in place to achieve a particular purpose in education. An educational policy serves as a blueprint which provides a guideline for the operation of a particular aspect of education. This could be based on the students' entry requirement, curriculum implementation, years of study, students' Industrial Working Experience Scheme, teachers' qualifications and instructional resources to be used to support teaching and learning process. Educational policies are very essential because it provides a direction for each aspect of educational system. It is divided into two (internal and external). Internal policies are those policies made within educational institutions by the managers such as principals, provosts, rectors, vice-chancellors or people at the middle or low-level management. External policies are those policies formulated by government agencies saddled with the responsibility of regulation educational system in the country. These include Federal or State Ministries of Education, Joint Admissions Matriculation Board, National Board for Technical Education, National Commission for Colleges of Education, State Universal Basic Education Board, Teaching Service Commission, National Examinations Council, West African Examinations Council, National Business and Technical Examinations Board.

However, policies made within the educational institutions must fall within the purview of the government policies, so as not to operate in contrary to the government's policies which could lead to contradiction. Without sound policies, it might difficult for education to achieve the goals for which it is established. Educational policies which had been made in Nigeria include Universal Primary Education, The Child Rights Act Policy, Universal Basic Education Programme (2004), National Policy on HIV and AIDS for the Education Sector in Nigeria (2005), National Gender Policy (2006), National School Health Policy (2006) and The Safe School Initiative (2014), National Home-Grown School Feeding Programme (2016), National Policy on Inclusive Education in Nigeria (2016). Joel, et al. (2019) posited that educational policy of Nigeria is a general statement which contains the rules and regulations that control the plans, on how to educate the citizens. It is designed to provide answer to questions about the purpose of education; its objectives, that it aims at achieving and the strategies for realizing them; and the yardsticks for determining their strengths and weaknesses.

Romane and Beatriz (2017) explained educational policy as the actions embarked upon by governments in connection to educational practices, and how governments carry out the production and delivery of education in a particular system. OCED (2015) stated that policies in education cove a lot of factors such as equity of learning, learning environments quality, learning outcomes quality or the ability of the system to prepare students for future living which embraces good governance and responsible followership. Ojulari (2020) saw educational policy as the thinking at a high level of perception which shows educational goals and the methods of realizing them. It is the foundation upon which daily administration of education is built and serves as a guide to school

managers when determining the lines along which the educational system should be operated. According to educational Akintayo and Oghenekohwo (2003), for educational policy to be effectively made, stakeholders such consumers of education (students who enjoy the educational services provided in schools and parents who may desire a particular type of education for their children); employers of labour (those who make use of the products of educational system); host community (representatives of the community in which the school is cited); government and participants in education (the teaching and non-teaching staff). Owolabi (2005) believed that the operation of education becomes mainly disorderly when it is not directed by any policy. Ojulari (2020) maintained that educational policies are policies designed within or outside educational institution for managing the operation of educational activities. These policies may be on pedagogical policies, curricular activities, distributional policies or resource policies. Edobor (2010) maintained that educational policies are designed and executed by government to combat education problems or to meet the educational needs of a country. In reality, educational policies are either the product of democratic deliberations through consultations or they are imposed on the people.

Concept of Educational Policy Implementation

Implementation simply means the process of translating a plan or some plans into actions. That is, the act of transforming an already designed programme into what can be physically seen. Educational policy implementation refers to the act of operating an educational policy in order to achieve the goal for which it is established. In another word, it is situation whereby a formulated policy is put into practice for the purpose of realizing a particular or some goals. Policy implementation is very important. It is one thing to formulate a policy, but it is a different thing entirely to ensure that the policy is well implemented. No matter how a policy is well formulated, without effective implementation, it might not be able to actualize the stated goals. Ogunode and Ahaotu (2020) defined implementation as the logical way of executing a project, policy or programme. Mkpa and Izuagba (2012) explained implementation as the process of putting a plan or decision into action. It also captures the execution of a policy that has been designed. Mkpa and Izuagba (2012) defined implementation as the act or process of putting a decision or plan into action. It also involves the execution of a policy that has been formulated. Okoroma (2006) posited that there is a wide difference between policies of education and goal achievement of education in Nigeria, due to inadequate policies implementation. Manafa (2011) explained educational policy implementation as the process of carrying out of the formulated policies in concrete terms. Educational policy implementation is likely to achieve the stated goals, when the required resources are dedicated to it. It is the stage at which the preparations made earlier in terms of proposed designs or plans are tested to see how they are able to achieve the targeted goals. Amadi (2007) posited that implementation of educational policies cover different areas such funding, equipment and instructional material resources for learning, teachers' support staff, infrastructures, personnel to implement education programmes.

Nwadiani (1997) posited that educational policy implementation is the transformation of education policy into action involving all activities that are carried out after the formulation, acceptance and release of policy. It is the most difficult stage in planning the education system in Nigeria. At the implementation stage, administrative efficiency and managerial skills are subjected to great task. Implementation links policy plans with actual performance through the activities of implementation agencies.

Challenges Facing Educational Policy implementation in Nigeria

The challenges facing effective implementation of policies in Nigeria include:

1. Political Instability

Since the period of independence, Nigeria has been witnessing different regimes ranging from that of Alhaji Tafawa Balewa, Gen. J. T. U. Aguiyi Ironsi, Gen. Yakubu Gowon, General Murtala Mohammed, Gen. Olusegun Obasanjo, Alhaji Sheu Shagari, Gen. Muhammed Buhari, Gen. Ibrahim Gbadamosi Babangida, Chief Ernest Shonekan, Gen. Sanni Abacha, Gen. Abdulsalam Abubakar, Olusegun Obasanjo, Umar Musa Yar'adua, Goodluck Ebele Jonathan to Muhammed Buhari. Each of these administrations initiated an educational policy or more. What has been common in Nigeria is that the moment a regime winded up, its successor could abandon the inherited policy or policies, instead of looking for a way of sustaining it. Frequent transitions in government had ushered in different ministers of education. In an attempt to bring out a new educational policy or policies which would be ascribed to their tenure, they abandoned the existing policy or policies and came up with different one(s) which might not have significant difference with the former one(s). According to Odukoya (2011) politics and constant changes in government is a factor which affects educational policy implementation in Nigeria. Instability in government, coupled with frequent changes in ministers and commissioners had resulted in different crises in the educational policy implementation which Nigerian educational system had witnessed over the years.

2. Corruption

Another factor hindering effective implementation of educational policies in Nigeria is corruption. This menace has been contagious to the extent that, since the independence in 1960, no educational policy in the country had been free from corruption, as one the challenges facing its implementation. Political leaders and high-ranked government officials had been fingered in the embezzlement of the funds earmarked for the implementation of some educational policies while some negotiated with the contractors to get return, the scenarios which had led to the construction of substandard or less buildings than the specified numbers, and provision of poor quality or inadequate facilities or personnel, thereby hindering the actualization of the goals for which the policies were formulated. The corruption which is affecting the implementation of educational policies in Nigeria is not limited to the political leaders and high-ranked government officials alone; rather it contains the school staff. Some teachers give bribe to their principals to allow them absent in school, in order to face their personal businesses. For those days they were absent in schools, students miss what they were supposed to be taught. It had also been confirmed that some principals sold some of the computers or other learning facilities provided for their schools by the government or non-governmental bodies or converted them to their personal gains. All these are also challenges to successful policy implementation.

3. Inadequate Funds

Shortage of funds is a cog in the wheel of successful implementation of the educational policies in Nigeria. Education is a great investment which requires huge amount of money; but the percentages which it has been getting from the Nigerian annual budgets since years back, has not been able to meet up with the United Nations Scientific, Educational and Cultural Organization's recommendation of 20% of the total annual budget to education. To support this, in 2013, 2014, 2015, 2016 and 2017, education got N426.53billion (8.6%) out the total budget of N4.987trillion,

N493billion (10.7%) out of the total budget of N4.69trillion, N392.2billion (8.91%) out of the total budget of N4.4trillion, N369.6billion (6.01%) out of the total budget of N6.1trillion and N448.01billion (6%) out of the total budget of N7.3trillion respectively. Also 2018, 2019, 2020, 2021 and 2022, it received N605.8billion (7.04%) out of the total budget of N8.3trillion, N620.5bn (7.05) out of the total budget of 8.83 trillion, N652.94bn (6.9%) out of the total budget of N10.50 trillion, N742.5bn (5.6%) out of the total budget of N13.08 trillion and N923.79bn (5.4%) out of the total budget of N17.13 trillion respectively.

4. Inadequate infrastructural facilities

The facilities needed for effective implementation of educational policies include classrooms, halls, laboratories, workshops, libraries, staff offices and quarters, hostels, school vans, sports and recreational equipment, computers, textbooks, toilets, sick bays, electricity, water supply and the likes. Unfortunately, the problem of inadequacy of funds has no doubt been leading to the shortage of facilities needed to successfully implement the educational policies in Nigeria. According to Jacob and Samuel (2020), shortage of infrastructural facilities is one of the major problems preventing effective implementation of educational policies in Nigeria, because no meaningful teaching and learning can take place without adequate infrastructural facilities available. For example, the Universal Primary Education, Universal Basic Education, Girl Child Education, Early Childhood Care and Development Education and other educational policies had been seriously challenged with insufficiency of the required infrastructural facilities.

5. Customs and Traditions

Nigeria is characterized as a multi-ethnic country and each of the ethnic groups has its own customs and traditions. These customs and traditions have been the guide to their ways of life, education in no exemption. For instance, Girl Child Education is a policy which goes a long way in preparing Nigerian female children for their future roles in contributing to the development of their country in particular and the universe in entirety. Despite the significance of this policy, some people in the Northern part of the country do not see the essence of sending female children to school, rather they prefer to keep them at home and prepare them for marriage at very tender ages. This is a challenge to the effective implementation of Girl Child Education in Nigeria. In addition, across the six geo-political zones of the country, some people, especially those at the rural areas, have not deemed it fit to send their children to school, rather they prefer to engage them in their traditional occupations such as fishing, farming, crafting, weaving and the likes. This is a challenge to the successful implementation of Universal Basic Education in the country.

6. Inaccurate Data

For an educational policy to achieve the goal for which it was designed, its formulation has to be based on accurate and reliable data, among other factors. It is pitiful that no census conducted in Nigeria since the independence was free from inaccuracy due manipulation of figures by the politicians, for personal benefits. Not only that, there has not been an effective data management system in Nigeria. These scenarios had made some policies to be formulated based on the inaccurate data thereby leading to haphazard implementation. Ojulari (2020) affirmed that lack of accurate statistical data and unreliable national census have been one of the factors hindering effective implementation of educational policies. Success of the various forms of educational policy implementation rests on reliable data.

7. Insufficiency of personnel

Another challenge to the successful implementation of educational policies in Nigeria is inadequacy of personnel such as teachers and other professionals. For instance, up till this present time, many public primary and junior secondary schools in Nigeria do not have the required number of teachers to facilitate effective implementation of Universal Basic Education. Not only that, many schools are also faced with the problem of insufficient health, security, and couselling personnel needed for successful implementation of policies like National Policy on HIV and AIDS for the Education Sector in Nigeria, National School Health Policy and The Safe School Initiative.

8. Poverty

The level of poverty has been very alarming in Nigeria. According to Vanguard (2022), about 91 million Nigerians lived in poverty in 2021. Also, Premium Times (2022) reported that World Bank stated that number of poor people in Nigeria is projected to hit 95.1 million in 2022. The fact is that the parents who are poverty-stricken are not likely to play their roles expected to facilitate successful implementation of educational policies. For instance, Universal Basic Education is the foundation of education in Nigeria. This policy aims at enriching the Nigerian children with adequate foundation of knowledge and skills required to be functional human beings, capable of contributing their quota to the national and global development. However, many parents had been prevented from keying into the success of this policy because of poverty.

9. Insecurity

Adequate security of lives and properties is very essential to the success of any educational policy. In an environment where protection of lives and properties are not guaranteed, implementation of educational policies suffers. During the civil war in Nigeria between 1967 and 1970, implementation of educational policies was put on hold in the Eastern part of the country. In addition, the operations of Boko Haram in the country had led to the death, kidnapping or displacement of thousands of teachers, students/pupils, non-teaching staff and parents; destruction of school buildings and facilities; and disruption of academic calendar. Furthermore, the sinister activities of the bandits, some herdsmen and the militants cannot be underrated. All these have been in no small measure hindering smooth implementation of many educational policies in Nigeria.

10. Lack of Political Will

The problem of lack of political will cannot among many Nigerian political leaders be ruled out of the challenges facing effective implementation of educational policies in the country. For instance, the Federal Government would sign a bill and the state governments would refuse to implement. According Samuel and Jacob (2020), The Child Act Right bill signed and passed into the law by the federal government of Nigeria have not been signed by many state governments because they don't want to sign the bill into law for implementation in their various states.

Conclusion

Based on what has been discussed above, it is evident that educational policies in Nigeria have been facing series of challenges which are hindering their effective implementation. Hence, if these problems are not solved, it would be difficult to actualize the goals for which these policies are formulated.

Recommendations

As the challenges have been identified, it is also necessary to bring out the suggestions which would enhance stoppage of these problems, in order to facilitate effective implementation of educational policies in Nigeria.

1. Forthcoming administrations in Nigeria should cultivate the habit sustaining the inherited educational policy or policies from their antecedents, instead of abandoning it and come with another one which might not be significantly different from it, to ensure that the inherited policy or policies see the light of the day.
2. Serious punishment should be meted out to any political leader, government official, teacher, and principal who involves in any corrupt practice capable of hindering effective implementation of educational policies, so as to serve a deterrent to others.
3. Government should ensure that allocation to education in the subsequent annual budgets in increased to meet up with the 20% recommendation of UNESCO and judicious utilization should be ensured, in order to facilitate successful implementation of educational policies.
4. Adequate provision of infrastructural facilities such as classrooms, laboratories, libraries, staff quarters and other facilities necessary for smooth implementation of educational policies should be given improved priority.
5. Government should intensify effort on sensitization of the people on the importance of education, especially those in the rural areas, in order to make them play their roles towards successful implementation of educational policies.
6. Government should ensure that comprehensive and universal data management system is built for Nigerians and census should be well conducted to ensure that all Nigerians are counted, to serve as a basis for the implementation of educational policies.
7. Adequate teachers and other personnel should be adequately recruited by the government, to make sure that policies are provided with the capable hands which would facilitate their successful implementation
8. Nigerian economy should be revamped by the government to facilitate drastic reduction in the poverty level among the citizens in the country.
9. Government should persistently give the Nigerian military personnel the needed support to fortify them more in combating the problem of insecurity, so as to maintain peaceful atmosphere necessary for successful implementation of educational policies.
10. Nigerian politicians should improve the level of their sincerity and always take implementation of educational policies as high responsibility, to make them achieve the purposes for which they are established.

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Effect of 7E Learning Strategy on Achievement in Chemistry among Senior Secondary School Students in Nguru Local Government Area, Yobe-Nigeria

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Abstract
The main objective of this study was to investigate the effects of 7E learning strategy on achievement in chemistry among senior secondary school students in Nguru Local Government Area, Yobe State-Nigeria. A pretest/posttest quasi-experimental research design was adopted for the study. A population of 433 and a sample of 161 SS II students were used for the study. Simple random sampling technique was used to draw two intact classes of 82 male and 79 females as sample. Two research questions were formulated and answered in the study. The Instrument used for the study called "Chemistry Achievement Test (CAT)" was developed by the researchers. The scale was validated by experts in the field; the reliability coefficients for the instruments was found to be 0.87 via test-retest procedure. The experimental and control groups were respectively pretested and thereafter, treatment (7E Learning Strategy) was administered on the experimental group while the later was taught with traditional method. Both groups were later on subjected to posttest using the CAT scale. Mean and standard deviation were used to answer the research questions. The results revealed that students taught chemistry using 7E learning strategy performed better than those taught using traditional method, it also shows that there is no significant difference of achievement scores between male and female students when taught chemistry using 7E learning strategy. Based on the findings, it was recommended that teachers should be encouraged to use 7E learning strategy in teaching Chemistry in senior secondary schools.
Keywords: 7E learning strategy, Achievement in chemistry, Senior secondary school students.

Introduction
Science is the foundation for sustainable national development by protecting human societies from ignorance, illiteracy, disease and poverty. For any nation to experience economic development there must be strong, stimulating growth in the teaching and learning of science (Nwagbo & Ovute, 2011). Science has been defined as a systemic enterprise of gathering knowledge about the world, organizing and condensing that knowledge into testable laws and theories (Hornby, 2010). According to Rao (2007), science is the system of knowing the universe through data collected by observation and controlled experimentation. Okoro (2013) defined science as a systematic investigation of nature with a view to understanding and harnessing to serve human needs and it consists of Biology, Chemistry, Physics, and Mathematics. Science is the investigation of matter with a view to understanding and harnessing to serve human needs (Okoro, 2013). The methods of producing true knowledge were those which distinguished science from other kinds of knowledge; observation, accuracy, induction, proofs, deduction, etc. are the

key terms of the debate. Aderonke and Victoria (2013) reported that the development of any nation is hinged on inventions and innovations due to science and technology as result emphases are put on science and technological learning, with each country striving towards providing more and better trained scientists and technologists, the foundations science and technology starts from science education. Aina (2013) sees science education as the process of getting scientific information to individuals from beginning to the end. He also defined science education as the study of science subjects (Biology, Chemistry and Physics) with teaching method in order to impart scientific knowledge to individuals or community. Science education deals with the teaching (2007), science education as a field of specialization is concerned with two (2) basic aims, which is the production of scientifically interactive society and technological manpower. Alhassan, Victoria and Danteni, (2013) reported that the science and technology related disciplines that will enable the students to have substantial knowledge of science and be able to apply it in solving problems in the changing society are Biology, Chemistry, Mathematics, Physics and others. Chemistry is a branch of pure science that deals with the study of matter in relation to energy. In addition, Danjuma (2008) stated that physics is the soul of science which plays a vital role in all human endeavour and serves as a pre-requisite for courses such as medicine, geology, agricultural science, pharmacy, forestry among others. It is one of the science subjects taught at the senior secondary level of Nigerian Educational system, it is closely related to other sciences such as chemistry and biology but is perceived generally to be difficult, vast mathematical and experimental (Torigoe 2008). Chemistry is one branch of sciences that was develop through the steps of observation, problem formulation, formulation of hypotheses and testing through experimentation, conclusion as well as the discovery of theories and concept. Chemistry learning has a very important role in order to establish a scientific attitude, analytical thinking, and foster the creativity of students (Ashiq, Muhammad, & Azra, 2011). To teach Chemistry effectively, teachers need to employ methods including student-centered methods that will enable the students to learn more, retain more and apply what is learned by engaging in significant and appealing activities, and 7E learning cycle may be good in this aspect. Learning strategy is a concept of how students learn from experience. A learning strategy has a number stages or phases, the last of which can be followed by the first. Learning cycle m s mental functioning model. The first version of the model included three phases initially called preliminary exploration, invention and discovery (Karplus & Their, 1969) but they were revised to exploration, concept introduction and concept application to increase the expressiveness (Hanley, 1997).

As the learning cycle started to be implemented and investigated over years, the model was modified regardless of the conceptual foundation of the approach (Bybee, Taylor, Gardner, Scotter, Powell, Westbrook &Landes, 2006). Educators and researches extended the phases of model to increase the emphasis on some issues and different versions of the model were emerged as 3E, 4E, 5E, 7E and 9E. Among them, 7E learning cycle instruction is the broad one encompassing seven phases each starting with the same letter; Elicit, Engagement, Exploration, Explanation, Elaboration, Evaluation, and Extension. In most cases, you will be existing concepts with other areas of real life and/or with other concepts/subjects to transfer the knowledge and skills they acquired (Gulsum, 2014).

Academic achievement is the extent to which learners have gained from a particular course of instruction. Academic Achievement is the measure of what a person has accomplished after

exposure to educational program as said by Lucy (2015). Studies conducted by Ezeudu (2013) and Okoye (2012) reported that active participation of students' academic achievement corresponds to their performance in school subjects as symbolized by a score on an achievement test (Jimoh, 2010). Teachers with good teaching strategy challenge students to work at higher intellectual level, attain sound academic achievement for better outcome. In this study, the researcher intends to prepare chemistry learning activities based on 7E teaching strategy and determines its ability and efficacy in enhancing students' achievements as regard to gender.

Gender is the socially/culturally constructed characteristics and roles which are associated to males and females in any society. The gender study in science education has been contradictory (Adeyemi &Ajibade, 2011). There have been a number of studies of gender on academic performance in science. Bichi (2002) defined gender as amount of musculanity or ferminity in an individual. Researches on gender and academic performance such as that of Usman (2010), Ibrahim (2012), Olorukooba, Lawal & Jiya (2012), observed that boys achieved better than girls, but studies by Bichi (2002), Adedayo 2004, Atadoga (2005), Lawal (2009), Bunkure (2012) and Dahiru (2013) pointed out that girls achieved better than boys. Some studies (Okwara, Anyagh&Ikyaan, 2017; Omwirhiren, 2015) revealed that gender influences conceptual understanding of science subject in favor of boys. According to Okeke (2007), studies conducted by (Okoyefi, 2014; Okorei&Ezeh, 2016) found that girls students performed better than their boys counterparts. Because of achievement with respect to gender in science subject especially chemistry; the researcher is inspired to conduct this study to observe academic achievement in chemistry. Thus, the study will use 7E teaching strategy to prepare chemistry learning experiences, teach experimental group and ascertain its effectiveness in chemistry instructions.

In line with the development theory of Piaget, knowledge construction in learning cycle instruction can be explained as following in the light of related literature (Abraham & Renner, 1986; Marek, Eubanks & Gallaher, 1990; Balci, Cakiroglu & Tekkaya, 2005). The first phase of the cycle, elicit phase, activates students existing knowledge and prepare students to construct connected knowledge structures. Following step is engagement phase which creates interest in the topic, captivates students' attention and promotes curiosity to focus on the content. Students assimilate the new concept in the exploration phase in addition to reevaluate their existing conceptions to be able to interpret the new phenomena. The cognitive conflict rose in students existing mental structures and new situation causes disequilibrium which the individual avoids to stay. To be able to reach equilibrium, they accommodate the concept in an environment that they are allowed to explain and discuss their ideas in the explanation phase based on the data obtained from the exploratory activities. This phase is the essential to allow students to accommodate through the discussion and interpretation of data. In the elaboration phase, both assimilation and accommodation occur since the students organize, apply and relate the newly developed concept to prior concepts or daily life applications. Evaluation phase make students to realize the change in their knowledge and assess their own conceptions to make necessary arrangements. Finally, extension phase prepare student to connect the acquired knowledge to following new phenomena.

According to Atadoga (2001) science and other sources of knowledge are built upon the foundation laid at the primary and secondary education levels. It is expected that it is from among the students at these levels that future scientists, doctors, engineers, technologist etc. would emerge. But if the foundation is weak at the primary and secondary levels, then the entire system

is likely to collapse. Mankilik and Inyang (2009) in their survey on the attitude of secondary school students towards chemistry in some schools in Nguru,Yobe state found out that, students generally considered chemistry a difficult subject. Among other handicaps that force them to drop the subject eventually is their lack of understanding of the subject because of the way it is taught. Chemistry as a subject is conceptual. Students learning chemistry at school level, or in colleges and universities, are taught about, and asked to master, a wide array of concepts. Concepts are central to understanding chemistry, and the understanding of chemical concepts is therefore a core concern in chemical education. Yet, learning chemical concepts is not straightforward. Students at all levels often do not understand; or only partially understand; or, indeed, misunderstand; key concepts they meet in their studies of chemistry. This is one of the core issues in chemistry education. This study, therefore, set out to investigate Academic Achievement in Nguru local government, Yobe-Nigeria.

Objectives of the Study

The main objectives of the research are to:

1. To determine the difference in achievement of chemistry student in secondary school when taught using of 7E learning strategy and conventional methods.
2. Examine whether there is gender difference among secondary school chemistry students' academic achievement when exposed to 7E learning strategy.

Research Questions

The research questions put forward for the purpose of this research are:

1. Is there any difference in secondary school chemistry students' academic achievement when taught chemistry using 7E learning strategy and conventional methods?
2. Is there any gender difference in the mean achievement score among secondary school chemistry students when exposed to 7E learning strategy?

Methodology

The study utilized quasi experimental and control groups design involving pretest and post-test. This is made of two groups; experimental and control. According to Creswell (2012), a quasi-experimental design is a type of experimental design that does not provides for full control of extraneous variables, primarily because of lack of random assignment of subjects to group. The design is considered appropriate for this study because intact classes will be used to avoid disruption of normal lessons. A pretest (O1) was administered to the two groups to determine the equivalence of performance of students prior to the treatment. The Experimental Group (EG) was exposed to 7E learning cycle, and the Control Group (CG) was also exposed to lecture method. This was followed by a posttest (O2) which was administered after the treatment for a period of six weeks to determine the 7E learning strategy academic achievement among secondary schools in Nguru local government Yobe State. The Target population of this study comprised of all government-own senior secondary schools SS II chemistry students, whose age ranges from 14 - 16 years, male and female students. According to Ministry of Education, Yobe State, there are six (6) public senior secondary schools in Nguru local government area. A total number of 433 students are considered as the target population.

The sample size of this study is 161 SS 2 chemistry students which comprised of 82 males and 79 females. Two (2) intact classes were selected from two co-educational secondary schools

in the local government area. The selected schools were ADSS Nguru and GHIC Nguru. An intact class from School GHIC Nguru was used as an experimental group in which some chemistry topics (Atoms, Molecules and Ions) were taught as a treatment using 7E learning strategy and one intact class from ADSS Nguru was used as control group in which same topics were taught as a treatment using conventional method of instruction. The simple random sampling technique was used to draw the sampled schools. The schools are Government Higher Islamic College Nguru and Army Day Secondary School Nguru, the two schools were assigned groups as experimental and control. This was done through simple random sampling technique. School ADSS Nguru serves as an experimental school and GHIC Nguru serves as control school and one intact class from each school.

The researcher use chemistry Achievement Test (CAT) as instrument of data collection in this study (Adopted from WASCCE 2015, 2016 and 2017) was used as a pre-test and post-test to determine the achievement levels. The instruments contained two parts. Part I consist personal data (e.g. gender, school) and part two of thirty multiple choice questions with four options to choose the correct option, only one will be correct and the remaining three served as destructors. These questions were selected from past West Africa Senior School Certificate Examination (WASCCE, 2015, 2016 and 2017. The items covered the units taught. The topics chosen were Atoms, Molecules and Ions. They were selected because they formed a good representation of major in chemistry. Examiners Reports 2015 2020 identified some difficult concepts in chemistry which include: atoms, molecules and ions. The following steps were followed in collecting the required data: Collection of Introductory Letter: The researcher collected an introductory letter from the department, visited the sampled schools and introduced himself to the principals and chemistry teachers because their assistance will be required for smooth movement of the study. The chemistry achievement tests (CAT) were administered as pre-test and Post-test. Exposure of the Study Subjects to Pre-test: Pretest was first be carried out on the students in both the groups to observe if there was any significant difference in their achievement scores. Treatment of Experimental Group with 7E learning strategy: The 7E learning strategy was used in this chase, where students in the experimental group were taught using the strategy for six weeks. Each lesson took 80 minutes.

In order to analyze the research questions, mean and standard deviation of pretest and posttest scores of the control and experimental groups were compared with the cut-off mean of 15.0. The mean difference obtained are used to answer the research questions.

Results

Research Question 1

Is there any mean difference in achievement between secondary school students taught chemistry with 7E teaching strategy and those taught with conventional method?

Table 1: Posttest mean scores of achievements in chemistry between experimental and control groups (Cut-off Mean=15.0)

Groups	N	Sum	Mean	Std. Deviation	Mean Difference
Experimental	81	2001	25.65	1.103	10.65*
Control	78	1326	16.37	1.229	1.37
Total	159	3327	20.92	4.799	5.92

*Mean score higher in experimental group than control group

Table 1 shows posttest raw scores with mean, standard deviation and mean difference of experimental and control groups exposed to 7E teaching strategy and conventional methods in chemistry instruction. The mean difference was obtained by comparing each group's mean score with the cut-off mean. Although, both groups' mean scores (20.92) exceed the mean threshold (cut-off=15.0), posttest mean score of experimental group (25.65) is however higher than that of the control group (16.37). In other words, experimental group's mean difference compared with the cut-off mean is 10.65 while the control group has 1.37. This indicates that the experimental group exposed to 7E teaching strategy performed better than the control group taught with the conventional method.

Research Question 2

Is there any difference in achievement between male and female secondary school students exposed to 7E strategy in chemistry teaching?

To answer this question, the mean and standard deviation of posttest scores of male and female participants in the experimental group were compared with the cut-off mean of 15.0 and result is presented in Table 3.

Table 2: Posttest mean scores of male and female participants in the experimental groups (Cut-off Mean=15.0)

Gender	N	Sum	Mean	Std. Deviation	Mean Difference
Male	43	1737	21.18	4.753	6.18*
Female	35	1590	20.65	4.863	5.65
Total	78	3327	20.92	4.799	5.92

*Mean score is marginally higher in male group than female

Table 2 shows posttest raw scores with mean, standard deviation and mean difference of male and female participants in experimental group exposed to 7E strategy of chemistry teaching. The mean difference was obtained by comparing each group's mean score with the cut-off mean. Although, both groups' mean scores (20.92) exceed the mean threshold (cut-off of 15.0), posttest mean score of male participants in experimental group (21.18) is marginally higher than that of their female counterparts (20.65). In other words, male participants' mean difference compared with the cut-off mean is 6.18 while the female category has 5.65. This suggests that a marginal difference in achievement exist between male and female secondary school students in the experimental group exposed to 7E strategy in chemistry teaching.

Discussion of Findings

There are various results found in this research study which will be discussed in this section. Based on the findings from this research study, it was found that there is significant difference in the mean achievement scores between experimental group taught chemistry using 7E learning strategy and those taught using conventional method of teaching strategy in favour of those taught 7E learning method, this finding implies that use of 7E learning strategy in teaching chemistry facilitate the academic achievement of the participants. This also shows that, those who taught 7E learning strategy as teaching method are higher achievement than those who learnt through conventional teaching method. This finding coincides with Kanli and Yagbasan (2008)

who conducted an experimental study to compare the relative effectiveness of 7E learning cycle model based on laboratory approach and deductive laboratory approach on development of science process skills. The sample was composed of 81 freshman university students attending a physics laboratory course. Students were administered the Science Process Skills Test (Burns, Okey & Wise, 1985) at the beginning of the course. They were re-administered the same test after the completion of the course. During the treatment, students in experimental group allowed to design experiments, identify dependent and independent variables, formulate analysis, explain the collected data, construct data tables, and draw conclusions, without a previously presented theoretical instruction. On the other hand, comparison group students were followed the steps which provide an identified problem, experimental designs, method to analyze data, and other necessary explanations. The findings of the study revealed a significant difference between post-measurements scores in the favor of experimental group. The authors discussed that the deductive laboratory approach leads students to focus on finding the correct results instead of the scientific process. But in this researcher the researcher focused only on the effect of 7E learning strategy.

Similarly, Gulsum Gok (2014) conducted a study on the effect of 7E learning cycle instruction on 6th from public schools of Keçiören district on conceptual understanding of Human body system, self-regulations scientific epistemological beliefs and some process skill. The sample consisted of 185 sixth grade from intact class, among them, three classes were randomly assigned as experimental groups and the other three as comparison group. Skeletal System Conceptual Inventory, Circulatory System Conceptual Inventory, and Respiratory System Conceptual Inventory were administered to the participants as pretests, posttests, and then questionnaire. The design was a quasi-experimental design. The instruments used in the study were the Skeletal System Conceptual Inventory (SSCI), Circulatory System Conceptual Inventory (CSCI), Respiratory System Conceptual Inventory (RSCI), Motivated Strategies for (MSLQ), Epistemological Beliefs Questionnaire (EBQ), and Science Process Skills Test (SPST) Mixed between within subjects' ANOVAs and mixed between within subjects. The reliability coefficient of SSCI, CSCI and RSCI was found to be 0.57, 0.54 and 0.56 respectively. MANOVAs were conducted to compare the effectiveness of two instructions on collective variables as well as to investigate the relative effect of two instructions on development of collective variables. The results of the study showed that 7E-LCI is more effective than curriculum oriented science instruction in terms of acquiring conceptual understanding, retaining acquired knowledge and promoting self-regulation. The study was on biology, so this current research was based on chemistry.

The second finding of the study shows that a marginal difference in achievement exist between male and female secondary school students in the experimental group exposed to 7E strategy in chemistry teaching. The mean difference was obtained by comparing each group's mean scores with cut- off mean. Although, both group's mean scores (20.92) exceed the mean threshold (cut- off=15.0), posttest mean score of experimental group (25.65) is however higher than that of the control group(16.37). In other words, experimental group's mean difference compared with the cut-off mean is 10.65 while the control group has 1.37. This indicates that the experimental group exposed to 7E teaching strategy performed better than the control group taught with conventional method. This finding is in line with Muhammad (2015) who studied students' achievement in Biology using 7E instructional Model, Pretest posttest control group design was

used in the study. A total number of 122 ninth grade students (62 boys and 60 girls) from four classes of a biology course of two schools were purposively selected. Experimental group (61 students) and control group (61 students) were randomly assigned. The students in the control group were instructed with traditional instructional model, while the students in the experimental group were instructed with 7E Instructional model. A Subject achievement Test (SAT) and Integrated Science Process Skill Test (ISPST) were used to collect data. Three hypotheses were tested using t-tests and ANCOVA. Independent sample t-test examined that there was a significant difference in the scores of Integrated Science Process Skill Test (ISPST), hence it was used as a covariate. ANCOVA examined that there was a significant difference in the mean post test scores of the groups and gender in terms of Subject Achievement Test (SAT). It was concluded that the 7E instructional model was more effective than the traditional ins achievements. There is a significant difference between 7E learning strategy method of teaching and conventional method strategy in taught the science student in favour of experimental group.

Conclusion

Based on the findings of the study, the following conclusions were drawn.

The use of 7E learning strategy in teaching chemistry concepts improves students' academic performance as indicated there is significant difference in the academic achievement scores between experimental group and control group in favour of the experimental group. No significant difference was found in academic achievement of male and female students in chemistry taught using 7E students taught using 7E learning strategy.

Recommendations

The recommendations from the study are as follows:

1. Chemistry teachers should use 7E learning strategy so as to encourage students to actively participate in chemistry instructions.
2. Male and female secondary school students should be encouraged to adopt 7E learning strategies in better understand chemistry.

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Effect of Experiential Learning Strategy on Secondary School Students' Achievement in Basic Science

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Abstract
The main purpose of the study was to assess the efficacy of experiential learning strategy on secondary school students learning and achievement in basic science. It adopted a quasi-experimental non-randomized control pre-test and post-test design. All secondary schools in the study area were the target population, and two secondary schools were chosen at random to represent the two groups as the sample. A total of one hundred (100) students, two classes of fifty (50) each were created for the experimental and control groups. A pre-test was administered to the two groups before the experimental group received the treatment (Experiential Learning Strategy). A posttest was also administered to the experimental group after they had utilized the technique for six weeks. The only validated instrument employed in the study for data gathering was the Basic Science Achievement Test (BSAT). The instrument's reliability was assessed, and r =.70 was found. The findings showed that the experimental group's mean posttest achievement score (13.02) was higher than the control group's (9.54), and that male students scored (13.18) higher than the female students (12.97). The findings also showed that there was a significant difference in achievement scores between the experimental and control groups F1, 97=5.193, P<.05), but not between male and female students (F1, 47 =.398, P >.05). A few recommendations were made in light of the findings.
Keywords: Experiential Learning, Strategy, academic achievement, Science Education, Basic Science, Secondary School.

Introduction
Science education is crucial in today's atmosphere of highly inventive technologies. Consequently, Okoye (2011) said that efforts should be focused toward the standard production of teachers who are going to carry out the execution of the basic education curriculum in the science, so as to attain these goals. He further emphasized the relevance of teachers in any meaningful education. As a result, the performance of science teachers and handlers of students in the classroom is crucial and requires careful scrutiny. Many factors, including but not limited to the teaching style, techniques used, professional training, and attitude toward teaching and the subject matter, affected how effective the lesson can be learned. These elements are important for sustaining students' interest in the subject matter and their success in it (Joseph, 2019). Science education is the process of imparting to students certain necessary information, skills, and a scientific perspective.

Science education has impact on the environment, economy and the society, the construction of highly developed transportation infrastructure, and the development of highly qualified human resources. In Nigeria, science teaching focuses on eradicating students'

misunderstandings and imparting knowledge of scientific principles and procedures (Aina, 2013). Given its importance to a nation's ability to develop its scientific workforce and economy, science education must be given top priority by any responsive government in all educational programmes. Teaching of Science education in Nigeria has its route and dates back to the time of the country's pre- independence era. People may enjoy their environment and develop into important members of society owing to scientific knowledge. Children in Nigeria are introduced to science as early as primary school with the main goal of increasing their interest and enthusiasm in the subject. According to (Anegbe & Adeoye, 2006). In order to successfully contribute to a country's scientific and technological growth, children learn, and "do" science. Consequently, children should be introduced to the principles of science materials at the primary level under the current basic education system.

The country's educational policy changed to basic education at the elementary and secondary levels of education was what led to the change in nomenclature from integrated science to "Basic Science." Basic education was included into Nigeria's educational system through the Universal Basic Education (UBE) programme. A revamped programme known as UBE is part of the change. Its goal among others is to reinforce the country's National Policy on Education (NPE) in order to increase access and provide high-quality education for all citizens which is both free and mandatory (Adomeh et al., 2007). Consequent upon the change, the Nigerian Education Research and Development Council (NERDC) sprang into action to revised the curriculum to synchronize the new policy document. It created methodologies and strategies to restructure and realign school curricula for the 9-year basic education system (Okoye (2011). The newly established policy is intended to provide the people the tools they need to be self-reliant, therefore basic science and technology are essential components in implementing the new curriculum. In the curriculum, students are instructed on ideas and concepts that will help them achieve the goals of their basic education. However, at the most fundamental levels, Basic Science is given to students as a stand-alone subject.

The overall objectives of the Basic Science and Technology curriculum, according to NERDC (2007), are to enable learners to:

1. develop a scientific curiosity;
2. acquire core scientific knowledge and knacks;
3. use scientific knowledge and skills to solve societal needs;
4. Take advantage of the numerous job opportunities available in science;
5. Prepare for higher studies.

Among other things, the aforementioned objectives are designed to get students ready for science classes in senior secondary school and at higher levels of education. This might be one of the motivations for the spiraling evolution of scientific learning from the most fundamental to the most sophisticated forms that the Basic Science and Technology curriculum promotes. Its goal was to keep students interested in studying science and technology. (2011) Hamza and Mohammed However, it has been noted that the aforementioned goals have not been realized in the subject in a real-world sense. This is demonstrated by pupils' historically low academic performance in basic science in secondary schools and by the way their interest has been weaned in the subjects (Joseph & Ikechukwu, 2013). All parties involved in the education sector are quite concerned about this scenario, thus they are looking into the main reasons for the students' low performance in the

subject. There are varying viewpoints about the outcomes. A significant portion of people blame the teachers handling the subject, while others blame the subject's difficulty, poor and insufficient teaching and learning facilities, and inadequate laboratories. Any meaningful growth must therefore start with the development of human resources because the development of any nation or people depends greatly on the calibre of education they possess (Wobodo, 2010) in an effort to comprehend the causes of this noticed pattern. Danjuma (2009) looked into the elements that affected students' subpar performance and decreased enthusiasm in science in an effort to pinpoint the factor(s) responsible for the failure. The issue has not yet been resolved, despite suggestions for fixes. Although it was emphasized, the sort of approach teachers use in the teaching and learning process has not been thoroughly examined, which is the pointer to the identified shortcoming as indicated by the avalanche of literature (Che et al., 2021).

In light of the aforementioned, Joseph (2019) asserted that students must get hands-on experience in order to achieve the goals of fundamental science, which are essential for independence. This situation may have arisen from the fact that basic science is frequently taught without involving students in classroom activities; however, educational organizations are focusing on learning approaches that foster students' involvement, interest, and dynamic participation as a counterbalance to the traditional teacher-centric teaching approach and in response to the desire to increase interest in a more novel, participatory learning environment. To put it another way, there is a need for the application of experiential learning, which has emerged as an effective teaching strategy that not only encourages active learning but also provides real-life scenarios in which students interact and critically analyze course material, as you become involved in a topic being taught (Boggu & Sundarsingh, 2019). This strategy is based on research-based studies that allow students to apply what they learn in the classroom to real-world circumstances. It also increases active learning and as will boost students' achievement (Bradberry & De- Maio, 2019).

Svinicki and McKeachie (2014), explained that through experiential learning, students become more in charge of their learning, regulating a greater relationship between learning engagement, practices, and realities, all of which are crucial for learning motivation. It is vital to allow students time to develop their capacity to apply their knowledge and abilities in real-world situations to solve problems related to their professions, in addition to ensuring that they obtain the necessary information (Huang & Jiang, 2020). As a result, despite receiving solely theoretical and academic teaching, students appear to want additional hands-on training and skill development (Green et al., 2017). Furthermore, because motivation and engagement are important components of learning but are often disregarded in classrooms, they should be prioritized in educational institutions in today's society, where informed and high-performing persons are needed (Afzali & Izadpanah, 2021).

According to Salas et al. (2009), through experiential learning, students can apply what they learn in class to real-world challenges. They argue that taking education beyond campus gives students new perspectives and hands-on experience, allowing them to interact intimately with the community and achieve things they never believed possible. Through this hands-on approach to learning, students gain self-assurance in their abilities, find creative solutions to problems, and turn class assignments into practical experiences. The use of informal education, direct instruction, inquiry-based learning, comparison learning, and information processing techniques are just a few

of the teaching strategies used in today's schools. Direct instruction is a more structured type of education that makes use of experiential learning. Some instructors almost only employ this strategy. It allows teachers to swiftly cover a lot of content with little to no hands-on learning for the students. Problem-based learning, experiential learning, hands-on learning, and critical thinking are other terms for inquiry-based learning. This approach is gaining popularity as a result of its high degree of flexibility and capacity to be customized for students of different levels. Teachers must monitor groups of students to ensure everyone remains on track since they have varied degrees of experience. To help students recall crucial information, some teachers also use information processing techniques.

The theoretical framework for the study hinged on the Kolb's model of experiential learning theory. Experiential learning was initially introduced by John Dewey and further developed by Kurt Lewin, Jean Piaget, and made well-known by David Kolb and Roy Fry. The principle holds that experience gained while learning produces knowledge. The theoretical paradigm of experiential learning, which maintains that learning is a natural human capacity and that experience is an essential element of both knowledge production and acquisition, is built on the humanistic and constructivist ideas. To put it another way, learning occurs when a person gains information via transformational events (Kolb, 1984). Kurt Lewin, Jean Piaget, and John Dewey's work served as the foundation for a theory formulated by David Kolb in 1984. Kolb (1984), after studying the preceding cycles and stages of Dewey, Lewin, and Piaget, developed a cycle to describe how people learn from experience. The cycle begins when the learner participates in a practical experience (CE). The learner then evaluates the experience and provides context (Reflective Observation, RO). The learner keeps on by coming up with explanations for the event and/or extrapolating from others (Abstract Conceptualization, AC). These findings then serve as the learner's guidance as they make judgments and plan out pertinent actions that may be taken to provide fresh, concrete experiences (Active Experimentation, AE). According to Kolb, experiential learning is also characterized by three characteristics. Learning is best understood as a process in which concepts are taken from and modified by experience rather than as a product of results-focused thinking. Learning is also ongoing. Finally, the process of learning necessitates the employment of conflict resolution techniques in daily life.

According to Kolb's model of experiential learning, effective learning occurs in four stages:

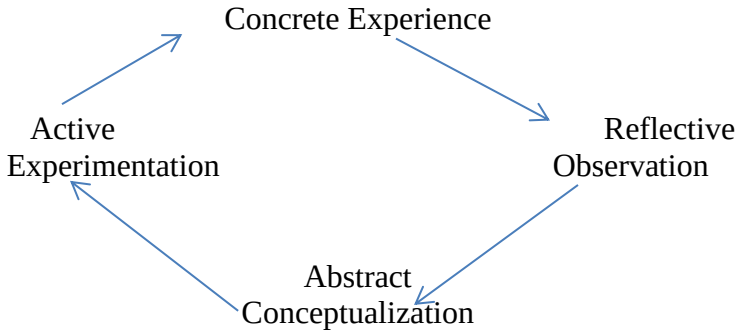

Figure 1: The cycle of experiential learning model of Kolb (1984)

Concrete experience: The learner either has a brand-new experience or reframes an already-existing experience.

Reflective observation: The student evaluates and considers the new experience, noting any discrepancies between experience and understanding of the materials.

Abstract conceptualization: By studying the concepts and drawing inferences and generalizations, the learner develops new ideas or concepts or modifies an existing abstract notion through the reflective process.

Active experiments: The learner makes plans, puts what they've learned to use, and can use what they've learned in various contexts. Conclusions and generalizations are used to test hypotheses, and as a result, the learner has new experiences.

The process of experiential learning comprises the student beginning at any of these four phases and progressing through them to learn new knowledge. To learn effectively, the student must complete all four steps of the paradigm; no step may be employed as a stand-alone learning strategy. Kolb created the experiential learning paradigm in 1984 to bridge the information transmission and application gap. It places a strong emphasis on experiential learning and grades learners based on prior knowledge (Sternberg & Zhang, 2014). The paradigm investigates the impact of experience on education and emphasizes the importance of learners' participation in all learning processes (Zhai et al., 2017). Experiential learning is a teaching technique that encourages students to "Do, Reflect, Think, and Apply" while they learn (Butler et al., 2019,). Students perform an experiential task (Do), duplicate it with more evidence (Reflect), develop ideas (Think) based on their experiences and knowledge, and then explain or solve a problem (Apply). Because it lets students to apply what they have learned in class to real-world challenges, it is a powerful tool for bringing about beneficial changes in academic education. Giving students more power and responsibility while actively integrating them in the classroom learning process is part of this technique. It also improves learners' adaptability. Full-cycle learning includes all conceivable modalities of learning and results in the development of practical skills and meta-learning competences (Kolb & Kolb, 2017).

When the model is strictly followed and successfully applied, the following benefits accrue to the learners: Students may expand on what they already know and have the chance to combine new and old concepts, which makes learning more meaningful to them. It increases the effectiveness of learning by encouraging students to exercise critical thought, hone their problem-solving skills, and make judgments. Students get the opportunity to take part in the activity and apply what they have learned. Experiential learning and team-based learning have been shown to improve retention in students. Memory is the ability to recall or recognize what has been taught or experienced, whereas retention is the capacity to recall or recognize what has been learnt or experienced. They pay attention to how theoretical concepts are applied in practice, examine that application, and generalize the findings from it. Due to the encouragement of group projects and the provision of support for other students, this raises student engagement. By strengthening the links between emotions and intellectual processes, it also aids with memory retention. Knowledge may be efficiently acquired by pupils when it is tied to values and emotions. Additionally, it can encourage students to develop the required abilities for lifelong learning by encouraging kids to think critically, picture issues, and make plans for the future. As a result, Guo et. al. (2016) asserted that students who actively participate in the learning process are not only able to understand more complex knowledge but are also able to extrapolate apply what they have learned to other problem solving in the society.

As was previously said, Dewy and his supporters originally developed the concept; however, it has since undergone situationalization and modification, causing those who applied to perceive it as operationalization to the circumstance in their own unique ways. In light of the aforementioned, numerous experts have seen and described the model in a number of ways, which we would want to examine in this study. Experiential learning, according to Zhu et al. (2017), is a style of teaching that enables students to learn while they Do, Reflect, Think, and Apply, suggesting that students work on real-world projects to learn. According to Parick (2011), experiential learning entails learning by doing. According to his interpretation, it implies a practical rather than a didactic approach to learning. According to Nell (2006), experiential learning entails learning by action, doing, experience, discovery, and investigation throughout a person's daily life. Experiential learning is any learning that enables students to apply their knowledge and conceptual understanding to real-world issues or circumstances.

Wurdinger and Cadson (2010) in Woke, (2014) put it that the teachers support this application by guiding and facilitating the learning. According to Auston and Rust (2015) (1997) defined experiential learning as a style of learning in which students participate in an activity. Before implementing their new information in their daily life, they should think about the experience and utilise their analytical skills to draw some insightful conclusions from it. The experiential teaching approach encourages students to engage in self-exploration in the classroom, which helps them gain awareness of their surroundings, understanding of their circumstances, and problem-solving abilities. Deim (2001), who was cited by Okujagu (2014), viewed experiential learning as a learn- by- doing approach that permits students to independently determine the truth and importance of a topic while being directed by the teacher. Experiential learning is thought of as action learning, when the learner builds knowledge by repairing or changing something (Afida et al, 2012). The experiential teaching style is often known as the hands-on or problem-based (PBL) approach.

The importance of first-hand, personal experience in the development of knowledge is emphasized by experiential learning, in other words, experiential teaching strategies are very effective for skill development because they provide students the chance to utilize their knowledge and reflect on their experiences. Since teaching needs automating teaching abilities or the capacity to engage in practiced activities with little cognitive processing, experiential teaching strategies are most suited for working with teachers. Instead of memorizing information, an experience approach begins with problems to solve (Wurdinger, 2010). While other forms of academic learning are focused on structure and reproductive learning, the bulk of experiential teaching features include analysis, initiative, and immersion (Ewing & Whittington, 2007). The goal of experiential learning is to provide the student with an experience from which they may learn. Studies have shown that students who are more physically involved in their studies and in the classroom as a whole learn more (Heyness, 2007). The critical thinking skills of students are enhanced via experiential learning. Critical thinking, which is the mental activity of actively and deftly conceiving, applying, analysing, synthesising, and evaluating information to reach a conclusion, is essential in addition to having stronger memory (Heyness, 2007) Finding the best teaching strategy for kids may improve their success rate.

Experiential learning affords students a good opportunity for hand- on and mind-on experience, and because it gives them access to real-world examples, students are more likely to

be interested in the learning process (Matias et al., 2017). The study by Sholihah (2016) also shows how experiential learning can engage learners and present them with obstacles, which in turn motivates them to learn more and has a favourable effect on the learning process. Learners who are taught science in their schools utilizing experiential learning-based materials often have stronger cognitive capacities than students who are not. This was due to the fact that students draw on their experiences to learn effectively, particularly while tackling issues (Fitri, 2017). The benefits of experiential learning have practical ramifications for educators who are considering adopting this approach in their classrooms. In fact, they can ensure their students' success by equipping them with the knowledge needed to complete the task because, according to the experiential theory, knowledge is developed by turning practice into understanding. Teachers should also encourage students by offering information, suggestions, and relevant learning experiences for learning (Anwar & Qadir, 2017) and demonstrating their enthusiasm for participating in the learning path to create an environment in which students can engage in constructive yet demanding learning activities that support their interaction with learning materials. By actively engaging students in experiential activities, the teacher can improve their capacity for information retention, which encourages their innate drive and interest in the course subject (Zelechoski et al, 2017).

The current study is significant to students in this 21st century since it enables them to put the theory into practice by modelling appropriate behaviour and processes in practical settings and acquiring the learning skills that are needed in this 21st century. In fact, this approach enables students to go beyond memorization to assess and apply their knowledge, focusing on how learning might be applied to real-world circumstances most effectively (Zelechoski et al., 2017). The basic traits of experiential learning are participation, engagement, and application. When properly used, the significance is that education is provided across all domains, including cognitive, affective, and psychomotor domains to educate the full individual. Learners are also urged to exercise logical thought, come up with solutions, and act appropriately in situations that matter. This type of education offers opportunities for conversation and concept clarification, as well as for feedback, review, and the application of information and skills to new contexts. In light of the foregoing, we are inspired to look further into the improvement of the students' achievement in basic science by examining the efficacy of the teaching methods as a viable teaching method with a view to raising the standards given the significance of science and technology to the overall development of nations and the appalling performance of students in basic science.

Objectives of the Study

1. To examine the effect of experiential teaching strategy on Junior Secondary School students' achievement in Basic Science.
2. To determine gender difference in the effect of experiential teaching strategy on achievement in Basic Science among male and female Junior Secondary School students.

Research Questions

3. Is there any mean difference between the basic science achievement scores of students taught with experiential teaching strategy and those taught with the traditional method?
4. Is there any mean difference between the basic science achievement scores of male and female students taught with experiential teaching strategy?

Hypotheses

1. There is no significant difference in the mean achievement scores of students taught with experiential teaching strategy and the traditional method.
2. There is no significant difference in the mean achievement scores of male and female students taught with experiential teaching strategy.

Methodology

The study adopted a non- randomized control pre-test and posttest group quasi-experiential design. The design was chosen because it was aimed at establishing the effeteness of method strategies on students' achievement in Basic Science. Also, class of experiential group, and control group activities were not disrupted during the experiential treatment as intact classes were used. The participants were chosen from the study's population, which included all students in upper basic classes at public secondary schools throughout the state. From there, two schools were chosen at random, and the students chosen were made up of eleven men (11) and thirty-nine (39) female students, for a total of fifty (50) individuals recruited at random from the two schools chosen. Using simple random sampling techniques, the two classes were further divided into experimental and control groups.

The study made use of the permanent Basic Science Teachers at the chosen schools. First, an experimental learning technique was used to train the teacher in the experimental school on how to put the basic science instructions into practice. In the experimental school, the teacher gave the participants preparation tasks. Individual projects pertaining to the subjects to be covered were provided to the pupils in the experimental school. Students were generally required to learn by doing. The topics were subsequently taught to the students, including them in the learning process. During the lesson, the students were instructed to practice Kolb's experiential learning cycle among themselves, with the teacher, and with the instructional materials they had produced themselves. The students in the control schools were taught without involving them in any of the preparation of the instructional materials. After six weeks of continuous involvement of the students in the learning process, the Basic Science Achievement Test (BSAT) was administered as a post-test at the end of treatment.

The researcher created one instrument for data gathering purposes. It contains the following tests: Basic Science Achievement Test (BSAT). The BSAT is divided into two components (A and B). Section A requested information on the students' demographics, including gender, school name, location, and class. Section B sought information on students' Basic Science achievement. The segment had 31 questions selected from two sections in the Basic Science curriculum. The exam was made up of multiple-choice questions. The students had to select the correct answer from the options (a-d) displayed next to each question.

The content validity of the Basic Science Achievement Test (BSAT) was ensured using a table of specification covering the 31 items. The 31 items covered the two Basic Science topics taught to the students in the intact classes. The Cronbach's alpha statistical tool was used in determining the reliability coefficient which was found to be 0.81. b) Basic Science Achievement Test (BSAT).

A sample of thirty (30) JS 11 students from a different school were given thirty (30) copies of the Instrument. Since the Basic Science Achievement Test is dichotomously scored, the

reliability of the coefficient was calculated using Kuder- Richardson (K-R20) using the scores obtained by the students. It was discovered to be r= 0.7. Research questions were answered using mean and standard deviation while the null hypotheses (Ho) were tested at an alpha level of 0.05 using Analysis of Covariance (ANCOVA).

Results

Research Question 1

Is there a mean difference between the basic science achievement scores of students taught with experiential teaching strategy and those taught with the traditional method?

Table 1: Summary of Descriptive Statistics

		Pretest		Posttest		Gain	
Group	N	Mean	SD	Mean	SD	Mean	SD
Experiential Group	50	12.58	4.94	13.02	4.69	0.44	4.07
Control Group	50	9.52	3.41	9.54	3.49	0.02	2.71

Table 1 displays the descriptive data on the difference in basic science achievement scores between students taught with the experiential learning technique and those taught using the control. The experimental group's pretest mean score was 12.58, SD=4.94, whereas their posttest mean score was 13.02, SD=4,69, and their mean learning gains was 0.44, SD=4.07. Students in the control group had a pretest mean score of 9.52, SD=3.41, a posttest mean score of 9.54, SD=3.49, and a mean learning increase of 0.02, SD=2.71. The outcome implied that the experimental group was more effective than the control group, which used the usual lecture technique to teach basic science in secondary schools.

Research question 2

Is there a mean difference between the basic science achievement scores of male and female students taught with experiential teaching strategy?

Table 2 Mean difference between basic science achievement scores of male and female students taught with experiential teaching strategy

		Pretest		Posttest		Gain	
Group	N	Mean	SD	Mean	SD	Mean	SD
Male	11	13.27	4.94	13.18	5.29	0.09	2.26
Female	39	12.38	4.99	12.97	4.59	0.59	4.46

The descriptive statistics on the difference between the basic science achievement scores of students taught utilizing the experiential teaching technique and those with a control are shown in table 3. The results showed that students taught utilizing the experiential teaching technique had a pretest mean score of 13.27, SD = 4.94, a posttest means score of 13.18, SD = 5.29, and a mean learning increase of 0.09, SD = 2.26. Students in the control group had a pretest mean score of 12.38, SD = 4.99, a posttest mean score of 12.97, SD = 4.59, and mean learning gains of 0.59, SD = 4.46. The outcome implied that the experimental learning technique was more effective than the control, the traditional lecture method, in the teaching of basic science in secondary schools.

Hypothesis 1

There is no significant difference in the mean achievement scores of students taught with experiential teaching strategy and the traditional method.

Table 3: Analysis of Covariance (ANCOVA) showing difference in the mean achievement scores of students taught with experiential teaching strategy and the traditional method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1032.894[a]	2	516.447	52.996	.000
Intercept	221.096	1	221.096	22.688	.000
Pretest	730.134	1	730.134	74.924	.000
Treatment	50.602	1	50.602	5.193	.025
Error	945.366	97	9.745		
Total	119434.000	100			
Corrected Total	1978.160	99			

a. R Squared = .522 (Adjusted R Squared = .512)

The results of an ANCOVA in basic science academic achievement scores comparing students taught using the experiential learning technique and those taught using the traditional teaching method are shown in Table 2. The findings revealed a significant difference in mean basic science achievement scores between students taught using the experiential learning strategy and those taught using the traditional method (F1, 97=5.193, P<.05). The t null hypothesis one, there is no significant difference in the mean achievement scores of students taught with team teaching strategy and the traditional method was rejected.

Hypothesis 2

There is no significant difference in the mean achievement scores of male and female students taught with experiential teaching strategy

Table 4: Analysis of Covariance (ANCOVA) showing difference in the mean achievement scores of male and female students taught with experiential teaching strategy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	448.682[a]	2	224.341	16.729	.000
Intercept	162.194	1	162.194	12.094	.001
Pretest	448.313	1	448.313	33.430	.000
Gender	.971	1	.971	.072	.789
Error	630.298	47	13.411		
Total	9555.000	50			
Corrected Total	1078.980	9			

R Squared = .416(Adjusted R Squared = .391)

The outcome from table 4 displays the ANCOVA of the fundamental science accomplishment scores for male and female students taught utilizing an experiential teaching style. The outcome showed no significant difference in the mean accomplishment scores of students according to their gender (F1, 47=.072, P >.05), at a 0.05 level of significance, supporting the null

hypothesis 2. There is no significant difference in the mean achievement scores of male and female students taught with experiential learning strategy is retained.

Discussion of Findings

The findings of the study revealed that the experiential teaching strategy used provided better student outcomes than the traditional method they were used to. The results in table 1 further indicated that the mean achievement scores of students before the application of the experiential learning strategy were lower than the posttest achievement scores of the students. The observed difference in the achievement scores was a consequence of the new learning strategy the students were exposed to. The implication of the result was that the experiential teaching strategy was more effective than the control, that is, the traditional lecture method in the teaching of basic science in secondary schools. The findings partly agree with the assertion of the study by Sholihah (2016) also shows how experiential learning can engage learners and present them with obstacles, which in turn motivates them to learn more and has a favourable effect on the learning process.

Learners who are taught mathematics in their schools using experiential learning-based materials often have stronger cognitive capacities than students who are not, as evidenced by the fact that the mean scores of students taught using the experiential learning strategy were higher on the posttest than those taught using the conventional teaching strategy (lecture method). The premise that immersing students in the learning process leads in a more effective manner of learning and that teachers working together will increase student performance in general is at the heart of experiential teaching. According to Zhai et al., 2017), students who actively participate in the learning process not only understand more complex knowledge but can also use what they have learned in one context of problem solving. of problem solving to another. When experiential learning is properly applied, students' academic achievement improves. They continued by saying that it has always led to higher student achievement when teachers involve students in the learning process.

The outcome also showed that male students proved to be more inclined to the strategy than female students, especially as shown in the achievement scores. The findings indicate that the experimental learning technique worked better with male students than with female students. The Analysis of Covariance (ANCOVA) revealed a significant difference between the experimental and control groups, but no significant difference in achievement ratings between male and female, as shown in tables 2 and 4. According to the findings, students taught using the experiential method had higher mean scores as a result of the new method's effect on understanding of the content of the topics due to their involvement in the learning process, and the method was more appreciated by male teachers than female teachers.

Conclusion

The result of the study is clear on the significance of experiential learning strategies in the teaching and learning process in basic science. Consequently, it is concluded that students' academic achievement can be improved as well as their interest sustained when the experiential learning strategy is adopted by basic science teachers in secondary schools because students taught using the experiential teaching method outperformed their counterparts who were taught using different teaching methods on the same topics.

Recommendations

1. Since the experiential learning technique has been proven to be effective, fundamental science instructors and teachers in schools should make an effort to adopt it as the new model of instruction.
2. To guarantee that the teachers can use the new plan, the governing body(SUBEC) should schedule regular seminars for the basic science teachers in the state.

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Impact of Banditry Activities on Teaching and Learning English Language in Junior Secondary Schools in Zamfara State, Nigeria

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Abstract
This study was on Impact of Banditry Activities on Teaching and Learning English Language in Junior Secondary Schools in Zamfara State, Nigeria. Two objectives were set up for the study as such; examine the extent of English language syllabus coverage amid banditry activities in junior secondary schools in Zamfara state and determine the English language evaluation strategies amid banditry activities in junior secondary schools in Zamfara state, research questions and hypotheses that guided the study were in line with the objectives. Descriptive survey research method was used. The total population of the study was 667 with the sampled of 481 respondents. The instrument used was self-structured questionnaire which consists of 20 items to collect data from the respondents. The data collected were subjected to statistical analysis for appropriate interpretation to achieve the set objectives, hence chi-square statistical method was used in testing the two null hypotheses developed for the study. The outcome of the study revealed that English language syllabus are not fully covered by the teachers; teachers and examination bodies could not adequately evaluate the performance of students due to banditry activities in the state. The study came up with meaningful recommendations in order to ameliorate the security situation which would give room to peaceful atmosphere of learning so as to attain effective teaching and learning in the state.
Keywords: Banditry Activities, Teaching and Learning English, Junior Secondary Schools

Introduction
Peace encompasses all aspects of life including education. It has been believed that no nation can grow, develop and progress without sound education to its citizens. Education system in Nigeria is faced with prevailing security challenges and it becomes a great threat to our education system. Despite the measures and strategies, the government is taking to tackle the menace, yet the situation is getting more worst like a wild-fire. For instance, in the last one decade alone, Nigeria has witnessed series of insecurity challenges and other social menace that range from armed-robbery, assassination, banditry, kidnapping, political violence, intra-religious violence, boko haram, Niger-delta militancy as well as inter-ethnic, farmers – herdsmen, religious, communal and cults clashes.

Banditry attacks seem to be one of the major obstacles against our education system and records show that there are series of banditry attack here and there in the country and sometimes on schools and other educational institutions, through which killings of innocent school children and staff happens, vandalization of school facilities and structures. They often kidnap students and teachers of all educational levels in exchange for ransom. In view of this Ojo (2021) discloses that the level of insecurity observed has led to the United States, United Kingdom and others to list

Nigeria as an unsafe place to travel to; he added that the effects of insecurity on education are numerous but worthy of mentioning the significant drop-out in school enrollment rate, from the considerable number that was obtained in years before. He furthered that those reports have shown that the enrollment rate has been declined by whopping 23% which can be attributed to parents deciding against releasing their children to school for fear of being killed or kidnapped. Therefore, peaceful and safe school environment is a vital pillar for successful teaching and learning. When a school environment lacks peace and characterized with tension, teaching and learning process will be disturbed. Because both students and teachers will not stand the risk of losing their lives or freedom at school. In line with this Olusola (2021) states that when going to school is tantamount to changing into battle amid a swarm of bullets what chances do the average Nigerian child has, for a better education? He added that according to reports about 800 secondary school and university students have been kidnapped in a coordinated attacks by terrorists and bandits in the last six months alone.

However, insecurity is considered as being subjected to fear, threat, danger, molestation, intimidation, harassment in all aspects, which also has strong negative effect on teaching and learning in schools. At times thousands of Nigeria's school children are found in conflicts that result in tension and fear which affect not only their school attendance but their lives and properties. Capenter (2021) says; although the cost of the prevalent insecurity in Nigeria is difficult to measure in monetary or real terms, however it is clear to observers that it has cost Nigerians enormous human and material resources. Although, school attacks leading to abduction of students and teachers were not began recently, but they become more frequent in these days compared to year 2014 when 276 school girls of Government Girls Secondary School Chibok were abducted.

Frequent attacks on school environment resulting in abduction of students and teacher yield negative effect on students' academic achievement. As in accordance with the words of Akintunde and Musa (2016). General school attendance and enrollment are equally affected as parents pull their children out of schools while in some extreme cases insecurity situation leads to closure of schools. As it recently happened in Zamfara state when schools were shut-down for over five months, for fear of banditry attacks. Consequently, these attacks are not only meant for kidnapping and killing but usually damage the school properties and structures. In support of this Ameh (2015) says, these attacks on schools usually lead to vandalization and destruction of school facilities which discourages the establishment of new schools. Thus, government resources are depleted as fund meant for other developmental project are channel to tackling the aftermath of the attacks. As such, when the learning environment become unsecured. Educational officials cannot discharge their responsibilities effectively, and teachers on the other hand cannot devote to impart knowledge effectively to their students, and students at their own side cannot concentrate and pay full attention to the lessons. This episode may result in poor educational attainment in terms of quality of graduates at all levels of education, and manpower suffers which impinge on overall national development aspiration.

ALTO (2021) posited that English language is important in the areas of language and instruction, medium of communication among multilingual speakers, as an official language of 53 countries, a language of commonwealth nations, a predominant language used in science and technology, mostly used in media industry, used for digital communication, access to multiple

cultures, used mostly for diplomacy and tourism, one of the most important languages for international business as well as travelling made easier with good English communication skills.

Evaluation according to Hanna (2015) is a systematic process of determining the extent to which curriculum objectives are being achieved with the hope of suggesting approaches that could lead to improved teaching and better educational activities. In other words of Ololobou et al (2000) evaluation is a collection and use of information as a basis for rational decision making on the curriculum which needs to be improved, modified or terminated as the case may be. Yunusa (2008) considers evaluation as the process of getting information, analyzing it and drawing final conclusion from it.

Several factors are militating against full coverage of syllabus in teaching and learning English language in Junior Secondary Schools of Zamfara state. These factors become a common phenomenon in teaching and learning in these days. Some of which include; improper split of syllabus; frequent declaration of holidays/breaks; utilization of academic times for other school events; bulky contents of a given subject; utilizing lot times evaluating what has been taught due to large number of learners; unavailability of teachers and so on. Despite all the issues stated above. In the recent times another issue of banditry attacks on Nigerian schools have emerged that involves frequent attacks on schools that leads to kidnapping, killing of both students and teachers, usually with destruction of school facilities and structures.

Zamfara state is one of the Nigerian states that experiences much concentration of these attacks. Although governments of all levels have been taking different measures to tackle this deteriorating insecurity challenge, yet there are frequent banditry attacks on schools in the state. Many schools have been attacked by bandits' teams, damaged school facilities and abducted both students and teachers in mass for ransom. For instance, there was a banditry attack in September 2021 on Government Day Secondary School Kaya Maradun Local Government Area. The school has the enrollment of about 400 students both males and females. The source disclosed that, the bandits come on motorcycles in large number taking dangerous weapons at about 11pm to 12pm when students were writing JSLC examination. The bandits succeeded to abduct unspecified number of students and shot one student on his leg who was later being rushed to hospital. In another attack, Bello (2019) reported that the gunmen arrived on bikes carrying brandished weapons, shooting sporadically in the air, killed a man in Moriki town, before attacking the school where they kidnapped two teachers and four students. However, in the report of Kabir (2020) banditry attack occurred on Government Girls Science Secondary School Jangebe where the attackers' taking arms raided the school shooting into air and succeeded in kidnapping 317 school girls. "317 students were kidnapped by the armed bandits in Government Girls Science Secondary School Jangebe in Mafara LGA" said by Muhd Shehu (PPRO) Zamfara State Police Command. Subsequently, another banditry attack happened in August 2021 on College of Agriculture and Animal Science Bakura as reported by Sodiq (2021) at the time of the attack the bandits invaded the college premises with sophisticated riffles, through which they killed three gatemen and one police officer. They also kidnapped 15 students, a teacher and his wife. Four other staff were also abducted by the bandits, but three of them were rescued immediately after the incident as a result of extensive bush camping at the surrounding area by the tactical police operatives who were alerted and responded to the scene immediately.

The menace of banditry activities does not restrict to Zamfara state alone. But rather, it penetrates to other neighboring states. For instance, in the report of Maishanu (2020), the gunmen had attacked Government Science Secondary School Kankara at about 11:00pm on 11th December, 2020. They thereafter went away with about over 300 schoolboys and injured one police officer in the incident. In same Katsina state but in different attacks bandit kidnapped 11 Islamiyya pupils and their teacher in Tsayau village and kidnapped other Islamiyya pupils in Sakkai village in Jibia and Faskari Local Governments respectively (Bello 2022). Katsina state Police Spokeman Gambo Isah confirmed the stories. In Kebbi state there was a banditry attack on Federal Government College Yauri according to the report the gunmen entered the school around 12:30pm and began shoot sporadically, they were able to kidnapped about thirty 30 schoolgirls, killed one policeman, destroyed a car of one staff and went away with ₦100,000. In neighboring Niger state, it has been reported that about 200 Islamiyya pupils were abducted at Tegina, Rafi Local Government. The abduction followed an attack on Tegina town in the early hours of Sunday 29 May, 2021 (Daily Trust 2021).

Objectives of the Study

The objectives of the study are to:

1. Examine the extent of English language syllabus coverage amid banditry activities in junior secondary schools in Zamfara state.
2. Determine the English language evaluation strategies amid banditry activities in junior secondary schools in Zamfara state.

Research Question

1. What is the extent of English language syllabus coverage amid banditry activities in junior secondary schools in Zamfara state?
2. What are the English language evaluation strategies amid banditry activities in junior secondary schools in Zamfara state?

Hypotheses

1. There is no significant difference in the English Language syllabus coverage amid banditry activities in junior secondary schools in Zamfara State.
2. There is no significant difference in the English language evaluation strategies amid banditry activities in junior secondary schools in Zamfara state.

Methodology

The research design used for this study is descriptive survey research method, meant to seek data on the impact of banditry activities on teaching and learning English language in junior secondary schools of Zamfara state. The population of the study is six hundred and sixty-seven (667) which drawn from 182 junior secondary schools in Zamfara state. Simple random sampling technique was used to select the sample size of 481 respondents, this is based on the recommendation of research advisor (2006) table for determining sample size from a given population.

A 20-item questionnaire was formulated through extensive literature review. It was structured in four (4) points Likert rating scale, thus; Strongly Agree (SA). Agree (A) Disagree (D) strongly disagree (DS). Copies of the initial draft were given to 3 experts in the department of

Educational Foundation, Federal University Gusau, to vet both the reliability and validity of the instrument. The suggestions and comments of these expert were noted and effected. Cronbach Alpha technique was used to ascertain the reliability of the instrument, and the result obtained from the data analysis was 0.89 which implies that the instrument was reliable for this study. Data collected from the field was subjected to statistical analysis for appropriate interpretation to achieve the set objectives of the study. Frequencies and Mean statistics had been used to answer the research questions while Chi-square statistical tool was used to test the null hypotheses of the study.

Results

Research Question 1

What is the extent of English language syllabus coverage amid banditry activities in junior secondary schools in Zamfara state?

Table 1: Mean scores of the opinions of English teachers on the extent of Syllabus Coverage amid Banditry Activities (Cut-off Point =2.5)

S/N	Item	Mean
	English Language syllabus are covered fully	2.05
	Frequency school closure due to banditry attacks has impact on syllabus coverage	1.92
	Teachers do not relent in attending school and perform their work	1.50
	Fear of banditry attacks contribute to students' decrease in school attendance	3.02
	Fear of banditry attacks make you uncomfortable to deliver the syllabus fully	2.94
	Parents do not hesitate to send their children to school due to fear of banditry attacks which may result in killing and kidnapping	1.80
	Government frequently shutdown schools to avoid subsequent attacks	3.59
	Government shares relevant textbooks for students to read at home in order to complement what is missed in school	1.81
	You encourage your students to study at home, using multiple medium	2.09
.	When schools are re-opened you rush to catch-up what is missed during school shutdown	2.56

Source: Data collected from the field **Grand Mean= 2.33**

Data presented in Table 1 reveals that the opinions of English teachers on the extent of syllabus coverage in secondary schools of Zamfara State are negative. In other words, grand mean score of their responses (2.33) is lower than the cut-off Mean or mean threshold (2.5). This indicates that the teachers' responses to the items on the scale show low coverage of English syllabus.

Research Question 2

What are the English language evaluation strategies amid banditry activities in junior secondary schools in Zamfara state?

Table 2: Mean scores of the Opinions of English Teachers on the evaluation strategies amid Banditry Activities (Cut-off Point =2.5)

S/N	Item	Mean
	Fearlessly your students visit anywhere in the community seeking for relevant information to answer assignment	1.80
	School closure contributes to teachers' inability to meet students and give them class work and homework	3.25
	Tension for banditry attacks does not prevent you to conduct test for your students	1.66
	School closure due to banditry attacks makes you unable to meet your students and organize remedial lessons for more improvement	2.16
	Fear of banditry attacks does not disturb your preparation for examination	1.75
	Due to fear of banditry attacks students of multiple neighboring schools are merged together during external examination, to minimize risk of banditry attacks	3.25
	Fear of banditry attacks does not prevent external examiners invigilators to come to your school	1.60
	Junior secondary leaving certificate (JSLC) examination is usually being shifted from its initial schedule due to prevailing attacks on schools by bandits	2.62
	Sometimes terminal examination are skipped or ignored due to closure of schools modern to avoid risk of banditry attack	3.12
.	Fear of banditry attacks does not prevent you to over-stay in school marking tests and examinations	1.83

Source: Data collected from the field **Grand Mean= 2.30**

Data presented in Table 1 reveals that the opinions of English teachers on the evaluation strategies amid banditry activities in secondary schools of Zamfara State are negative. In other words, grand mean score of their responses (2.30) is lower than the cut-off Mean or mean threshold (2.5). This indicates that the teachers' responses to the items on the scale show poor evaluation strategies amid banditry activities.

Hypothesis 1

There is no significant difference in the English Language syllabus coverage amid banditry activities in junior secondary schools in Zamfara State.

Table 3: Summary of Chi-square (X^2) on extent of English Language Syllabus coverage amid banditry activities in Junior Secondary Schools in Zamfara state.

Number	X^2 cal	X^2 crit	Df	P-value	Decision
413	132.6	126.4	413	0.00	Rejected

The analysis of the result in table 3 shows that the P-value of 0.00 which is less than 0.05 alpha level of significance and the X^2 calculated value of 132.6 which is less than the X^2 critical value of 126.4 at df 413. This result indicates that the first null hypothesis which states that there is no significance difference in the English language syllabus coverage amid banditry activities in

Junior Secondary school in Zamfara state, is hereby rejected. This result implies that English language syllabus are not fully covered due to banditry activities in Zamfara state.

Hypothesis 2

There is no significant difference in the English language evaluation strategies amid banditry activities in junior secondary schools in Zamfara state.

Table 4: Summary of chi-square (X^2) on the English language evaluation strategies amid banditry activities in Junior Secondary Schools in Zamfara state.

Number	X^2 cal	X^2 crit	Df	P-value	Decision
413	141.2	126.4	412	0.00	Rejected

The analysis of the result in table 4 shows that the p-value of 0.00 which is less than 0.05 alpha level of significance and the X^2 calculated value of 141.2 which is less than the X^2 critical value of 126.4 at df 412. This result indicates that the second null hypothesis which states that there is no significant difference in the English language evaluation strategies amid banditry activities in Junior Secondary School in Zamfara state, is hereby rejected. This result implies that evaluation strategies are not adequately performed due to banditry activities in Zamfara state.

Discussion of Findings

The result of hypothesis 1 indicates that there is significant difference in the English language syllabus coverage amid banditry activities. This finding is in line with the finding of Yahuza (2021) curriculum delivery is bedeviled with security challenges; workload of teachers; implementation of new curriculum; shortage of instructional resources; in-service training and governmental support. He further described security challenge as an awesome that pose a grave threat to educational system in Nigeria and also a threat to Nigeria's stability, economy and human survival. With fear of this threat teachers could not be able to cover the syllabus of their classes.

The result of hypothesis 2 indicates that there is significant difference in English language evaluation strategies mid banditry activities. This finding corresponds with the finding of Yahuza (2021) who pointed out that one of the major consequences of insecurity is the destruction of social life through targeted attacks on public places including schools. Schools have become favourite target of attacks by bandits, kidnappers, militant groups and other criminals. In recent times direct attacks on schools by bandits has result in killings and destruction of school buildings and learning materials. Schools are becoming increasingly vulnerable to banditry attacks which put teachers and students on serious fear. With this fear teachers and examination bodies could not pay much attention to evaluate the performance of their students effectively.

Conclusion

Sequel to the finding of this study, it is concluded that banditry activities have become a great phenomenon that hinders effective curriculum delivery and syllabus coverage. The study also revealed that due to threat of banditry activities in the state, teachers and examination bodies find it difficult if not impossible to evaluate the contents they managed to have been taught.

Recommendations

1. Government should take all necessary measures to control all acts of insurgency; public enlightenment/awareness against banditry should be intensified at all levels.
2. School Authorities should ensure that security outfits are adequately deployed to school environments before and during examinations to enable the students write and concentrate 0n their assessment.

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Impact of Smart Phone Technology on Information Service Delivery among Librarians in Universities in North-Western Nigeria

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Abstract
The study investigated the impact of smart phone technology on information service delivery among librarians in universities in North-Western Nigeria. The study was guided by two specific objectives and two corresponding research questions. The study employed survey design to elicit information from the respondents. Multistage sampling procedure was used to sample 183 librarians from the population of 671 within the 20 universities in North-Western Nigeria. Structured questionnaire was used as an instrument for data collection. Data were analyzed using descriptive statistics. The study revealed that 95(51.9%) and 62(33.9%) of librarians believed that use of social media platforms through smart phone could simplify library services respectively with the mean score X= 4.25, SD, 1.034. The study concluded that the proliferation of smart phone technology has greatly contributed to the way information is provided, many university libraries are taking advantage of what these technologies present, and university libraries in North-western Nigeria, should do the same in order to embrace this novelty to better provide information services to their clienteles. The study recommended that management of university libraries, stake holders and library administrators should sensitize library staff and users on the use of smart phone technology to provide services. Equally, the university library management should build the capacity of its staff in continuous professional development (CPD) programs to acquire skills required in efficiently operating in 21st century libraries.
Keywords: Library services, Smart phone, Librarians

Introduction
Libraries are at the heart of learning, teaching and research, with focus on information services, libraries remain the great essential way to learning, knowledge acquisition, transformation and ultimately discovery Dar (2021). The university libraries are known for acquiring information resources and making them available to their users. In the words of Salihu (2021) libraries have information dissemination as their predominant function. The author opined

that the university libraries should engage in collection, processing, preservation and dissemination of recorded information in the various formats most convenient to its target users. University libraries provide many services such as: circulation, reference, acquisition, technical, library advisory, Current Awareness Services (CAS), Selective Dissemination of Information (SDI), information and referral services, Inter-library loan, and document deliveries among others.

These library services could be better provided via digital platforms to improve quality education in Nigerian universities in the 21st century. Information service delivery can only be made possible through the emerging technologies otherwise known as the Information and Communication Technologies (ICTs). ICTs are diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information (Ocran, 2020). The technologies have made communication and access to information very convenient and timely to the users from the comfort of their homes, offices and where ever they are, in contemporary time, the ICTs such as computers, the Internet and Telecommunication devices like mobile phones have afforded libraries the opportunity to provide access to information.

Mobile telephone refers to as wireless communication device which allows transfer of information over a distance without the use of enhanced electrical conductors or wires (Singh, and Ansari, 2020). Modern mobile phones support wide variety of services such as text messages, multimedia messages, e-mail, Internet access, business applications, video gaming and photography. Smart phone is the most advanced form of a cellular telephone with an integrated computer and other features not originally associated with telephone, such as operating system (OS), web browsing, android applications, play store and the ability to run software applications (Liu and Briggs 2015).

In Nigerian it is obvious to note that, in the 21st century most of the sectors and organizations are incorporating mobile technologies into their daily transactions like financial institutions, insurance companies, business conglomerates, academic institutions and so on. This view of the importance of mobile technologies has a wider gap in Nigeria, more especially in the northern part of the country. Nigeria is lagging behind in terms of ICT usage; if librarians in Nigeria are to continue to make substantial contributions as information service providers, they will have to understand the transformation and exploit the emerging technologies like smart phone in providing their services to users, this is because smart phone technology, has become a common platform and channel for all types of communication and information. Application of new technologies in the libraries require improvement of different kinds of skills and competencies to enable information professionals catch up with the technological advances and adopt the development to the library work for effective and efficient library and information service delivery Gbaje et al (2018). Competencies refer to skills or knowledge that leads to superior performance.

Hansaben (2020) stated that the application of mobile phone technology in all aspects of our everyday life cannot be ignored in institutions and establishments including libraries. This is because libraries in developed economies have embraced the mobile phone revolution and are utilizing them for effective and efficient services. In contrast, however, mobile - based services are not pervasive among academic libraries in Nigeria especially North-western part of the country.

With the proliferation of mobile technologies particularly smart phone recently, it is paramount for librarians to note this development for better service delivery. Haq, *et al* (2022) conducted a study on Android-Based digital library application development. Digital technology

has enabled the dissemination of all types of information, replacing traditional formats with automated systems. As a result of the development of digital technology, the library has also entered a new era, which is then called the digital library era. The purpose of the study was to develop an android-based digital library application. The results of the study indicated that the development of an android-based digital library application has been successfully implemented with the results of the trial getting an average percentage above 80% which is included in the very feasible category to be implemented. Even so, evaluation and monitoring must continue to be carried out to prevent errors or problems that may occur, as well as material to continue developing this android-based digital library application.

Furthermore, Acheampong, and Agyemang, (2020) conducted research on enhancing academic library services provision in the distance learning environment with mobile technologies. The study aimed at exploring the potentials of using mobile technologies (m-techs) to enhance academic library services delivery. The objectives were to assess the students' awareness and appreciation for mobile technology-based library services; and to assess the librarians' competencies in switching to delivering mobile technology-based services. The results indicated that the students were aware and had positive appreciation for the value of mobile technology-based library. They expressed great expectations about the availability of the library services on m-tech platforms in Ghana. The findings also demonstrate the proliferation of the mobile device usage within the university environment and indicate how librarians should build their competencies in switching to deliver services on mobile-based platforms

Panda (2021) in recent research, a study of reference service using mobile technology in Library. Stated that libraries all over the world are continually reinventing themselves to meet changing community needs and the increasing opportunities and associated challenges that modern and evolving technologies bring. On another side, financial crisis and cutting budget, unavailability of adequate staff, user awareness, etc. are the main issues faces by libraries while try to adopt new technologies for accepting the challenges and issues created by this pandemic. On this point, mobile technology, as an economical affordable technological solution that helps libraries to keep abreast of the dynamically changing needs of their clientele and identify the way of delivering user-centered services by surveying the user needs. The current study examines the exponential growth in the mobile communication system, both in terms of technology user count, after considering the needs of the user community. Besides, the study sets out the basic steps for introducing a mobile reference service in a library, as well as its future uses and benefits.

The skills and competencies of information providers are relevant in the era of information and communication technology boost, the paradigm shift change the way people sought for information. Hamad, *et al* (2020) stated that digital skills are necessary to work and manage electronic library infrastructures and services. Accordingly, there is an urgent need for assessing the level of digital skills among librarians at academic libraries. It is also important to investigate the influence of digital skills on technology acceptance among librarians.

Gbaje, *et al* (2018) itemised technological skills for the 21st century environment as E-mail management skills; Microsoft word (Word Processing Skills); Microsoft Access (Database management skills); Microsoft Excel (Spreadsheet skills); Power point (presentation software); Use of Portable Document Format (PDF) Software; Web Searching Skills; Searching Library Databases; Using an Integrated Library System (Virtual/Alice for Windows); Use of Digital

Camera for Digitization; Web navigation skills; Teaching others to use technology; File management/operating system navigation skills; Troubleshooting technology; CDROM/ DVD Search; Scanners and similar devices; Creating online instructional materials/products; How to cite and evaluate internet resources; installing software; troubleshoot printing problems; Web design; Instant Messaging; computer security knowledge; Connecting patrons laptop to the library wireless; Blogging; Wiki; Installing printer, scanner and computer systems; Graphic Design; Network management; Computer programming and Creating & updating Institutional OPAC
It is deduced from the above studies, librarians need to enhance their technological skills continually, in order to meet the expectations of users.

The central role of librarians is to provide access to information and effective delivery of information services; information and communication technologies (ICTs) such as computers; the Internet and telecommunications devices have afforded libraries the opportunity to provide access to efficient, accurate and timely information. Acheampong, and Agyemang, (2020) asserted that mobile technologies have introduced Libraries in hand trend. The authors suggested that since libraries are currently creating digital contents accessible on computers, such digital collections could be made available on mobile platforms.

However, while librarians in developed countries have adopted the use of mobile technologies for mobile-based library services, thus leading to high and improved level of information service delivery in libraries, same cannot be said of librarians in developing countries like Nigeria. Past studies have generally not provided clear evidence of librarians' use of smart phone technologies for the purpose of information services delivery (Chaputula, 2020). From observation and interactions with librarians, it was gathered that many librarians still rely only on traditional channels for information services delivery which have not really enhanced high level of library usage among users. It is on this note that this study was conducted to examine the impact of smart phone technology on information service delivery among librarians in universities in North-Western Nigeria

Objectives of the Study

The aim of the study is to determine the impact of smart phone technology on information service delivery among librarians in universities in North-Western Nigeria. The specific objectives are to:

1. Determine the impact of smart phone technology on information service delivery among university librarians in North-western Nigeria.
2. Assess the skills required of librarians to use smart phone for information service delivery in university libraries in North-western Nigeria

Research Questions

1. What is the impact of smart phone technology on information service delivery among university librarians in North-western Nigeria?
2. What are the skills required of staff to use smart phone technology for information service delivery in university libraries in North-western Nigeria?

Research Hypothesis

The study is guided by the following null hypothesis and would be tested at 0.05 level of significance.

1. There is no significant relationship between librarians' skills to use smart phone and information service delivery in university libraries in North-western Nigeria

Methodology

This study employed descriptive survey research design. The descriptive survey design was used because it enabled the researcher to fully investigate the phenomenon under study. It equally allows the researcher to collect data from different respondents in different geographical locations on a particular subject matter. The population of this study comprised all 671 professional librarians in 20 NUC approved universities in North-western, Nigeria. The universities are conventional and specialized ones. The rationale behind using this category of library personnel is owing to the fact that they provide professional library services.

Multistage sampling procedure was used for this study. Multistage sampling is the type of sampling process that involves a number of stages or processes as well as other sampling techniques. In the first stage, 11 universities were selected using stratified sampling whereby universities were arranged into layers that is by ownership, and at the second stage proportionate stratified sampling was used to select 183 librarians based on the number in the stratum. This technique allows taking of samples in stages using smaller and smaller sampling unit at each stage. Structured questionnaire was used as an instrument for data collection. The questionnaire was self-developed by the researchers and validated by experts in the field of librarianship. Descriptive statistics such as percentages, mean scores and standard deviation and linear regression was used to analyze the data in relation to the research questions.

Results

Research question 1

What is the impact of smart phone technology on information service delivery among university librarians in north-western Nigeria?

Table 1. Impact of smart phone technology on information service delivery among university librarians in north-western Nigeria

S/N	Mobile Based Library Services	Mean	SD	Decision
1.	Reference Services through the use of smart phone enhanced quick service delivery	3.48	1.244	High
2.	Circulation Services (renew library items on loan, book reservation) will be much faster	2.75	1.284	Low
3.	Notifications/Alerts/SMS (overdue, fines, reminders about books being overdue)	3.21	1.334	High
4.	Providing access to library news, (events, opening and closing hours) will be improved	3.73	1.309	High
5.	It will enhance the provision of access to library databases (e-resources e.g e-books and e-journals)	3.60	1.322	High
6.	Provide a platform for Access to library Mobile Library Online Public Access Catalogue (MOPAC)	3.35	1.197	High
7.	Inter library loan services will be faster and efficient	3.82	1.193	High
8.	Using smart phone to provide Current Awareness Services (CAS) to library users	3.83	1.133	High
9.	The use of smart phone to provide Selective Dissemination of Information (SDI) to patrons is very helpful	3.61	1.148	High
10.	Quick Response Code (QR) service through smart phone bring confidentiality to library patrons	3.37	1.343	High
11.	Provision of Information Literacy services via smart phone acquaint users with library services	3.95	1.036	High
12.	It enhances library guides and tours and access to library maps	3.40	1.354	High
13.	Smart phone provides a platform for the use of social media services(facebook, twitter, WhatsApp, wikis, blogs etc)	4.25	1.034	High

Table 1 showed respondents view on the level of impact of smart phone technologies for information service delivery in university libraries in North West Nigeria. The results showed that majority of librarians in university libraries in North-western Nigeria believed that the use of social media platforms, (Facebook, Twitter, WhatsApp, Wikis, Blogs etc) through smart phone simplify library services. To be specific the result showed that 95(51.9%) and 62(33.9%) of the respondents are of the opinion that the use of social media platforms through smart phone simplify library services respectively with the mean score X= 4.25, SD, 1.034. This might be due to the fact that social media platforms are popular worldwide, it touches all aspects of human endeavours; it allows individuals and organizations to establish relationships and to share information about themselves and their interests with friends, professional colleagues and others by means of public or private profiles.

Whereas, only 18(9.8%) and 44(24%) of the respondents were of the opinion that circulation services are affected by the use of smart phone (loan, and book reservation) with mean score X=2.75, SD, 1.284. This could be due to the fact that, many services rendered in circulation

are no longer relevant to the 21st century users of library, with the proliferation of services like Quick Response Code, Mobile Online Public Access Catalogue, (MOPAC) users can use it for loan and book reservation, Selective Dissemination of Information (SDI) among others.

Research Question 2

What are the skills required of staff to provide library and information services using smart phone technology?

Table 2. Skills requirement for staff to provide library and information services using smart phone technology

	Statements	Mean	Std. Dev	Decision
1.	Skills to operate software applications on smart phones	4.47	.797	Agreed
2.	Skills to navigate the Internet	4.14	.913	Agreed
3.	Skills to evaluate and share electronic information (e-files) through smart phone	4.22	.849	Agreed
4.	Skills to open file e.g PDF, word documents on your smart phone	4.25	.878	Agreed
5.	Skills be able to use e-mail, on smart phone for information service delivery	4.50	.725	Agreed
6.	Attach and send documents on your smart phone	4.26	.917	Agreed
7.	Skills to search, retrieve and disseminate information	4.28	.899	Agreed
8.	Offers online reference services to library users	4.16	1.019	Agreed
9.	Do instant messaging with friends, family and co-workers	4.23	.833	Agreed
10.	Skills to use new media (facebook, twitter, watsapp, snapchat, blog etc)	4.49	.857	Agreed

Source: Field Survey (2019)

Table 2. showed respondents' view on the skills requirement for staff to provide library and information services using smart phone technology in university libraries in North-western Nigeria. The highest mean score of 4.50 with SD .725 was discovered on the item skills to open e-mail, attached and send a file on their smart phones. This could due to the fact that e-mail is one oldest means of Internet communications before the emergence new media platform. Librarians are more familiar with e-mail as means of communication; most librarians admit having one or more e-mail accounts.

The lowest mean score 4.14 and SD .913 was discovered in the item skills to operate software application on smart phones. This implies that librarians find it difficult to operate software applications on smart phones particularly for information service delivery. This is because the benchmark for accepting the decision was set at the mean score of 3, anything below this is rejected

Hypothesis testing

There is no significant relationship between librarians' skills to use smart phone and information service delivery in university libraries in North-western Nigeria

Table 3: Regression analysis of relationship between librarian skills on smart phones and information services delivery

R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
.158[a]	.025	.020	.539	4.637	.033[b]

The Table 3 showed that the two variables (skills to use smart phone and information service delivery) when combined have significant relationship in university libraries in North-western Nigeria. The interactive effect is significant ($F = 4.637$, $p < 0.05$). Therefore, there is a significant relationship between librarians' skills to use smart phone and information service delivery in university libraries in North-western Nigeria.

Discussion of Findings

The study found out that librarians in university libraries in North-western Nigeria believed that the use smart phone through social media platforms, (Facebook, Twitter, WhatsApp, Wikis, Blogs etc) could simplify library services. These services according to them, enables libraries to provide information to a person who needs it, directly or indirectly or teaching him how to find the needed information in the sources.

Despite the numerous advantages of smart phone technologies in the daily activities of organizations, individuals and institutions; they are yet to be embraced by academic libraries. Hansaben (2020) in a study opined that the application of mobile phone technology in all aspects of our everyday life cannot be ignored in institutions and establishments including libraries. This is because libraries in developed economies have embraced the mobile phone revolution and are utilizing them for effective and efficient services. In contrast, however, mobile - based services are not pervasive among academic libraries in Nigeria especially North-western part of the country.

With the proliferation of mobile technologies particularly smart phone recently, it is paramount for librarians to note this development for better service delivery. Haq, *et al* (2022) conducted a study on Android-Based digital library application development. Digital technology has enabled the dissemination of all types of information, replacing traditional formats with automated systems. As a result of the development of digital technology, the library has also entered a new era, which is then called the digital library era.

In conformity to the findings on impact of smart phone usage in universities in North-western, Nigeria, Panda (2021) in a recent research, reference service using mobile technology in Library. Stated that libraries all over the world are continually reinventing themselves to meet changing community needs and the increasing opportunities and associated challenges that modern and evolving technologies bring. On another side, financial crisis and cutting budget, unavailability of adequate staff, user awareness, etc. are the main issues faces by libraries while try to adopt new technologies for accepting the challenges and issues created by this pandemic. On this point, mobile technology, as an economical affordable technological solution that helps libraries to keep abreast of the dynamically changing needs of their clientele and identify the way of delivering user-centered services by surveying the user needs.

The concept of mobile-based services are relatively wider, scholars conducted many studies. Singh and Ansari (2020) outlined services that can be provided via WhatsApp and these include; Current Awareness Service (CAS), Selective Dissemination of Information (SDI),

reference service, ask a librarian, user discussion forum, document reservation, acquisition feedback, reminders and notifications, library news, mobile collections and reprography service. Traditionally, university libraries were "place based" services with patrons having to physically visit the library for real-time access to librarians and collections. This posed an enormous challenge to the 21st-century users because they live in a highly interactive and networked world which already largely provides for their information needs with no limitation by time and geographical location. To meet these challenges, reference service becomes instrumental as it serves as the medium of interaction between the patrons and libraries.

Access to information on smart phone depends on the ability to operate the technology, the study discovered that librarians admitted having the skills to open e-mail in smart phone, new media skills and the ability to navigate the Internet on their smart phones. These skills and competencies of information providers are relevant in the era of information and communication technology boost, the paradigm shift change the way people sought for information. Gbaje, *et al* (2018) conducted a study titled essential competencies for effective service delivery in Nigerian university libraries; the study aims to identify types of competencies required by librarians in university libraries and determine how competencies are acquired for effective information service delivery. The study concluded that the vast changing university library environment demands that the librarians in Nigerian university libraries must be someone with multi-skills to enhance effective and efficient library and information service delivery. The academic libraries that can survive in this environment are those that have the ability to deal effectively and proactively to a broad spectrum of contemporary challenges that focus on speed, cost and quality.

In consequence, the librarians working in such libraries need continuous grooming by acquiring core competencies and new skills so that they never become out of date in this fast changing environment. In this context Hamad, *et al* (2020) stated that digital skills are necessary to work and manage electronic library infrastructures and services. To cushion the effects, Gbaje, *et al* (2018) itemised technological skills for the 21st century environment as E-mail management skills; Microsoft word (Word Processing Skills); Microsoft Access (Database management skills); Microsoft Excel (Spreadsheet skills); Power point (presentation software); Use of Portable Document Format (PDF) Software; Web Searching Skills; Searching Library Databases; Using an Integrated Library System (Virtual/Alice for Windows etc); Use of Digital Camera for Digitization; Web navigation skills; Teaching others to use technology; File management/operating system navigation skills; Troubleshooting technology; CDROM/ DVD Search; Scanners and similar devices; Creating online instructional materials/products; How to cite and evaluate internet resources; installing software; troubleshoot printing problems; Web design; Instant Messaging; computer security knowledge; Connecting patrons laptop to the library wireless; Blogging; Wiki; Installing printer, scanner and computer systems; Graphic Design; Network management; Computer programming and Creating & updating Institutional OPAC. It is deduced from the above studies, librarians need to enhance their technological skills continually, in order to meet the expectations of users.

With regards to the findings on the relationship between librarians skills to use smart phone and information services delivery. The findings is in line with Dar, (2021) as the researcher reported that being skillful about smart phone adoption for information services delivery by librarians have been seen as the most positive aspect that can lead to the usage of mobile device

for information services offered by university or academic libraries. This findings also corroborates that of Haq, *et al* (2022) as the researcher observed that mobile technology provides an opportunity for academic libraries to provide access to information services in a much effective and quicker way to the user. The new technology requires academic librarians to move towards adopting new online marketing strategies for library services and resources

Conclusion

The revolution of smart phone technologies and their impact in the society has made a mark in most operations of the library and information centers today. Emerging technologies like smart phone and social media have become vital alternative to providing library services in an era where libraries are facing challenges of budget cuts and the desire by the 21st century users who prefer having library services readily at hand. The proliferation of smart phone technology has greatly contributed to the way information is provided. Many university libraries are taking advantage of what these technologies present, and university libraries in North-western Nigeria should do the same in order to embrace this novelty to better provide information services to their clienteles.

Recommendations

1. Management of university libraries in North-western Nigeria and stake holders should endeavor to advertise the services of smart phones, social media platforms and other technologies to both library staff and users rigorously, systematically and purposefully to create awareness about the potentiality of smart phone technology. This will consequently contribute to the acknowledgement of the library's mandate to support teaching, learning and research in universities in North-West Nigeria
2. The management of university libraries in North-western Nigeria should appoint a member of staff in the library specifically on smart phone, social media and emerging technologies. This person should participate in training both staff and users of the library how to effectively use these emerging technologies. Similarly, the library management should build the capacity of its staff in continuous professional development (CPD) programs to acquire skills required in efficiently operating in 21st century libraries

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Infusion of Climate Change Curriculum into Teacher Preparation in Language Education in Nigeria Universities

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Abstract
The study investigated infusion of climate change curriculum into teacher preparation in language education in Nigeria Universities. A survey designs was adopted for the study. The population for the study was 157. The sample of the study was 80. 28-item questionnaires were developed and used to collect data. Data obtained were analyzed using mean and standard deviation to answer research questions while t-test statistics was used to test hypotheses. It was found that the content area in climate change were needed for the infusion into teacher preparation in language. The findings of the study also revealed some challenges faced in the infusion of climate change into teacher preparation in language education which include attitude of lectures, inability to embrace innovation and death of instructional materials among others. It was recommended that lecturers should be trained to accommodate the challenging issues. It is also advocated that government and education administrators should sponsor to attend seminar and conference on climate change programme.
Keywords: Climate Change, Teacher Education Curriculum, Language Education

Introduction
Education is referred to as an instrument per excellence for effecting the national development (Federal Republic of Nigeria [FRN] 2004:4). Education is a dynamic unit that needs dynamic approach for its actualization. However, the primary and most common way of acquitting education is through qualitative and quantitative formal school curriculum. Olarunoye (2018) viewed curriculum as all the experience of the learner under the supervision of the school. Kanno and Onyeachu (2017) defined curriculum as planned and guided learning experience which are geared towards the full development of the individual for his or her own good and that of the society. Curriculum is therefore dynamic bodies of teacher and assessment. Well-developed curriculum contains the strategies for mastering interpreting and forecasting climate change.

Despite the great importance being accorded to education as human right, there seen to be an increasing concern among education on the emergent issues in the 21st century which seem to impede the free flow of education to all levels. This emergent issue has created a lot of gaps and marginalization among others in terms of student achievement and educational stakeholders. One of the recent issues that has emerged in Nigeria education in the 21st century is climate change.

Climate change is a major challenge of twenty-first century for the entire world. The developing countries such as Nigeria are more adversely affected by climate change because of their high vulnerability aid for adequate capacity. Climate is the prevailing weather conditions of a region as a temperature, air pressure, humidity, precipitation, sunshine, cloudiness and winds, throughout the year or averaged over a series of a year in season or area. Current evidence suggests that the key drivers of both socio-economic developments are

already adversely affected by climate change, thereby jeopardizing sustainability, in various regions of the world. Nwahuanaya (2014) opined that changes in climate can only be regarded as climate change is the global phenomenon of climate transformation characterized by the changes in the usual climate of the plant (regarding temperature, precipitation, and the wind plant are especially caused by human activities.

On 1 January, 2016, the 17 sustainable development goals (SDGS) of the 2030 agenda for sustainable development adopted by world leaders in September, 2015 at a historic UN summit. The Secretary General of United Nations $25 billion in initial commitment to end preventable deaths of women, children and adolescents by 2030 over the next fifteen years, with these new goals that universally apply to all countries with mobile efforts to end all forms of poverty, fight inequalities and tackle climate change while enduring that no one is left behind. Arunsi(2016) opined that the SDGS success of the millennium development goals (MDG) and aim to go further to end all forms of poverty, build on the new goals are unique in what they call for action by countries, poor, rich and middle income to promote prosperity.

Sustainability is a call to action, a task in progress or journey. It implies responsible and positive decision making and innovation that minimizes negative impact and maintenance balance between social, environmental and economic growth to ensure a desirable planet for, all species now and in the future education for sustainable development allows every teacher and would be teachers to acquire the knowledge, skills altitudes and values necessary to shape a sustainable future. Sustainable development issues that need to be infused into teacher preparation include climate change, disaster risk reduction, biodiversity, poverty reduction among others (Otech, Nwokocha, Igbokwe, 2014). Sustainable development is viewed as a regularization of the means of living which provides to adequate improvement on the previous ways of living in response to contemporary exigencies of act in ways and manner which would ensure continued existence and adequate comfort to the succeeding generation (Uchegbu, Kanu, Uchegbu(2016). It is the development that meets the present needs and at the same time makes it possible for future generation to meet their own needs.

Sustainable development comprises of social, environmental and economic development if climate change education is managed and administered effectively; it will help to give the needed strength for these components to achieve its desired goals in sustaining and developed when generated resources are adequately utilized. There has been problem of climate change which affects everybody in the society. Individuals are expected to make contributions to help overcome the menace or adapt to it through certain adaptation strategies. To achieve this, students need to be taught climate change in their schools while teachers need to be taught climate change during teacher preparation in territory institutions. Intervention strategy in this study involves inclusion of climate change into teacher preparation in language education. In the view of Hornby (2010) infusion is the act of adding something else in order to make it strong or more successful. In this study, infusion is the act of adding climate change to an existing course content of language education for effective teacher preparation in Nigeria universities for sustainable development.

In Nigeria, most teachers have a lukewarm attitude to in-service training. It is therefore, not surprising to find a teacher who after certification will remain in the classroom till retirement without attending any workshop or conference source. This type of attitude must change if we must together fight to sustain our environment which is one purpose of education. Preparing the language teachers on climate change means that, they need to get abreast with the concepts, trends, ways of making the effects minimal and most importantly creating awareness in or outside the classroom. This preparation starts with the pre-service teacher

training and continues to the in-service teacher training. This is done in order to update their knowledge, skill and altitude in order to meet up with continuing changes in method, course context and resources used in teaching (Eziefuna, 2014). One of the ways of preparing language teachers in climate change issue is by infusing the concept into the syllabus of language in Nigeria universities. The component include vocabulary, grammar, compositions, comprehension, role play, drama civilization, the concept of climate change will be brought to the good knowledge of the student.

Language education according to Nnachi (2009) language is the basis for the study of arts, science and all forms of technology. Language education is therefore a process and practice of teaching a second or foreign language. It is precisely a branch of applied linguistic. The importance of language education cannot be one emphasized. Language creates a medium for the study of every discipline of human endeavor. Without a language, there would be some problems in the study of academic discipline. He added that the school has every need for the study of language if the school aspires towards effective transmission of knowledge. Language Education is offered in primary schools, secondary schools, universities and colleges of education and the polytechnics. Language education graduates are prepared to either gain gainful employment in the industry, companies like Chevron, Total and world organizations like United Nations Organization (UNO) etc. Nigeria television authority as a newscaster in Igbo, English or Hausa Bulletin and teach any of the language subjects after graduation.

It is expected that the recipients of language education programme develop both personal uses, social and linguistic/vocational competencies, i.e. ability for the graduate to use the knowledge acquired to solve his personal problems for instance ability to establish language clinic where he can teach, interpret and earn money, social competency refers to the understanding and appreciation of the rote language education play on the socio-economic development of one's nations' economy. For instance, in international organization French and English are two official languages for effective communication. Vocational competency involves students after graduation being self-employed based on the knowledge and skills acquired during the course of the training program. These vocational skills are mainly acquired through language skill such as listening, reading, speaking and writing, while pedagogical competences consist of knowledge, skills and attitudes in planning, implementation and evaluation instructions. Teacher preparation in the context of this study is a process of equipping students of language education of Nigeria universities with linguistic, vocational, technical and pedagogical competence in climate change for effective teaching of language to students in Nigeria universities.

Every country has its peculiar climate system but when it varies from the normal way that means climate change has taken place. Extreme climate like storm, flood, rainfall, wind, heat etc. have serious implication in effective teaching and learning because it affects the functioning of the equipment or materials used for teaching the language. Humidity dampness, deterioration of some teaching facilities may be experienced as a result of excess rainfall, flooding of the language laboratory and classroom may disrupt the conduct of some practical lessons and even verbal presentation of the lesson contents. Excessive heat can equally affect the performance of the facilities like computers, radio, television, cassettes, videos and charts, photograph etc. where sufficient air conditioners and fan are not provided. Earthquakes, hurricane wind can destabilize the smooth functioning of the teaching aids and disorganize sitting positions of students. Dusts when accumulated to the computer, laptop, radio, television, video cassettes, and printer lead to malfunctioning of the equipment which normally needs adequate repair before they can be used effectively.

Poor teaching and learning environment led to dissatisfaction of the lecturers and students. On the part of the students, truancy, late coming, sickness and poor participation in the classroom may be obtainable. When a teacher is not getting positive feedback on the topic she is teaching, boredom sets in. Moreover, climate change exposes the body to various diseases like pneumonia, tuberculosis, eye infections etc. The lecturers, students, parents and management of the institutions stand the risk of contacting any of the above-mentioned diseases. Thus hampers the smooth implementation of the already planned curriculum for the language department. The language education has the responsibility of ensuring that the problem of this climate change is adequately handled. Some language lecturers do not have relevant skills to practice effectively as language educations due to the menace of climate manage their lessons irrespective of climate change. As important as language one will ask if change and ways of mitigating climate change. It is on this premise that this paper is structured to critically analyse related concept or content in language curriculum and therefore proffer solution or better still strategies for control of climate change in the teaching of language education in Nigeria universities.

The alarming rate of climate change which attributed to natural and human activities call for remedies or better still, solutions to averting theses problem such as flooding, excessive heat, oil spillage etc. There has been problem of climate change which affects everybody in the society. Government, Non-governmental organization, or private organization are expected to make contribution to help overcome the menace or adapt it through certain adaptation strategies. To achieve this, students need to be taught climate change during teacher preparation. It is based on this premise that this study intends to investigate the infusion of climate change curriculum into teacher preparation in language education fort sustainable development in curriculum into teacher preparation in language education for sustainable development in Nigeria Universities.

Objectives of the Study

Specifically, the study intends to achieve the following objectives:

1. To identify the content area of climate for infusion into language education of Nigerian universities for sustainable academic development
2. To find out lecturers' preparedness to teach climate change component of the revised language studied.
3. To ascertain the challenges hindering the preparation of languages lecturers for implementing climate education curriculum for sustainable academic development.
4. To determine the strategies to improve the infusion of climate change curriculum into teacher preparation on language education and ICT studies for sustainable academic development.

Research Question

The study was guided by the following questions:

1. What are the content areas in climate change required for infusion into teacher preparation in language in Nigeria universities for sustainable academic development?
2. How prepared are the language lecturers for promoting sustainable development practices on climate change?
3. What are the challenges hindering the preparation of language lecturers for implementing climate change education curriculum fir sustainable academic development?
4. What are the strategies to improve the infusion of climate change curriculum into teacher preparation on language education for sustainable academic development?

Hypotheses

Two Hypotheses were generated to guide the study, they are:

1. There is no significant difference in the mean rating of lecturers in Nigeria Universities on the challenges hindering infusion of climate change curriculum into language education for sustainable academic development.
2. There is no significant difference in the mean rating of lecturers on the content areas of climate change needed in language education for Nigeria universities for sustainable academic development.

Methodology

The study adopted descriptive survey research. This design is deemed appropriate because it seeks to document and describe what exists or the status of existence/assess of what is being investigated. The target population consists of 157 made up of 42 lecturers of language education. Sample was 80 lecturers of language education were obtained through proportionate stratified random sampling techniques. There was no sampling of the lecturers of language education because of the small size.

A 28-item questionnaire covering the content areas, teacher preparation, challenges and strategies that harness climate change for sustainable development was developed for collecting data from respondents. The questionnaire had 4-point response options of strongly agree (SA), =4, agree(A)=3, disagree(D)=2, strongly disagree (SD)=1 respectively. These are used in data analysis. The questionnaire was validated by three experts, and one from Department of measurement and evaluation, all from, Micharl Okpara University of Agriculture. Umudike. The instrument was trial-tested on fifteen lecturers from the federal universities that were not part of the study population. The reliability coefficient was computed using Cronbach Alpha technique and the result were found to be 0.73, 0.81, 0.74 and 0.83 respectively for the four sections of the questionnaire. These values were considered high enough, assuring the adequacy and reliability of the instrument for the study. Mean and standard deviation were the statistical tools used for answering the research questions, while t-test statistics was used to test the null hypotheses at 0.05 alpha levels.

Results

Research Question 1:

What are the content areas in climate change required for infusion into teacher preparation in language in Nigeria universities for sustainable academic development?

Table 1: Mean and Standard Deviation of Language Lecturers on the content area of climate change

S/No	Cluster Item	X	SD	Remark
1.	Concept of climate change	3.74	0.20	Agreed
2.	Causes of climate change	3.58	0.19	Agreed
3.	Effects of climate change on reading comprehension lesson and ICT skill	3.61	0.21	Agreed
4.	Effect of climate change on language lecturers and computer operators	3.48	0.18	Agreed
5.	Methods of control and adaptation to climate change	3.34	0.18	Agreed

Data in table 1 revealed all the 5 cluster items on climate change. This indicated that the mean were above real limit of 2.50 showing that all the 5 items on climate change was required for the infusion into teacher preparation in language education in Nigeria universities.

Research Question 2:
How prepared are the language lecturers for promoting sustainable development practices on climate change?

Table 2: Mean and Standard deviation on teacher language lecturers are prepared for promoting sustainable developmental practices on climate change

S/No	Items	X	SD	Remark
6.	Pro service training	3.21	0.19	Agreed
7.	In-service training	3.38	0.18	Agreed
8.	Use of curriculum materials	3.35	0.29	Agreed
9.	Research technique	3.47	0.18	Agreed
10.	Attending conference	3.52	0.21	Agreed
11.	Micro-teaching	3.52	0.36	Agreed
12.	ICT Training	3.53	0.36	Agreed
13.	Teaching practice	3.44	0.31	Agreed
	Total Mean	**3.33**	**1.04**	

A look at table 2 showed that all respondents (agreed that the listed items in numbers 6,7,8,9,10,11,12,13 would determine how language lecturers are prepared for the climate change. The table further revealed that these items scored up to the accepted mean of 2.50.

Research Question 3:
What are the challenges hindering the preparation of language lecturers for implementing climate change education curriculum for sustainable academic development?

Table 3: Mean and standard deviation on the challenges for the infusion of climate change curriculum into language education for sustainable development

S/No	Item	X	SD	Remark
14.	Most of the climate change issues are not in the syllabus	3.50	0.72	Agreed
15.	Attitude of lecturers	3.12	0.85	Agreed
16.	Lack of instructional materials	3.91	0.23	Agreed
17.	Lack of teacher preparation	1.22	1.88	Disagreed
18.	Inability of in-service language lecturers and ICT lecturers to embrace innovation	2.71	0.23	Agreed
19.	Waste management	2.50	0.23	Agreed
20.	Orientation of new staff	1.38	0.85	Agreed
	Total mean	**3.34**	**0.88**	

The data in table 3 revealed that all listed items from 14, 15, 16, 18 and 19 scored more than the acceptable mean that those items were challenges faced for the implementation of climate change curriculum into language education. Item 17 and 20 scored below the acceptable mean of 2.50 thus indicating that they did not agree that lack of teacher preparation and orientation of new staff was a challenge that faced the implementation of climate change curriculum.

Research Question 4:

What are the strategies to improve the infusion of climate change curriculum into teacher preparation on language education for sustainable academic development?

Table 4: Mean and standard deviation on the strategies to harness climate change and prepare language lectures for sustainable academic development.

S/No	Cluster Item	X	SD	Remark
21.	Tree planting is a mean & of climate change control	3.12	1.88	Agreed
22.	Students should taught the modern method of waste management as contained on 3 (reduce, reuse and recycle	3.48	1.18	Agreed
23.	Covering the computer, radio, television from coating dust	3.85	0.84	Agreed
24.	Provision of fan and air condition in classroom setting	2.98	1.22	Agreed
25.	Use of mixed method of teaching	3.40	1.18	Agreed
26.	Attending seminars, workshops and conferences	3.28	1.22	Agreed
27.	Wearing cardigan, raincoat to avoid catching cold	3.12	1.18	Agreed
28.	Use of story-telling, debates and show	2.85	1.09	Agreed
	Total mean	**3.36**	**0.24**	

Table data in table 4 revealed that all listed item statements scored above the acceptable mean of 2.50, Hence those statements indicated that they were the strategies to harness climate change curriculum and prepare language lectures for sustainable academic development.

Hypothesis 1

There is no significant difference in the mean rating of male and female lecturers in Nigeria Universities on the challenges hindering infusion of climate change curriculum into language education for sustainable academic development.

Table 5: t-test differences between mean of male and female lecturers are the content area needed to infuse climate change curriculum in language education for sustainable development.

Variable	N	Mean	SD	df	t-cal	t-crit	Sig.	Decision
Male	51	3.40	0.91	79				$H0_1$ is
Female	30	3.10	0.70		0.68	1.96	Not. sig.	Rejected

Table 5 revealed that t-calculated – 0.68 was less than t-critical (1.96) at 0.05 level of significance. If t-calculated is less than t-critical, then are accept that the null hypotheses of no significant differences between the responses of male and female lecturers on the content areas needed to infuse climate change curriculum into language education for sustainable academic development.

Hypothesis 2

There is no significant difference in the mean rating of male and female lecturers on the content areas of climate change needed in language education for Nigeria universities for sustainable academic development.

Table 6: t-test differences between mean of male and female lecturers on the challenges faced by language lecturers in implemented of climate change curriculum.

Variable	N	Mean	SD	df	t-cal	t-crit	Sig.	Decision
Male	51	3.36	0.15	79	-1.103	1.97	Not sig.	$H0_2$ is
Female	30	3.34	0.88					Rejected

In table 6, it was revealed that less than the t-critical (1.97) at 79 degree of freedom (df) and 0.05 level of significant. The null hypothesis of no significant difference between the responses of male and female lecturers on the challenges facing the language was rejected.

Discussion of Findings

The findings in table 1 showed that majority of language lecturers respondent agreed that content area of climate change should be infused in language education such as concept or climate change causes of climate change, effects of climate change, methods of control and adaptation to climate change. The findings are in line with the assertion made by Eziefula (2014) in a study on preparing English Language teacher for effective curriculum implementation on climate change issues" at upper basic education where it was found that climate change issues should be infused into the component of English Language at the upper basic education. The components include vocabulary, building grammar, composition, comprehension, drama, poetry and so on. With this infusion, the concept of climate change will be brought low to the level of the students. The result of the test of hypotheses revealed that, there is no significant difference in the mean rating of the responses of lecturers of language education on the content areas of climate change to be infused into teacher preparation in language education in Nigeria universities.

The outcome in table 2 show that the listed were the preparedness of lecturers on climate change for promoting sustainable development practices on climate change. These foregoing findings are in line with the observation made by Eziefula (2014) who stress that preparing the English language teacher on climate change means that he/she needs to get abreast in the concepts, trends, ways of making the effects minimal and most importantly creating the awareness in or outside the classroom. This preparation starts with the pre-service teacher training and continues to the in-service teacher training. This finding is in line with Eyisi (2003) who opined that the preparation given to teachers who had graduated and are actually teaching in different schools and at different levels. It is a form of short courses, seminars or workshops run for teachers on the job to update their knowledge and skills and keep them abreast of developments in their fields of specialization. The training does not only complement the pre-service education but also acquaint them with new and modem developments for successful teaching. It has reported Ozor and Madukwe (2012) that there is need to build the capacity of teachers to be able to impact the necessary knowledge about climate change. In service training activities are embodied in conferences, workshop, committee work/professional reading, visits, demonstration, field trip, teachers exchange professional association work, symposia ad seminars that are always tailored towards attaining professional refurbishment in teachers. Unlike the pre-service which is packaged and made available to all who wish to be teachers, in-service training is a personal thing. It is only teachers who are committed and interested in being on top of their career that avail themselves of this preparation. In Nigeria, most teachers have a lukewarm attitude to in-service training. It is therefore, not surprising to find a teacher who after certification will remain in the classroom till retirement without attending any workshop or conference. This type of attitude must change if we must together fight to sustain our environment which is one purpose of education.

The outcome of table 3 showed that all the listed items were challenges to implement climate change curriculum into language education. This finding is in line with the assertion made by Eziefuna (2014) the most English language is unable to embrace change or innovation. This should not be so as climate change issues are emergent. Waste Management and lack of instructional materials are one of major challenges for the infusion of climate change in

language education. This is in line with Dibia, Obi and Anebi (2014) who found that despite the ravaging effects of climate change, issues of climate change have not been reflected in texts, reference books, and other materials for teaching and learning. Oteh, Nwokeocha and Igbokwe (2014) reported that waste management had become a major problem and concern in the country as a result of rapid urbanization and increase population in rural and urban settlements. As a result of ineffective waste management, the world is currently suffering from hunger, malnutrition, sickness and other forms of calamities. This is obtainable in computer system effectively. In addition, hypotheses 3 in table 6 showed no significant difference in the views of respondents to the challenges of that faced language lecturers in implementation of climate change curriculum.

In table 4, the findings revealed that the listed like the planting of trees, field trip for better understanding of the 3R's (reduce, raise, recycle) environmental sanitation, landfill among others, were some of the strategies to harness climate change education for sustainable development. This finding is in agreement with Okoro and Akparanta (2014) who opined that government/the ministry of education/institutions of education should be very practical as to equip teachers in implementation process.

Conclusion

Climate change is a serious problem and concern in the country. Individuals are expected to make contributions to help overcome the menace of climate change. Climate change curriculum if properly implemented will contribute a lot to the sustainability of an environment for future generation. In the area of study, students need to be teaching climate change in their schools while their teachers need to be taught same any teacher preparation in Nigeria Universities and to determine the extent of preparedness of language education to effectively teach the climate change component of language education theme of revised language. This study was carried out to identify the content area strategies required for infusion into teacher preparation in language education in Nigeria universities. Thus, the sustainability of the air we breathe, the water we drink, the food we eat and the afforestation of our environment, is the holistic panacea to sustainable climate change. The findings of this study have implication for the successful implementation of the revised curriculum.

Recommendation

Base on the findings it was recommended that:

1. Climate change content such as concepts of climate change, causes of climate change effect of climate change on lecturer and method of control and adaptation should be infused into teacher preparation in language.
2. Curriculum planners should suggest activities that language lecturers can expose students to, in order to reduce the effect of climate change.
3. Curriculum planners should ensure that concepts of climate change are included in the titles for prose and poetry in language curriculum for Nigeria universities.
4. Government and education administrations should sponsor lecturers to attend seminar and conference on the issue of climate change.

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Management Strategies for Effective Implementation of Internal Quality Assurance Policy of Universities in Bayelsa State

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Abstract

The study investigated management strategies for effective internal quality assurance policy of universities in Bayelsa State. A descriptive survey research design. The population of the study were all the 321 staff that deals with quality assurance (Deans, HODs and Staff of QA Dept) from the four universities located in Bayelsa State. (Federal University Otuoke; Niger Delta University, Amasoma; University of Africa, Toro-Oluwa; and the Bayelsa Medical University, Yenagoa). A simple random sampling techniques was used to select 160 of them for the study by ensuring that at least 40 respondents were selected from each university. Two research questions and one hypothesis were raised to guide the study. The instrument for data collection was a questionnaire titled ‘‘Management Strategies for Effective Internal Quality Assurance Policy of Universities in Bayelsa State Questionnaire (MSEIQAPQUE)’’ was designed, validated, pilot-tested (N=20, r=.88). A google online form was designed and used for collection of data, sent to the various WhatsApp platforms. Descriptive statistics of mean was used to answer the research questions while t-test statistics was used to test the hypothesis at 0.05 level of significance. The study revealed low level implementation of internal quality assurance policies. However, the study suggests classroom base assessment, university-industry engagement, collaboration with foreign universities and inter-university assessment as new management strategies to enhance implementation of internal quality assurance of universities in Bayelsa State. The study also shows that there is no significant difference in the quality assurance strategies of old and new universities. It was therefore recommended among others, the urgent need to introduce classroom-based assessment to improve internal quality assurance of the universities.

Keywords: Quality Assurance, Universities and Management Strategies

Introduction

University system is mainly designed to produce advanced human potentials for societal growth. Its operations through teaching research and community services must be regulated if the purpose for its establishment is to be attained. This process of regulation could either be self or externally, referred to as quality assurance process (Ogbeche, 2021). Therefore, ensuring that the graduates from the university system meets specific standard in terms of employment, research and ultimately skills that will bridge the gap that exist within societies should be the priority of management (Haruni & Sipora, 2014). Research findings suggests that internal quality assurance is simply the process of enhancing quality standard of a university for the attainment of aspirations in excellence through its products and services obviously seen in the exploits of its graduates (Otekunrin & Fagboro, 2021; Adedipe, 2007; Tom & Nancy, 1985; Sallis, 1993). Just as Haruni and Sipora (2014) asserted that some graduates should be blamed for lacking appropriate competency? We also need to ask if the university quality

assurance practitioners rethink and act according to the growing demands for improved quality assurance practices within the system? (Otekunrin & Fagboro,2021; Haruni & Sipora, 2014).

The process of responding to this critical question could be the adoption of internal review process by management of universities through the enforcement of robust internal evaluation process for all its activities. For instance, management could insist that activities at the departmental level, at examinations and assessments should be in stages where critical stakeholders create opportunities for a second review before ascertaining the level of attainment for already set standard. Consequently, these activities could then be subjected to external review process. In many Nigerian universities for instance, there exist internal and external moderation of final year examination question papers for undergraduate programmes (Ogbeche, 2021; Ibara, 2015). The process and requirement for the award of degrees include the assessment of thesis written by students through internal stages before they are subjected to external review process as well (Ogbeche, 2021). This is usually done by experts appointed as external examiners to perform such critical roles as a quality assurance process (Ogbeche, 2021; Okoro, 2015; Ibara, 2015).

The intellectual content of a programme should be consistently reviewed to ensure its continuous relevance and adaptation of graduates who are certified in the programme to possess relevant skills as may be required by industries and organizations (Okebukola, 2012). The university system therefore, have to develop a strategy of ensuring this quality measure is followed. Meanwhile, the level at which this function is performed in the school system is a concern to stakeholders. There should be periodic review of contents, instructional procedures, delivery strategies and the assessment procedures of pogrammes in the university system (Anioke, 2011; Ibara, 2015).

Similarly, the need to institute standard monitoring committee as a measure of pursuing internal quality assurance policy cannot be over-emphasized particularly in the university system of today. The assurance policies could be well initiated and documented but without proper monitoring team to consistently evaluate its implementation, the policy aims might not be achieved (Otekunrin and Fagboro, 2021). Hence the monitoring team could be at different levels and segment in the university to judiciously follow-up and ensure effective implementation (Okebukola, 2012).

Conceptually, the exposition of undergraduate even before graduation to external competitive assessment could be a very significant way of enhancing quality assurance in the university system. While training learners in intellectual contents, cognitive and affective practices including theoretical postulations, it has also become imperative to expose them to other assessment criteria. When students are faced with keen contest among their peers from other perspectives, background and even different distance schools, it will be a means of ascertaining the quality level of programmes and possibly, taking a decision for review.

Also, the engagement of industries as partners to the university system could be a good attempt of improving the quality of activities. Since the universities are primarily concern with research and production of high-level human potentials, the industries can become partners in training and acquisition of skills through industrial training, research, conferences where postulations can be linked to real practice or experiences from the industrial actors (Otekunrin & Fagboro, 2021). There should be a practice where industrial actors stipulate expectations in terms of skills and competencies for their operations and competitive advantages to guide university scholars in the production of human minds. This will make it directional and then improve continuously, the quality of graduates that will services the industries.

Meanwhile, it has become extremely important that teachers at higher institutions particularly in Nigeria are assessed through other means (Adedipe, 2007). One of those proposed means of alternative or complimentary assessment is the classroom-based assessment. It could either be done by higher authorities, externally appointed scholars or institutions. In recent time scholars are advocating for students' classroom-based assessment on lecturers (Okoro, 2015, Achibong, 2013). There should be a shift from the old traditional assessment and reward for lecturers in higher institutions to new methodology of involving students. Universities should have a way of engaging and subjecting its operations and quality assurance process to other universities to assess and evaluate as well. Achibong (2013) had earlier noted that student's participation in the quality assurance process through classroom-based assessment has great gains such as providing valuable feedback on instruction effectiveness for the university decisions. This can also strengthen the general process of teaching, research and community services. According to Ibara (2015), institutional paradigm shift towards a quality culture is imperative for sustainable university education in Nigeria. Okoro (2015) discovered that the quality of textbooks, research, publications, quality curriculum, quality infrastructure and quality of teaching facilities are some of the strategies for improving quality assurance in the production of teachers. In the United Kingdom for instance, a standing committee on quality assurance was created in 2016 to ensure the quality standard of university education is enhanced (UK, Higher Education, 2016). The Committee therefore provided sector-led oversight of higher education quality assessment arrangements that continue to be shared across the UK (Quality Assurance Committee, 2016). Similarly, Ekpoh and Asuquo (2020) reported that the quality assurance implementation strategy in Nigeria Universities was moderate. They concluded with an urgent need to improve the quality procedures.

According to Adedipe (2007), the mainstreaming of quality assurance strategies in the university system requires the National Universities Commission (NUC) to share responsibilities in the following areas: minimum academic standard; accreditation; carrying capacity and admission quota; visitation panel; research and development; publication and assessment and then structural/infrastructural utilization. Correspondingly, Bashir et al., (2009) and Bank et al., (2014) noted that quality assurance process is usually determined through accreditation, audit assessment of actual teaching, practitioners' development, academic policy situation, students' evaluation processes and the ability of the university to adjust to changes like technology, industrial, environmental and societal changes (Bashir et al., 2009 and Bank et al.,2014). Meanwhile, Usman and Madudili (2021) identified related points affecting quality assurance to include shortage of funds, insecurity, policy inconsistency, and lack of regular training of staff particularly in the university system.

This study is hinged on the process theory of quality assurance by Cheng (1994). According to this theory, the university system will meet up the standard already set if its internal functioning is smooth and healthy. University education, is quite an intellectual transformational process which converts students to problem solvers and people who possesses required skills (Ibara, 2015). Therefore, a smooth internal institutional process to enable staff perform the teaching task, research and community services effectively and students to gain fruitful learning experiences easily would be appreciated towards attaining the already set standard (Hackman, et al., 1995). The relevance of this theory to this study is that vital internal activities or practices in the university system should be taken as important indicators for quality assurance. Leadership, communication channels, participation, co-ordination,

adaptability, planning, decision-making, social interactions, social climate, teaching methods, classroom management, learning strategies, and learning experiences are often used as indicators of education quality (Otekunrin & Fagboro, 2021). They must be emphasis in periodic review of curriculum, external assessment of programmes, classroom base assessment, inter-university assessment procedure, etc. Generally, the quality of university education is the ability to solve societal problems and produce individuals with the required skills to enhance the environment and people therein.

Otekunrin and Fagboro (2021) assessed the extent of compliance of the forensic accounting profession in Nigeria with the Quality Assurance Accreditation Standards (QAAS), and the status of the profession in Nigeria and discovered that the contribution and efforts of Nigerian universities to the advancement of forensic accounting is not significant due to inadequately trained university lecturers and lack of facilities. Here the question of quality standard has surfaced. It has therefore become important that attention is given to the quality assurance policy implementation level in universities and an attempt made towards effective management strategies for policy assurance implementation. Hence the researchers concern in Bayelsa State universities.

The performance and competency level of graduates from many universities system today seems to be declining. There exists high level unemployment among them, many lack the required skills and intellectual ability to perform in today's industrial world. The process of attaining already set standard of university education appears to be too difficult following the observable deficiency of skills among many graduates today. Just as some of the graduates are blamed for lacking appropriate competencies, the researchers are also asking if the university quality assurance practitioners rethink and act according to the growing demands of industries for improved practices. Or is it also possible that new universities could have different quality assurance strategies to bridge the competency gap in line with the expectation of industrial actors than the older ones (Ogbeche,2021; Haruni & Sipora, 2014). It is therefore the interest of this study to investigate and suggest management strategies for effective implementation of quality assurance policies of universities in Bayelsa State.

Objectives of the Study

1. To assess the extent of implementation of internal quality assurance policy of universities in Bayelsa State.
2. To examine whether the management strategies employed by university Authorities ensure effective implementation of internal quality assurance policy in Bayelsa State Universities

Research Questions

3. What is the extent of implementation of internal quality assurance policy of universities in Bayelsa State?
4. To what extent do the management strategies employed by university Authorities ensure effective implementation of internal quality assurance policy in Bayelsa State Universities?

Hypothesis

There is significant difference in the implementation of internal quality assurance policy of old and new universities in Bayelsa State.

Methodology

The study is a descriptive survey research design. The population of the study were all the 321 staff of quality assurance department from the four universities located in Bayelsa

State. (Federal University Otuoke; Niger Delta University, Amasoma; Africa University, Toro-Oluwa; and the Bayelsa Medical University, Yenagoa). A simple random sampling techniques was used to select 160 of them for the study by ensuring that at least 40 respondents were selected from each university. Two research questions and one hypothesis were raised to guide the study. The instrument for data collection was a questionnaire titled "Management Strategies for Effective Internal Quality Assurance Policy of Universities in Bayelsa State Questionnaire (MSEIQAPQUE)" was designed, validated, pilot-tested using Cronbach Alpha reliability test (N=20, r=.88). The questionnaire has just one section that dealt with quality assurance practices in the universities on a 4-point Likert type rating scale coded as very high (VH), high (H), low (L) and very low (VL). A mean of 2.50 and above was considered high. The staff in quality assurance department of universities located in Bayelsa State was requested to assess the quality assurance practices in their universities through their WhatsApp platforms. Two experts in the Faculty of Education, Federal University Otuoke carried out face and content validity of the questionnaires. A google online form was designed and used for collection of data, sent to the various WhatsApp platforms belonging to quality assurance staff from the universities. Descriptive statistics of mean was used to answer the research questions while t-test statistics was used to test the hypothesis at 0.05 level of significance.

Results

Research Question 1

What is the extent of implementation of internal quality assurance strategies of universities in Bayelsa State?

Table 1: Mean Analysis of Implementation Level of Quality Assurance Policy of Universities in Bayelsa State.

Description	N	Mean($\bar{X}$)	Remarks
Periodic Review of Curriculum	160	2.38	Low
External Review of Students performance	160	2.58	High
External Competition	160	2.11	Low
Assurance Monitoring Committee	160	2.58	High
Mean Total		**2.44**	**Low**

Critical/Theoretical Mean =2.50, N=160

According to the data in Table 1, the level of implementation of internal quality assurance policy of universities in Bayelsa State is low with a mean score of (2.44). The item analysis shows that external review of students' performance and assurance monitoring team is high with a mean score of (2.58) respectively. Periodic review of curriculum and external competition recorded a low-level implementation with a mean score of (2.38) and (2.11) respectively.

Research Question 2

To what extent do the management strategies employed university Authorities ensure effective implementation of internal quality assurance policy in Bayelsa State Universities?

Table 2: Mean Analysis of Management Strategies to Ensure Effective Internal Quality Assurance policy of Universities in Bayelsa State.

Description	N	Mean($\bar{X}$)	Remarks
Classroom Base Assessment	160	2.92	High
University-Industry Engagement	160	2.52	High
Inter-University Assessment	160	2.50	High
Collaboration with Foreign Universities	160	2.78	High
Mean Total		**2.69**	**High**

Critical/Theoretical Mean = 2.50, N=160

According to the data in Table 2, the management strategies for effective implementation of quality assurance policy is high with a mean score of (2.69). The item analysis indicated that classroom base assessment recorded the highest level with a mean score of (2.92), followed by collaboration with foreign universities with a mean score of (2.78). Also, university-industry engagement recorded a high mean score of (2.52) as well as inter-university assessment with a mean score of (2.50).

Hypothesis

There is significant difference in the implementation of internal quality assurance policy of old and new universities in Bayelsa State.

Table 3: t-test analysis of the difference in implementation of internal quality assurance policy of Old and New Universities in Bayelsa State

Variables	N	($\bar{X}$)	SD	df	t-Cal	Sig (2 tailed)	Decision P<0.05
Old (FUO; NDU)	80	2.91	0.50				
				98	0.38	0.000	Rejected
New (UAT, BMU)	80	2.93	0.46				

The data in Table 3, shows that the t-cal. value of 0.38 is greater that the P-value (0.000) thus, the null hypothesis is therefore rejected that there is no significant difference in the implementation of internal quality assurance policy of old and new universities in Bayelsa State.

Discussion of Findings

The study revealed low level implementation of internal quality assurance policy of universities in Bayelsa State. However, the item analysis indicated high level implementation in external assessment of students' performance and assurance monitoring committee. The result has therefore called for urgent steps to improve and pursue the already set standard in university education in Nigeria. Though the high-level result recorded in external assessment of students' performance and monitoring team could be attributed to the practice of external defense of thesis and moderation of question papers particularly at final year in many universities in the state. The low-level implementation result recorded by periodic review and external competition is quite related to the constrains facing the Nigeria university system. The findings therefore collaborate the assertion of Ogbeche, 2021 and Ibara, 2015 that the quality of university education is not falling, rather it is the criteria and the process of meeting the already set standard that seems confronted. However, the study also confirmed this assertion that the Nigeria university system usually appoint experts as external examiners to perform role like thesis fence, moderation and evaluation of degree programmes as part of quality assurance process (Ogbeche, 2021).

The result of research question two suggest in strong terms that effective management strategy for implementation of internal quality assurance in the university is through classroom-based assessment, effective university-industry engagement, collaborations with foreign universities and inter-university assessment. This is also a strong indication that those in charge of quality assurance are advocating for new methods of enhancing the quality of universities in the state. The findings of this study therefore agreed with the assertion of Otekunrin and Fagboro (2021) that university-industries can become partners towards strengthening the practice and process of each other. The findings further collaborated and confirmed the reports of Okebukola (2012) and Adedipe (2007) that it has become extremely important that teachers at higher institutions particularly in Nigeria are assessed through other means like classroom assessment. This study also confirmed the findings of Achibong (2013) that student's participation in the quality assurance process through classroom-based assessment has great gains such as providing valuable feedback on instruction effectiveness for the university decisions.

The hypothesis however revealed that there is no significant difference in the quality assurance strategies of universities located in the state. The implication is that both the old and the newly established universities have and practice similar quality assurance procedure. This also called for urgent attention of critical stakeholder of the universities to review standard attainment procedures. The study therefore affirmed the report of Haruni and Sipora (2014) that the university quality assurance practitioners need to rethink and act according to the growing demands of industries for improved practices.

Conclusion

The university system needs to consistently review its policies and procedures of pursuing already set standard for university education so as to bridge the competency cap that exist among its products and fulfill the societal expatiations. The study hereby concludes that classroom base assessment, strong inter-university engagements and collaborations with foreign institutions as well as the low-level approaches to quality assurance should be reconsidered for improved performance.

Recommendations

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

1. The universities should develop strategic approach towards ensuring high quality assurance processes.
2. The universities should as a matter of urgency introduce classroom-based assessment to improve quality of teaching and learning in the universities.
3. There should be serious effort made to engage industrial actors at the first stage of designing the university education curriculum
4. University should also strengthen and increase their collaborations with foreign university as a good strategy of pursuing quality assurance objectives.

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Perceived Impacts of Bullying on Academic Performance of Secondary School Students in North Central States of Nigeria

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Abstract
Perceived Impacts of Bullying on Academic Performance of Secondary School Students in North Central States of Nigeria. The focus of this paper is to concisely put into perspective the meaning of school violence in the context of bulling, the prevalence of bulling across the globe, situational analysis in north central Nigeria and lastly provide some functional strategies for adoption in the guiding of bulling problems in selected secondary schools in north central Nigeria. To this end, a descriptive survey research design was employed. The seven states that constituted north central states, includes Abuja (FCT), Benue, Kogi, Kwara, Nassarawa, Niger and Plateau States respectively. Out of which four states were randomly selected, that is, Abuja (FCT), Benue, Nassarawa and Plateau states, in order to assess the opinions of students. Population of the study consists of 21,000 secondary school students. For the study sample, from the above N=21,000, a study sample of 370 respondents 185 males and 185 females respectively were drawn randomly from seven selected schools across the region. Researcher made Questionnaire title School Bullying Problems Questionnaire (SBPQ) was employed for data collection, while data collected were analyzed using Chi Square (X^2) Analysis. Findings revealed that there is a significant difference in the impacts of bulling on physical/psychological will being of bullied from non-bullied students, there is no significance difference in the impacts of bulling academic performance of bullied and non-bullied students, Also, there is no significant difference in the impacts of bulling on secondary school students between male and female. It was, therefore, recommended that schools should create enabling environment that would checkmate bulling problems among students. Class monitors, Schools prefects, form masters, house maters should wake up to their responsibilities to ensure that bulling in any form is reported to the school authorities.
Keywords: Bulling problems, Academic performance, Gender, Secondary school

Introduction
Education is a continuous experience that transcends boundaries and generations. Its primary purpose is to teach learners how to live in real life by developing their mind and equipping them to deal with reality. The main focus of the school is to develop the student through knowledge acquisition so he becomes a social being. The student is expected to understand how to mingle with his fellows, teachers, and paramount others stake holders in the school vise verse, live in a harmonious manner in the society on the hand and. The school is charge as a situation where a student is safe and secure and also valued and treated with respects. In real terms, however, only few students can harmoniously relate freely without experiencing violence in the school.

Although, the school was considered and remained one of the safest places aside home in a students' life. School violence is an important issue that has become prominent in recent

times, as social media is a washed with violent deeds within school the setting is alarming and on the increase. Upon all the school violence, the society still regards the school as a safe place for students. Therefore, in order to maintain a peaceful and secured school environment, stakeholders in education have showed significant concerned on the issues of violence in our schools. The World Health Organization (WHO, 2002) defines violence as the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm. Mal-development or deprivation. The definition also excludes any unintentional incident, such as road traffic injuries and burns (Federal Ministry of Education, 2007). Violence broadly speaking includes any condition or acts that create a climate in which the individual feels fear or intimidation and also being victims of assault, theft, or vandalism. This has become a reoccurring problem in our schools.

School violence takes many shapes and dimensions. It includes bulling, gang activity, locker theft, cyber bullying and intimidation, assault, gun use, just about anything that produce victim. Specifically, In Nigeria according to Federal Ministry of Education (2007), since the last decade, several cases of violence against children such as torture, kidnapping, shooting, sexual harassment, rape and so on have been reported in various newspapers, magazines and television stations all over the world. However, there is lack of documentation of most of the violent acts. This lack of documentation and increasing violence rate against children were parts of reasons of global in-depth study of violence against children by the UN Secretary General as directed by the General Assembly Resolution 57/90 OF 2002 provide a global picture Omoniyi, 2013. According to Elizabeth E. (2007) in Benin City, it was found that 78% lashed out at others at least once. However, more boys than girls were found to be both bullies and victims (χ^2= 18.570, p<0.01). Boys reported being kicked or hit more than girls (χ^2= 13.302, p<0.01).

Therefore, the main crest of this paper is to concisely present in perspective the meaning of school violence in the context of bulling, the prevalence of bulling across the world, Situational analysis of bulling in north central Nigerian secondary schools and finally provides some strategies for adoption in the management of bulling problems in north central Nigerian secondary schools.

Bulling is a pervasive problem in school that affects educational success of a lot of students. Recently, it has become an incessant crisis among students with advance consequences, Bulling is not just student's emotion but a terrifying experience man school student contained every day (Craig, 1998; Thornberry, 2010). According to Oluweus (2013) Bulling refers to unwanted aggressive behaviours enacted intentionally over time by an individual or group using some form of power to cause physical and/or psychological harm to another individual or in shared social context. Involvement in bullying as perpetrators, victims, bullying victims, and bystanders has been linked with deleterious outcomes by both cross sectional and longitudinal studies. Students who are bullied can experience immediate negative effects that include humiliation, sadness, rejection and helplessness (Kaiser & Rasminsky, 2009). Bullying has been around as long as humans have had their differences. With the current proliferation of social media bullying has found a new way to thrive. One of the most effective ways to prevent bullying on social media is by paying attention to your students and their lives (www.risevision.com/blog/how-to-handle-bullying-in-school-and-social-media)

In addition, students who have been bullied may not feel safe at school and may disengage from the school environment due to fear and sadness, which may in turn, contribute to high rate of absenteeism and lower academic performance (Nakamoto and Schwartz, 2010).

Bullying usually involves more than bully and the victim: peers are present in 85 percent of bullying episode in a classroom and playground. Peers are drawn into bullying by arousal and excitement of aggression they are audience for the theater of bullying and provide the positive attention, imitation, deference and lack of opposition which reinforce the bully's dominance (Omoniyi, 2013). Although 80-90 per cent of students indicate that watch bullying makes them feel uncomfortable, observations indicate that the peer assume many roles: co-bullies, supporters, audience and interveners (Pepler, 2009). It was observed that peers tend to give positive attention to the bully, rather than the victim; there risk for peers who align with the victim, they may become the next victims (Smith, 2011) Clear difference emerges in the bullying research among female and male. Commonly, boys bully other boys and girls; whereas girls are bullied mainly by other girls. Where girls are bullies, they tend to use more indirect forms of bullying (van der Wal, 2008). Boys tend to use physical might and verbal threats. Girls use social and verbal threats, such as spreading rumors about one another and excluding one from the peer group. Girls bullying also, includes actions such as social isolation, ignoring, excluding, and backbiting. Others actions by girls' bullies include manipulating friendship and ostracizing peers (Bosworth, 2009). Adolescent girls are prone to name calling, and gossiping (Vail, 2010).

Although, social interaction is encouraged among students both males and females, due to its importance of predisposing the students to tape from individuals' potentials academically and otherwise, especially the weak students benefit from the better and best students in terms of academic performance. The same students tend to exerts aggression and deviant behaviour that hurt others which results to bullying. The consequences of involvement in bullying or victim problem are focused upon negative mental and physical health challenges. Resulting to low psychological well-being, this includes state of mind, low self-esteem and feelings of anger and sadness. Another problem is poor social adjustment, among students this manifests loneliness, isolation, and absenteeism in class particular or school in general. Psychological distress is considered more serious and it includes high levels of anxiety, depression, and suicidal thinking. All these are going on our schools, before the stakeholder and most times in Nigeria, even though the case of bullying had been reported in many schools, this deviant act is not given any desirable attention. Further, more there are no available statistical facts to prove the actual number of students that are bullied or victims in Nigeria school. This lack of statistical facts and absence of well documented evidence have made it difficult to for us degree of damage bullying racking in the well-being of our students.

Objectives of the Study

The main objective of the study is to discover the impact of bullying on students' co exists within in an academic environment despite their diver's family background. Specifically, the study:

1. Examined the extent to which bullying impact on physical/psychological well-being of secondary school students in North Central States of Nigeria.
2. Examine the impact of school bullying on student's academic performance
3. Assessed the extent of school bullying among male and female secondary school students in North Central states of Nigeria.

Hypotheses

1. There is no significant difference in the impact of bullying on physical/psychological well-being of secondary school students between bullied and their non-bullied counterparts in North Central Nigeria.

2. There is no significant difference in the impact of bullying on academic performance of secondary school students between bullied and their non-bullied counterparts in North Central Nigeria.
3. There is no significant difference in the impacts of bullying on secondary school students between male and their female in North Central Nigeria.

Methodology

The study was the descriptive research of the survey type; that involves the collection of data from subjects on a particular phenomenon to describe the phenomenon the way it appears. The population of this study is two secondary schools from four sampled states that is Abuja (FCT), Benue, Nassarawa and Plateau out of the seven states that make up the north central Nigeria. From the study population (N=21,000), simple random sampling technique was used to sample 92.5 by four states equal 370 respondents, according to Research adviser (2006). The instrument used for the study was a researcher made questionnaire titled School Bullying Problems Questionnaire (SBPQ). The instrument was designed to elicit data on impacts of school bullying on academic performance, well-being and gender on students of selected secondary schools. The instrument has two sections, Section A elicit respondents Bio data such as State, School, Gender, and Age. Section B consisted of 15 items eliciting responses on impacts of school bullying on well-being, academic performance and gender. Three Likert scales was used as options form. Agreed (A), Undecided (U), Disagreed (D). The instrument was validated using face and content validity technique; this was arrived at through given the instrument to two experts of test and measurement from the department of education and Counselling Psychology, IBBU Lapai. The instruments were personally administered with the assistance of two research assistants on the respondents to ensure complete returned. A reliability co efficient of 0.73 was obtained for instrument. While, data collected were analyzed with chi square inferential statistics tool.

Results

Hypothesis 1

There is no significant difference in the impacts of bullying on physical/psychological well-being of secondary school students between bullied and their non-bullied counterparts in North Central Nigeria.

Table 1: Frequency and percentage of the impacts of bullying on physical/psychological well-being of secondary school students

Variables	Agree	Undecided	Disagree	Total
Bullied	**127(127.74)**	**27(26.80)**	**57(56.46)**	**211**
Non-Bullied	**97 (96.26)**	**20(20.20)**	**42(42.54)**	**159**
	224	**47**	**99**	**370**

Source: Questionnaire, $X^2 = 0.026$, df =2, P=0.05, X^2 = Critical value=5.991.

Table 2: Chi square (X^2) Analysis of the impact of bullying on physical/psychological well-being of secondary school students

Cell	Fo	Fe	Fo- Fe	$(Fo-Fe)^2$	$(Fo-Fe)^2/ Fe$
A	127	127.74	-0.74	0.5474	0.004
B	27	26.80	0.2	0.04	0.002
C	57	56.46	0.54	0.291	0.005
D	97	96.26	0.74	0.547	0.006
E	20	20.20	-0.2	0.04	0.002
F	42	42.54	-0.54	0.291	0.007
Total	**370**	**370**			**0.026**

Summary of Chi square Analysis of Hypothesis One

X^2 Cal. = 0.026; X^2 Crit. = 5.991; df = 2; P< =0.05; Decision: Rejected

From the table 1 above Chi square (X^2) analysis, the critical value of 5.991 is higher than the calculated of 0.026 at 0.05 level of significance. The null hypothesis, which states that "there is no significant difference in the impact of bullying on physical/psychological well-being of secondary school students between bullied and their non-bullied counterparts in North Central Nigeria", is hereby rejected.

Hypotheses 2

There is no significant difference in the impact of bullying on academic performance between bullied and non-bullied secondary school students in North Central Nigeria.

Table 3: Frequency and percentage of the impact of bullying on secondary school students' academic performance

Variables	Agree	Undecided	Disagree	Total
Bullied	**100(12.07)**	**31(31.93)**	**80(76.41)**	**211**
Non Bullied	**79 (76.92)**	**26(24.06)**	**54(57.58)**	**159**
	179	**56**	**134**	**370**

Source: Questionnaire, X^2 = 0.319, df =2, P=0.05, X^2 = Critical value= 5.991.

Table 4: Chi square (X^2) Analysis of the impact of bullying on secondary school students' academic performance

Cell	Fo	Fe	Fo- Fe	$(Fo-Fe)^2$	$(Fo-Fe)^2/Fe$
A	100	102.07	-2.8	7.84	0.076
B	31	31.93	-1.5	2.25	0.069
C	80	76.41	-3.58	12.82	0.167
D	79	76.92	2.1	4.41	0.057
E	26	24.06	1.5	2.25	0.092
F	54	57.68	-3.6	12.96	0.025
Total	**370**	**370**			**0.319**

Summary of Chi square Analysis of Hypotheses Two:

X^2 Cal. = 0.319; X^2 Crit. = 5.991; Df = 2; P< = 0.05; Decision: Retained

From the table 2 above Chi square analysis, the critical value of 5.991 is higher than the calculated of 0.319 at 0.05 level of significance. Therefore, the null hypothesis, which states that "there is no significant difference in the impact of bullying on academic performance between bullied and non-bullied secondary school students in North Central Nigeria" is hereby retained).

Hypotheses 3

There is no significant difference in the impacts of bullying on secondary school students between male and their female counterparts in North Central Nigeria.

Table 5: Frequency and percentage of the impact of bullying on male and female secondary school students

Variables	Agree	Undecided	Disagree	Total
Male	**127(127.88)**	**22(26.23)**	**65(59.87)**	**211**
Female	**95 (94.11)**	**24(19.76)**	**40(45.12)**	**159**
	219	**46**	**105**	**370**

Source: Questionnaire, X^2 = 2.624, df =2, P=0.05, X^2 = Critical value=5.991.

Table 6: Chi square(X^2) Analysis of the impact of bullying on male and female secondary school students

Cell	Fo	Fe	Fo- Fe	$(Fo-Fe)^2$	$(Fo-Fe)^2/Fe$
A	124	124.88	-0.88	0.774	0.006
B	22	26.23	-4.23	17.89	0.682
C	65	59.87	5.13	26.31	0.439
D	95	94.11	0.89	0.792	0.008
E	24	1976	-4.24	17.97	0.909
F	40	45.12	-5.12	26.21	0.580
Total	**370**	**370**			**2.624**

Summary of Chi square Analysis of Hypotheses Three:

X^2 Cal. = 2.624; X^2 Crit. = 5.991; df = 2; P< = 0.05; Decision: Accepted

From the table 3 above Chi square analysis, the critical value of 5.991 is higher than the calculated of 2.624 at 0.05 level of significance. Therefore, the null hypothesis, which states that "there is no significant difference in the impact of bullying on secondary school students between male and their female counterparts in North Central Nigeria" is hereby retained).

Discussion of the findings

The result of analysis of null hypothesis one (P< 0.05, df =2, X^2 cal.= 0.026, X^2 crit.= 5.991) revealed that the alternate hypothesis was accepted, which stated that students bullied always have effects on their wellbeing than those not bullied. This finding corroborates with work of Igbagri, (2018) opined those results from cross-sectional surveys suggested that being victimized by peers is significantly related to comparatively low level of psychological wellbeing and social adjustment and to high level of psychological distress and adverse physical health symptoms. Further, stated that longitudinal studies provide stronger support for the view that peer victimization is a significant causal factor in school children's lower health and wellbeing and that the effects can be long lasting. This implies that constant bullying among school students can impede on both their physical and psychological wellbeing, especially among the under aged school students where such deviant activities if not nipped at the bud early enough, the effects can be devastating. Furthermore, the above finding reveals that the majority of the respondents come to terms that bullying affects student's psychological wellbeing. According to www.ojjdp.gov/mpg (2013), psychological symptoms (such as bad temper, feeling nervous, feeling low self-esteem, difficulties in getting to sleep, morning tiredness, feeling left out, loneliness, and helplessness) are symptoms traceable to bullied.

The result of the data analysis of the null hypothesis two (P< 0.05, df= 2, X^2 cal.= 0.319, X^2 crit.= 5.991) revealed that the alternate hypothesis was retained, which stated that students who are bullied regularly will improved in their academic performance than their non-bullied

counterparts. This finding is in variance with other related finding such as the report by UNICEF (2007a) report also noted that the rapid increase in the level of bullying has a negative consequence on students' education, examples; decrease in school attendance, decrease in contact with peers, decrease in academic achievement etc. Still on the contraction of this study result. UNICEF, (2007). It further highlighted that kids who are bullied are more likely to experience: Decrease academic achievement standard test score and school participation. They are more likely to miss, skip, or drop out of school. In a related development, A study by Remy, (2020), The finding revealed that school bullying still exists in most schools and influences student's academic performance and school attendance. It was acknowledged that most students experienced bullying in their classes, and some students report cases of bullying to their teachers. Bullying still exists and continues to affect the academic achievement of most students in Cameroon.

The result of data analysis of the null hypothesis three ($P< 0.05$, df= 2, X^2 cal.= 418.77, X^2 crit.= 5.991) revealed that the alternate hypothesis was retained, which stated that student's gender will not impede on school bullying. This finding revealed that gender is not a determinant in school bullying among students across secondary and primary, private and public schools. This finding is in line with study of Seokjin, et al. (2013). A clear difference emerges in the bullying research among female and males. Commonly, boys bully other boys and girls; whereas girls are bullied mainly by other girls (Sampson, 2002). When girls are bullies, they tend to use more indirect forms of bullying (van der Wal, 2008). Boys tend to use physical might verbal threats. Girls use social and verbal threats, such as speaking rumors about one another and excluding one from the peer group (Hazler, and Oliver, 2007). Girls bullying also includes actions such as social isolation, ignoring, excluding, and backbiting (Sampson, 2002). Other actions by girl's bullies include manipulating friendship and ostracizing peers (Bosworth, 2009). Adolescent girls particularly, are prone to name calling, and gossiping (Vail, 2010). To further; scientifically support this assertion that some researchers have suggested there are biological differences in boys and girls, in that girls are biologically predisposed to value friendship, therefore, that is an arena in which they could express their emotions (vail, 2010).

Conclusion

Exposing children to social media such as television, video, and handset (phones) through which the students watch films that portrait deviant behaviours and characters enables them to practice what they saw on the weak students in the school in form of bullying. As a result, this, the students are both physical and psychological affected by the impact of school bullying from stress, injuries and trauma. Another available factor that encourages bullying is aggressive nature of some parents. Students from such parents (families) tend to learned nothing but being aggressive. This by implication affects the academic performances of the students, since students lack rest of mind to concentrate on their studies. When such students are opportune to be in senior class, they exhibited their deviant and aggressiveness on the junior students. That is no students escape them including girls. This makes the bullying syndrome in secondary schools a vicious circle. This study reveals that impacts of bullying problems in secondary schools have more negative than positive influences. Bearing in mind the data collected and analyzes, it can categorically be concluded that school bullying problems affects physical and psychological wellbeing and gender of the students negatively. An injured body and unstable mind can't concentrate in teaching and learning. It is therefore, recommended that

school authority should take stringent measures to ensure that bullying problems in schools especially secondary is adequately checked, or eradicated completely.

Recommendations

Sequel to the results obtained in the study and conclusions, the following recommendations are hereby made:

1. Schooling is a very important aspect of human life. In fact, the bed rock upon of education is built. Government and school authority must ensure that students are safe from any form physical and psychological harms as result of school problems, bullying inclusive.
2. School management should find a scientific and reliable means of checking students with deviant or disruptive behaviour as study indicated that they are potential bullies and enroll them for corrective measure through psychological and counselling interventions.
3. Teachers and the school authority should ensure that persona-social disagreements among students are officially resolved by the school to avoid the senior students taken advantages of the juniors by consistently bullying them.

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Public Awareness Regarding E-Waste Hazard and its Effect on Purchasing and Disposal Habit in Kaduna South Local Government Area, Kaduna State

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Abstract
This study examined Public Awareness Regarding E-Waste Hazard and its Effect on Purchasing and Disposal Habit in Kaduna South Local Government Area of Kaduna State. The study here attempted to assess this aspect of the e-waste situation through the use of questionnaire to families, formal & informal e-waste collectors, manufacturers, dealers, consumers and government officials in Kaduna South LGA, a large part of the city of Kaduna Metropolis. Insight from various respondents and workers were also sought. It was found that most respondents do not participate in formal e-waste recycling systems, are not aware of any specific details about the health and environmental hazards of e-waste, and do not know about any e-waste Act or legislation. 52.5% of the respondents believe that the knowledge of e-waste hazard definitely will influence their attitude toward disposal of e-waste. 58.5% of the respondents are not aware of e-waste hazard on health and environment. While 66.5% of the respondents are not aware of any policy/ regulation on e-waste including the 16.5% that are not sure or undecided about knowing any e-waste legislation in the state. Additionally, only about one quarter have the knowledge of the possibility of reusability of used electronics. Majority of the respondents purchased electronic products due to the desire for new technology and need for greater functionality. However, they lack direct contact to dispose off the older and damaged electronics for recycling or economic reward once the electronics are damaged or obsolete. Therefore, public awareness campaign should be done through the use of public media such as billboards, posters, TV/ Radio sets to convey the message to the target audience. Finally, informal waste collectors and scavengers could be gainfully employed to collect and submit discarded e-waste, to help mop-up wrongly disposed e-waste.
Keywords: Environmental Health, E-waste Hazard, Disposal, Dumpsites, Reduction, Re-use, Recycle, Recover, (WEEE) Waste Electrical and Electronics Equipment.

Introduction

Studies conducted on Indian e-waste policy awareness described public awareness of government policy and e-waste hazards as key to both active participations in management systems and the ability to put pressure on producer compliance towards e-waste management (Sinuj, 2014). The level of public awareness regarding e-waste hazards, purchasing, disposal and management strategies in Nigeria determines the level of e-waste generation and contamination (Ongondo *et al.*, 2011). Thus, with the proper public infrastructure and greater awareness, the government could motivate the public to partake in e-waste management strategies (Afroz, Masud, Akhtar, and Duasa, 2013).

Most Nigerians make use of and dispose off old or damaged electronic devices without any prior knowledge of the composition of such waste, there effects on health and environment and the regulatory laws governing the disposal of such waste (Ongondo *et al.*, 2014). Consumer electronics are the fastest growing sector of municipal solid waste (MSW) in both developed and developing countries and arguably one of the most toxic (Osibanjo, 2007). Hence, the need to improve the level of awareness on electronic waste generation and disposal is a matter of urgency, in order to prevent future catastrophic events related to e-waste (Ongondo *et al.*, 2014). Knowledge is key to getting a solution to the problem of e-waste generation and disposal (Ongondo *et al.*, 2014).

The study was limited to Kaduna South LGA in Kaduna Metropolitan area. It has an area of 59km^2 and a population of 605,049 according to the 2006 national population census. Kaduna South LGA is among the three Local Government Areas that made up Kaduna metropolis: these include Kaduna South, Kaduna North and Chikun LGAs, making up the Capital of Kaduna State (Kaduna State Environmental Protection Agency, 2019). The study shall be covering on the public awareness regarding e-waste hazards, purchasing, disposal habits and challenges related to e-waste management in the state (KEPA, 2019). The international boom in technological innovation has propelled the global electronics industry to become the largest manufacturing industry in the world (Wath, Sushant, Dutt & Chakrabarti, 2011).

The International Telecommunication Union, ITU (2020) reported, discarded electrical and electronic equipment (such as phones, laptops, fridges, sensors and TVs) is referred to as e-waste or Waste, Electrical and Electronic Equipment (ITU, 2020). E-waste is a growing challenge, matching the growth of the information and communication technology (ICT) industry (ITU, 2020). Currently, there are more mobile cellular subscriptions on earth than there are humans (ITU, 2020). Studies carried out by the International Telecommunication Union (2020), emphasized that since 2014, the global generation of e-waste has grown by 9.2 million Metric tonnes (Mt) (21%). The fate of over four-fifths (82.6% or 44.3 Mt) of e-waste generated in 2019 is unknown, as well as its impact on the environment (ITU, 2020).

Improper e-waste management contributes to global warming, especially since refrigerants in some temperatures are potent greenhouse gases exchangers (ITU, 2020). A total of 98 Mt of CO2-equivalents were potentially released into the atmosphere globally in 2019 from the discarded fridges and air conditioners that were not managed in an environmentally sound manner (ITU, 2020). Hazardous chemicals typically found in e-waste include (but are not limited to) various heavy metals–mercury, cadmium, and lead–Brominated Flame-Retardant plastics (BFRs) that can easily be converted into dioxins and furans when burned at high temperatures, and polychlorinated biphenyls (PCBs) (Terada, 2012).

It contains more than a thousand different substances, which fall under "hazardous" and "non-hazardous" categories (Terada, 2012). Broadly, it consists of ferrous and non-ferrous

metals, plastics, glass, wood and plywood, printed circuit boards, concrete and ceramics, rubber and other items (Terada, 2012). Iron and steel constitute about 50% of the WEEE followed by plastics (21%), non-ferrous metals (13%) and other constituents (Terada, 2012). Non-ferrous metals consist of metals like copper, aluminium and precious metals like silver, gold, platinum, palladium and more (Wath *et al.*, 2010). The presence of elements like lead, mercury, and arsenic, cadmium, selenium, and hexavalent chromium and flame retardants were beyond threshold quantities in WEEE, which e-waste classifies as hazardous waste (Wath *et al.*, 2011).

A similar public awareness study was conducted in Kuala Lumpur, which is the capital city of Malaysia, a country with similar issues of domestic production and import of WEEE to India (Afroz, Masud, Akhtar, and Duasa, 2013). The researchers found that 59% of respondents had some knowledge about the health and environmental impacts of e-waste, and that 65% considered environmental factors when purchasing electronics for household use. Unfortunately, very few respondents seemed to put this knowledge to its full use, as only 2-3% were involved in the recycling of e-waste. However, 52.5% of households surveyed were willing to pay to improve the WEEE management system in Kuala Lumpur (Afroz, Masud, Akhtar, and Duasa, 2013).

The United Nation Environmental Protection (UNEP) (2017), defined electrical and electronic products (e-products) as any household or business item with circuitry, or electrical components with power or battery supply. This includes products from basic kitchen appliances to computers to cellphones (UNEP, 2017). The significant potential risks and adverse hazardous effects of e-wastes to humans, livestock and ecosystem were established to be on the increase (Central Pollution Control Board, 2003). Every day, household use e-products, which are also becoming increasingly integrated in transport, energy supply, health, and security systems, making them a major part of modern society (UNEP, 2017). These gadgets become e-waste when it is useless, damaged, nonfunctional or obsolete to use (UNEP, 2017).

However, research by Azodo; Ogban and Okpor (2017), stated that lack of awareness and cautionary information on effective and appropriate management operations associated with this e-waste may pose potential threat to human health and the environment. Wath *et al.*, (2011) expressed that e-waste dismantling or incineration is considered toxic. Therefore, they are targeted for reuse, recovery or hazardous waste disposal (Wath *et al.*, 2011). The recovery of metals is a profitable business, which results in local, trans-boundary and global trade (Wath *et al.*, 2011). According to studies carried out by Okoye and Odoh (2014), public awareness is critical in achieving environmental attitudes, skills and behaviour consistent with sustainable development and environmental protection. Awareness is an important tool for sensitization of public opinion to environmental issues and challenges. Educating all and sundry on the importance of environmental protection is one of the most effective ways to protect nature (Okoye and Odoh, 2014). Literatures have shown that most developing nations of the world, Nigeria inclusive, use dump sites, lack collection point for electronic waste, time to transport the e-waste to the safe disposal site, appropriate infrastructure for sound hazardous waste management and lack of awareness among both individuals and the informal sector on the dangers of electronic waste (Paul and Tshetlhane, 2013; Lundgren 2012; Terada, 2012; Basel Action Network, 2011; SAICM, 2009).

Van der Voet; Salminen; Eckelman; Mudd; Norgate; Hischier (2013), highlighted that all e-products come with a life expectancy, and once they stop functioning or new technology makes them obsolete, they must be discarded. Electronic waste (e-waste) is a term used for all types of e-products, and their parts, which was added to replace that discarded material as waste without the intention of reuse (Van der Voet *et al.*, 2013). Around 50 million metric tons of e-

waste are generated globally per year, with an average of more than 6 kg per person (Van der Voet *et al.,* 2013). Poor level of awareness of people in general on the hazardous nature of e-waste as well as crude and unskilled approaches to e-waste management has adversely contributed to the e-waste problems in Africa (eStewards, 2013).

Baldé, *et al.,* (2017) highlighted the Significance of e-waste management to governmental and legislative authorities to enforce regulations and policies to ensure proper management of the returned used products and end of life cycle products (Baldé, *et al.,* 2017). European Union is one of the few regions in the world which has a legislation regarding the e-waste collection and management (Baldé, *et al.,* 2017). With about 3.75 million computers in addition to the 0.25 million bought in the formal market, the total figure bought per year comes to about four million computers; and this are daring statistics when it is viewed from the e-waste angle (Efem, 2008).

Objectives of the Study

1. To assess the extent to which awareness of e-waste hazard affect public disposal habit.
2. To examine the extent to which the public have an awareness on e-waste implication on health and environment.
3. To assess the extent to which awareness of e-waste hazard affect the purchasing habit among residents of Kaduna South LGA.
4. To examine the extent to which Kaduna State Environmental Protection Agency (KEPA) and NASREA educate the public on policies and laws regulating e-waste hazard, purchasing and disposal habit.

Research Questions

1. To what extent does the awareness of e-waste hazard affect public disposal habit?
2. To what extent does the public have an awareness on e-waste implication on health and environment?
3. To what extent does the awareness of e-waste hazard affect the purchasing habit among residents of Kaduna South LGA?
4. To what extent does Kaduna State Environmental Protection Agency (KEPA) and NASREA educate the public on policies and laws regulating e-waste hazard, purchasing and disposal habit?

Methodology

The tool used for data collection was a questionnaire developed after consultation of related studies. The same was pretested and validated for the study purpose efficacy and suitability. The designed questionnaire was divided into four sections and the categories of information assessed in each of the sections includes, participant's demography, effect of awareness e-waste hazard on public disposal habit, public awareness on e-waste health and environment implication, effect of public awareness the purchasing habit among residents, role of Kaduna State Environmental Protection Agency (KEPA) and NASREA in educating the public on policies and laws guiding e-waste management.

The Likert scale tool was adopted in the questionnaire to measure public response to the questions, that is, the response variables for the questions enumerated under e-waste knowledge, awareness, purchasing and disposal habit each of which were assigned with 5 for Strongly Agreed, 4 for agreed, 3 for undecided, 2 for disagree and 1 for strongly disagreed. Data collected were from various sources, these include; primary and secondary data. Primary data were collected through the following means; interview, observations from the field and

answers gotten from randomly distributed questionnaires to the residents of Television, Tudun Wada, Makeri, Barnawa and Kakuri areas of Kaduna South LGA, Kaduna state. While, secondary data were gotten from books, journals, encyclopedia and other published articles related to e-waste management.

Using Krejcie and Morgan (1970) sampling frame method of determining sample size, population of over 146,000 at a confidence level of 95% and error margin of 5% we arrived at a sample size of two hundred and twenty 220. The sampling techniques adopted for this research work are the simple random technique, purposive and the cluster sampling techniques. The purposive random technique was adopted for sampling the community members in order to administer the questionnaires to areas with high rate of e-waste generation. The response rate for the two hundred and twenty questionnaires distributed to the formal and informal sectors as well as individual respondents in Kaduna South Local Government of Kaduna State (200/220) 90.9%. Meaning 90.9% of the respondents returned their responses, suitable for analysis. The predominant age range among the participants was 16-30 years (54.8%). One hundred and fifteen (115) participants representing 57.5% of the study population were male while the remaining 42.5% were female. Most of the participants (80.1%) reside within Kaduna South LGA of the State.

Results

Research Question 1

To what extent does the awareness of e-waste hazard affect public disposal habit?

Table 1: Mean scores of responses on extent to which awareness of e-waste hazard affect public disposal habit (Cut-off Mean =3.0)

Variable Description	SA	A	UND	D	SD	Mean	STD
Awareness of e-waste hazard and its effect on public disposal habit	60 (30%)	45 (22.5%)	25 (12.5%)	30 (15%)	40 (20%)	3.2	1.51

The data in Table 1 shows descriptive statistics of participants' responses to extent of awareness on e-waste hazard and its effect on public disposal habit of Kaduna State residents. The score of 3.2 exceeds the cut-off threshold of 3.0, hence it reveals that awareness of e-waste hazard affect public disposal habit among residents of Kaduna South LGA.

Research Question 2

To what extent does the public have an awareness on e-waste implication on health and environment?

Table 2: Mean scores of responses on extent to which public have awareness on e-waste implication on environment (Cut-off Mean =3.0)

Variable Description	SA	A	UND	D	SD	Mean	STD
Public awareness on e-waste implication on health and environment	20 (10%)	30 (15%)	33 (16.5%)	45 (22.5%)	72 (36%)	2.6	1.46

The data in Table 2 shows descriptive statistics of participants' responses to extent of public awareness on e-waste implication on health and environment among Kaduna State residents. The score of 2.6 is less than the cut-off threshold of 3.0, hence it reveals that public awareness of e-waste implication on health and environment is low among residents of Kaduna South LGA.

Research Question 3

To what extent does the awareness of e-waste hazard affect the purchasing habit among residents of Kaduna South LGA?

Table 3: Mean scores of responses on extent to which awareness of e-waste hazard affect the purchasing habit among residents of Kaduna South LGA (Cut-off Mean =3.0)

Variable Description	SA	A	UND	D	SD	Mean	STD
Awareness of e-waste hazard & its effect on purchasing habit of residents of Kaduna South LGA	65 (32.5%)	45 (22.5%)	20 (10%)	34 (17%)	36 (18%)	3.3	1.44

The data in Table 3 shows descriptive statistics of participants' responses to extent of awareness on e-waste hazard and its effect on purchasing habit of residents Kaduna South LGA. The score of 3.3 exceeds the cut-off threshold of 3.0, hence it reveals that awareness of e-waste hazard does affect purchasing habit among residents of Kaduna South LGA.

Research Question 4

To what extent does Kaduna State Environmental Protection Agency (KEPA) and NASREA educate the public on policies and laws regulating e-waste hazard, purchasing and disposal habit?

Table 4: Mean scores of responses on extent which Kaduna State Environmental Protection Agency (KEPA) and NASREA educate the public on policies and laws regulating e-waste hazard, purchasing and disposal habit

Variable Description	SA	A	UND	D	SD	Mean	STD
Efforts of KEPA and NASREA on awareness campaign on policies and laws regulating e-waste hazard, purchasing and disposal habit	10 (5%)	25 (12.5%)	32 (16%)	85 (42.5%)	48 (24%)	2.3	1.57

The data in Table 4 shows descriptive statistics of participants' responses to extent of awareness campaign/education on policies and laws regulating e-waste hazard, purchasing and disposal habit of residents of Kaduna South LGA. The score of 2.3 is less than the cut-off threshold of 3.0, hence it reveals that there is low level of educational campaign efforts by KEPA and NASREA relating to policies and laws regulating e-waste hazard, purchasing and disposal habit in Kaduna South LGA.

Discussion of Findings

From the chats above, it was observed that 60 respondents which constitute 30% of the respondents strongly agreed that the awareness of the hazards posed by e-waste greatly affect the disposal habit of the public in an environment. 45 which constitute 22.5% of the respondent agreed that the awareness of e-waste hazard positively affect public disposal habit. 25 which constitute 12.5% of the respondents are in-between while 30 which constitute 15% of the respondents disagreed and 40 which constitute 20% strongly disagreed that the awareness of e-waste hazard positively impacts public disposal habit. Thus, this shows that 52.5% of the respondents accepted the fact that providing a sufficient awareness on e-waste hazards can positively affect the disposal habit of the public with respect to electronic waste. This response answers research question one that awareness on e-waste hazard affect disposal habit.

While, 58.5% of the respondents disagree or do not accept that there is a significant public awareness regarding the implication of e-waste on health and environment. Also**,** this has answered research question two that there is a low level of awareness in the society regarding e-waste hazards, health and environment implication. However, 55% of the residents accepted that public awareness about e-waste hazard on health and environment will greatly affects and will go a long way to regulate the attitude and control public attitude towards purchasing and disposal of electronic waste among residents in Kaduna South Local Government Area of the State.

Finally, 66.5% disagreed to having the knowledge about any policies or regulation on e-waste. They also disagreed with the statement that the Kaduna State Environmental Protection Agency (KEPA), NASREA or any Non-Government organizations regularly educate the public on policies and laws regulating e-waste hazards, handling, disposal or reuse. Hence, there is general lack of information dispensation from governmental authorities to communities. Therefore, the need for all government and non-governmental organizations to do more in creating public awareness and campaign to draw people's attention to the basic knowledge of what e-waste which represents policies & regulations governing the use, reuse, recycling and disposal of electronic waste materials. The need to disclose the idea of e-waste taking over our environment and certainly the risk to our health and environment is crucial. This awareness campaign will definitely affect the manner of purchasing and disposal habits of electronics among residents in Kaduna South Local Government Area, the State and nation at large.

Thus an increase in public awareness will definitely affect the manner and habit of disposal and burning of e-waste indiscriminately. This will also affect the rate of consumer and manufacturer interest in the 4Rs (Reduce, Re-use, Recover and Recycle before finally disposing), for health, environmental and economic gains.

Conclusion

The present study attempted to assess public awareness of both toxic chemicals in WEEE, e-waste hazard, federal policies and how it affects proper disposal and management of e-waste, an extra step and contribution to the study of e-waste management in Nigeria. The questionnaire data greatly validated previous claims that technological innovation has led to rapid product obsolescence, as majority of respondents indicated that there is the need or desire for new technology to motivate them to purchase new products. The data also pointed to lack of government incentive for the consumer to participate in formal e-waste management strategies – strikingly, the number of respondents who never knew of formal e-waste services outnumbered those who actually knew and participate in them.

Majority of respondents agreed that the use of billboards/ posters and TV/ Radio set as a means of creating awareness will go a long way to educate the populace on the hazard attached to poor management of electrical waste materials as well as enlighten them on the economic wealth and benefits that lies in recycling e-waste and solid waste in general. Perceptions of unused electronics indicated that approximately a quarter of respondents recognized the possibility of end-of-life recycling and reprocessing, while other responses suggested a disconnect from proper e-waste management. As 52.5% of the respondents agreed that the knowledge and awareness of e-waste will definitely affect their attitude, ways and manner used in handling e-waste, it will as well reduce indiscriminate throwing away, dumping and burning off e-waste while encouraging the culture of electrical waste recycling and segregation.

Recommendation

1. From the findings of this study, it can be concluded that public awareness regarding e-waste hazard is quite low while the effects of the awareness on purchasing and disposal habit is quite significant due to the fact that most individuals tend to be proactive at the hearing of the health and environmental impact of indiscriminate disposal of e-waste while the value attached to the scraps and vital components of the e-waste makes a lot of people interested in carefully selecting and disposing their electronics for the purpose of recycling and monetary gain.
2. Government at all level should negotiate with private electronic manufacturers on how to recover damaged and end-of-life e-waste from consumers, with some monetary reward attached to it. Public awareness campaign should be embarked on e-waste hazard and disposal habit within households and communities. This should be promoted through social media, billboards, posters and radio houses as these are the easiest and fastest means of transmitting information and creating mass awareness. Reduction, reuse and recycling of e-waste are the best measure for waste management, health and environmental control as against the usual land filling method. Also, manufacturers and government agencies should create a means or medium of collecting damaged electronics from households, monetizing such collections and recycling this e-waste for income generation and environmental protection.
3. Government agencies such as NESREA, NOSDRA, Ministry of Environment and KEPA should take up the responsibility of educating the citizens on e-waste hazard to health and environment, and policies that guide against indiscriminate disposal or burning of e-waste. By doing so, many households and members of community will take responsibility of disposing the waste to the right place and facilitates in ensuring environmental safety and health condition of the citizens through an integrated e-products use and recycle.
4. The study recommends that further research should be conducted to ascertain the major implication of lack of clear policy, regulations and laws on e-waste management in Kaduna State and Nigeria in general. The study should also be conducted on the possibility of training special e-wastes scavengers and vendors to reduce the level of risks and hazards to both citizens and scavengers.

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