IRG

International Research Group

1st International Virtual Conference

Abstract Book

Theme: Strengthening and Contextualising Research as a Catalyst for Attaining the African Union's Agenda 2063 in Teaching and Learning

Sub-Themes:

1. **Cultural Diversity in learning and teaching STEM concepts**
2. **Climate Change, Research and Dissemination for Sustainable Development**
3. **Gender and Equality in Research and Innovation**
4. **Beginning STEM literacy**
5. **Contextualization of Research**

Date: July 11 – 12, 2023

About IRG

The International Research Group is an international and interdisciplinary team of academics and professionals working together to advance the field of research as a driver of progress around the globe. The group is particularly interested in mentoring young academics to perpetuate progressive, top-notch scholarship around the world. A diverse collection of scientists, social scientists, humanists, and technologists from all over the world – including Africa, and Americans – have come together to form the group. In order to encourage policymakers to base their choices on evidence, members of the organisation actively participate in research, its dissemination, the formation of partnerships, and policymaker engagements. Members of this research group have frequent online meetings where they discuss their latest discoveries, brainstorm potential new areas of study, and plan future collaborations. The membership of the organization is fluid, and anybody interested in helping the network advance its mission of encouraging research for development, particularly in Africa, is invited to sign up.
Under the distinguished leadership of great academic mentors and globally renowned researchers, Distinguished Professor Peter A. Okebukola (Nigeria), Professor Juma Shabani, Lady Sue Dale Tunnicliffe (UK), Professor Rosy Agholor (USA), and Professor Yinka Ogunlade (Nigeria).

Summary of the Conference

The African Union's (AU) Agenda 2063 is an ambitious plan for the structural transformation of Africa (Addaney, 2017). At a summit held during the AU (OAU's) golden jubilee in 2013, the heads of state and government proclaimed their intent to advance in key strategic areas that would be incorporated into national development programmes and plans (African Union, 2015). This they envisaged to achieve over the next 50 years, by the AU's centenary celebration in year 2063, thus the name 'Agenda 2063.'

This strategic plan is a long-term strategy for making Africa a better, more peaceful place via broad-based economic growth and a commitment to cutting-edge research and development. The agenda is based on and inspired by the hopes of the people of Africa for progress, which led to a wider continental discussion. Governments, non-profits, think tanks, academic institutions, the African diaspora, women, children, and business leaders were all consulted in drafting this strategic plan (African Union, 2015).

The agenda is underpinned by the African Union's seven aspirations for the continent. The seven aspirations include:

1. A prosperous Africa, based on inclusive growth and sustainable development
2. An integrated continent, politically united and based on the ideals of Pan-Africanism and the vision of Africa's renaissance
3. An Africa of good governance, democracy, respect for human rights, justice and the rule of law
4. A peaceful and secure Africa
5. An Africa with strong cultural identity, common heritage, and values
6. An Africa where development is people-driven, unleashing the potential of its women and youth
7. Africa as a strong, united and influential global player and partner

Despite its significance, Africa accounts for less than 1% of total global research output (Chu, Jayaraman, Kyamanywa & Ntakiyiruta, 2014). This is in sharp contrast to the situation in the majority of high-income nations, where research is gaining growing attention and funding as a result of its recognised contribution to health and economic growth (Khan, 2015). Inadequate research in Africa results in data gaps, which are a significant impediment to the development and implementation of developmental projects (Ngongalah, Niba, Wepngong & Musisi, 2018). The scarcity of precise and trustworthy data makes effective monitoring and assessment of current initiatives even more difficult.

In the absence of rigorous and high-quality research, Agenda 2063 may seem like a mirage, and the African continent could regrettably remain underdeveloped. The success of Agenda 2063, therefore, cannot be extricated from the rigorous participation of the continent's intelligentsia in meaningful research. The continent's most significant problems may be addressed with the help of this engine for innovation, development, and growth, which is research.

Thus, there is a growing need to enhance and contextualise research within the African context in order to overcome these problems and to fully exploit the promise of research in Africa. Research is the only way to collect the data needed to formulate effective policies, identify emerging dangers, and evaluate the results of programmes (Ngongalah, Niba, Wepngong & Musisi, 2018). Improving the continent's research capacity is, therefore, essential for maintaining momentum towards achieving Agenda 2063's goals.

In view of this, a conference on "Strengthening and contextualising research as a catalyst for realising the AU's Agenda 2063," is very pertinent to Africa's developmental goals. In order to deepen and contextualise research in Africa, this conference will bring together researchers, academics, policymakers, development partners, and other stakeholders to exchange ideas and plot a path ahead. The conference's discourse on improving the continent's research capacity, cooperation, and partnerships will most certainly have a significant impact on the attainment of Agenda 2063.

The conference theme of "Strengthening and contextualising research as a catalyst for attaining the AU's Agenda 2063" is, therefore, very timely and relevant to Africa's development aspirations.

Conference Planning Committee

Professor Peter A. Okebukola (Facilitator General/Convener)
Professor Juma Shabani (Chairman)
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Table of Contents

Sub-Theme: Beginning STEM Literacy

Development of MATLAB Instructional Package for Teaching Undergraduates Electrical/Electronic Concepts in Federal

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Computer-assisted instruction (CAI) is the utilisation of technologies such as computer, televisions, DVD players, and so on; in enhancing teaching-learning process. The CAI employed in this study is MATLAB Instructional Package (MIP). The main purpose of the study was to develop MATLAB Instructional Package to teach undergraduates electrical/electronic concepts in Federal University of Technology, Minna. Specifically, the study (i) developed MIP to teach EET concepts; and (ii) validated the developed MIP by experts. One-shot case study pre-experimental design was adopted for the study. An intact class of 100 level technology education students of the Department of Industrial and Technology Education, Federal University of Technology, Minna was used as sample for the experimental study. Five research instruments were used for the study. Research question one was answered qualitatively. Research question one was answered qualitatively. Research question two was answered using descriptive statistics. Findings of the study were that: i. researcher developed MATLAB Instructional Package for teaching undergraduates electrical/electronic concepts; ii. experts rated the developed MATLAB Instructional Package excellent; The study concluded that the comprehension level and performance of students when taught EET using MIP were high and excellent respectively. The findings revealed that students can learn EET concepts either individually or in a collaborative manner through effective utilisation of the MIP. The implication here is that well-equipped laboratories with functional computers, digital projectors, interactive boards, and related facilities should be made available to Technical and Vocational Education departments. The study recommends the integration of CAI in teaching TVET.

How do Junior Secondary School Basic Science Students perceive Wetlands: As Wastelands or Treasure Trove?

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Global efforts are springing up on redeeming nature's inestimable gifts: wetlands. In addition to these global efforts, it is imperative to investigate secondary school students' perspective of wetlands, as present and prospective users of wetlands who could be policy makers or implementers on environmental issues. This study investigated junior secondary school Basic Science students' perception of wetlands. A total of 855 junior secondary school (J.S.S) students were randomly selected from forty secondary schools in three education districts of Lagos state, Nigeria. A descriptive survey research design was adopted; using a structured questionnaire with a reliability value of .73 to collect data. Four research questions were answered with percentage, mean and standard deviation; and, two null hypotheses were tested with independent sample t-test. The results indicate that 60% of the students were aware of the concept of wetland, but only 37% of them traced the awareness to school lessons. With very low standard deviation, the mean scores show that: homogeneously, the students agreed that wetlands are treasure trove; and were undecided if wetlands are wastelands or not. Also, no significant difference was noted between the male and female students' perception about the wetlands [t (852) = .841, p = .400]. This study submits that there is need for more teaching and learning on wetlands among J.S.S students to further expose them to wetlands as rich ecosystems. It becomes imperative that the students are acculturated with enlivening practices in a spiral-style and become involved in restoring practices to salvage the observed loss of wetlands.

WhatsApp Usage among Undergraduates for Academic Purposes in Ondo State Universities, Nigeria

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WhatsApp messenger is being used by several individuals, including undergraduates in tertiary institutions. WhatsApp have brought tremendous improvement in the communication system in educational system and the entire global sphere. It is available in the various electronic items such as I-phone, Android, Windows Phone and Computer. The present study is focused on WhatsApp usage among undergraduates for academic purposes in Ondo State, Nigeria. Specifically, the study determined the extend at which undergraduates aware of the use of WhatsApp for academic purposes, investigate the level of utilization and find out the effect of WhatsApp on academic performance of undergraduates. The study adopted descriptive research method and three (3) research questions were raised and answered. One hundred and fifty (150) respondents were sampled using simple random technique. A self-designed 4-point likert-scale was used to collect data. Two educational technology experts validated the instrument to ensure content and the validity. The reliability of the instrument was examined using Cronbach's Alpha and it yielded 0.80 value. Data collected were analysed using percentage, mean and standard deviation to answer the research questions raised. The finding showed that undergraduates were aware and utilize WhatsApp for academic purposes and it has positive effect on their academic performance, if well utilized. The study concluded that WhatsApp is an effective tool for academic purposes. It was therefore recommended that management of tertiary institutions should intensify guidance and counselling sessions on the appropriate use of WhatsApp for academic purposes in their respective institutions and to educate undergraduate on the danger of regular use of WhatsApp for other purposes rather than academic purposes.

Effect of Hyflex Learning on Students' Academic Performance in Education Technology in Kwara State

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The study examined the effect of Hyflex learning on Students Academic Performance in Education Technology in Kwara State. The study was guided by two research questions and two null hypotheses was postulated for the study. The study adopted a quasi-experimental research design of 2 x 2 factorial design. The population for the study consisted of all undergraduates' students in University of Ilorin. The target population were all 400 level undergraduates' students in the department of educational technology offering EDT 412. A sample size of 152 undergraduates' students participated in the study. Two groups were involved in the study which are both intact classes. The

experimental group where full-time undergraduates' students while the control group were sandwich undergraduates' students. The instrument used for data collection was an educational technology performance test which was validated by three educational technology experts. The coefficient of internal consistency value of 0.82 was obtained for the instrument using split-half method. Data collected were analysed using descriptive and inferential statistics. Descriptive statistics of mean and standard deviation was used to answer the research questions while inferential statistics of t-test was used to analyse the research hypothesis. The findings of the study revealed that hyflex learning effectively improved performance of undergraduate student in education technology. Both male and female undergraduates' students in the experimental group performed better their counter parts in the control group, though the male students had a higher mean score than their female counterparts. There is a significant difference between the mean post-test score of students taught educational technology using hyflex learning relative to their counterparts taught using lecture method and there is a significant interaction effect of gender on the mean scores of students in the experimental group. It was therefore recommended among others that institutions should adopt hyflex learning as a pedagogy because it offers flexible learning opportunities among undergraduates' students.

Harnessing the Power of Virtual Laboratory on Achievement, Critical Thinking and Retention Ability in Biology

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The study investigated the impact of virtual laboratory on the achievements, critical thinking and retention ability with a specific focus on the aspects of nutrition. The study was guided by five research questions and five hypotheses and adopted a mixed method design. Two private senior secondary schools comprising of 51 (31 males, 20 females) students taught using the Virtual Laboratory and 49 (24 males, 26 females) students taught using the conventional lecture method made up the sample. Quantitative data was gathered through the use of Nutrition Achievement Test (NAT) with a split half reliability coefficient of 0.84 and Nutrition Critical Thinking Test (NCTT) with a split half reliability coefficient of0.71. Students' perception were gathered through Nutrition Interview Protocol (NIP) to collect the qualitative data for the study. Analysis of co-variance (ANCOVA) was used to test for significant differences between the two groups at 0.05 level of significance. The result revealed in the mean achievement scores of students taught using Virtual laboratory and those taught using the lecture method [(experimental=13.55) (Control=10.27); F(1.97)=0.02;p<0.05]. The result revealed in the critical thinking scores of

students taught using Virtual laboratory and those taught using the lecture method [(experimental=9.92) (Control=6.65); F(1.97)=0.00;p<0.05]. The result revealed in the retention ability of students taught using Virtual laboratory and those taught using the lecture method[(experimental=(15.39) (Control=10.96); F(1.97)=0.00;p<0.05]. The result in the achievement scores of male and female students taught using Virtual laboratory and those taught using the lecture method [(experimental=(13.15) (Control=13.96);F(1.48)=0.48;p>0.05]. Students' perception was generally positive.

Blended Online and Offline Learning Environment and Prolonged Retention of Mathematical Skills

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The explosion of handheld devices in Nigeria has placed forgetfulness among mathematics students on proportionate rise with e-information. The urge for long-term-retention of mathematical concept has been eroded with reliance on digital contents as students now have ease of access to millions of e-information at their beck-and-call. Deliberate attempts by some Nigerian teachers towards breaking the seemingly impregnable cycle of consistent negative interest and under-achievement in mathematics have been abortive, as previously high-achieving students with relatively long-term-retention have become mathematically disinterested underachievers. As an excerpt of a thesis submitted for the award of doctor of philosophy in Mathematics Education, this study explored strategies that can effectively prolong acquired mathematical skills. With a sample of 159 purposively sampled senior secondary school II students exposed to pre-test, posttest, post-post-test non-equivalent, non-randomized atmosphere groups, the quasi-experiment recorded significant effect of blended environment on students' rate of retention of mathematics skills [F(2; 152)= 113.26; p=0.00]; but not due to gender [F(1; 152)=0.61; p=0.44]; and no significant interaction effect of blended environment and gender on retention rate of students in mathematics [F(2; 152)= 0.81; p=0.45]. It was concluded that exposing students to both offline and online jigsaw environment is sufficient for accumulation of mathematics practices, interactive online/offline feedbacks, transfer and retain previously learnt skills beyond expectations. So Mathematics teachers need to create jigsaw enabled atmosphere for student-student, student-teacher and student-material interactions.

Constructive and simulation Teaching Strategies and Skill Performance of Physical and Health Education Students in Lagos State University, Nigeria

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Health Education students selected using simple random sampling technique. Three hypotheses were formulated and self-structured and validated questionnaire with 4 point modified Likert Scale of “Strongly Agree, (SA), Agree-(A), Disagree-(D) and Strongly Disagree, (SD)” titled “Constructive and Simulation Teaching Strategies Questionnaire (CSTSQ,, r=0.89) was used for data collection and the collected data were analysed using frequency count, percentage, regression analysis at the 0.05 level of significance. The result indicated that constructive teaching strategy (X=58.90 P=0.001<0.05, 21 0), simulation teaching strategy (X=58.90 P=0.001<0.05, 21 0), and constructive simulation teaching strategies (X=58.90 P=0.001<0.05, 21 0) had significant influence on PHE student’s skill performance. The study concluded that constructive and simulation strategies can be used unilaterally and combined to enhance Physical and Health Education skill performance among undergraduates.

From Chalkboard to Keyboard: Effects of the Paced Flexible Model on the Achievement of Students in Biology

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The current generation of secondary school students has been raised in an environment characterised by extensive exposure to digital technology. Consequently, there is a need for teachers to make a transition from traditional teaching methods, such as using chalkboards, to incorporating technology into the classroom. This adaptation is essential in order to effectively engage and educate students in today's digital age. In light of this, the Paced Flexible Model was designed as a method of teaching that guarantees maximum and dynamic

participation of students via a virtual learning environment and its effect was examined on the achievement of secondary school students in variation and evolution. The design was quasi-experimental, and the sample comprised 90 students from two purposively selected schools. The intact classes of these schools were used as experimental (n = 47) and control groups (n = 43). Variation and Evolution Achievement (VEAT) was used to collect quantitative data. The reliability value of 0.76 was established using test-retest. In the experimental group, the paced flexible model was used to teach students about variation and evolution. The students were exposed to videos of the lesson as well as reading materials, discussion forums, and weekly quizzes. In the control group, the students had the same learning experience with the conventional lecture method without elements of the PFM. The collected data were analysed using analysis of covariance (ANCOVA). The results from the analysis showed that students who were taught using the PFM performed better than their counterparts taught with the lecture method $F(1, 87) = 7.54$; $p<.05$. This led to the conclusion that, when compared to the conventional strategy, the PFM boosted achievement in variation and evolution concepts. In light of this, it's critical to promote additional research into these instructional strategies in order to support or refute this assertion.

Sub-Theme: Climate Change, Research and Dissemination for Sustainable Development

Strategies for Production of Quality Teachers and Facilitators for Sustainable Education in Lagos State Nigeria

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Sustainable education is a holistic approach to learning that aims to foster the development of knowledge, skills, values and attitudes that enable learners to contribute to a more equitable and sustainable world. Quality teachers and facilitators are essential for the implementation of sustainable education, as they can inspire, motivate and guide learners to achieve the desired learning outcomes. This study therefore investigates the strategies for production of quality teachers and facilitators for sustainable education using some purposively selected Public Senior Secondary schools in Ojo Local Government of Lagos State as a case study. The study adopted descriptive survey research design, while random sampling method was applied at selecting the sample of 10 Secondary school teachers from each of the five (5) purposively selected Public Secondary schools making the total of 50 respondents. The instrument used for the study was research questionnaire which was used to elicit responses from respondents. The questionnaire was given to two (2) experts in test and measurement department for content and construct validation. It was also subjected to test re-test method of analysis to establish its reliability co-efficient (r) of 0.86. The data collected from the respondents was analysed using IBM SPSS version 26 to analyse the respondents' personal data and the hypothesized objectives. The study found that, there is significant effect of educational policy on production of quality teachers and facilitators for sustainable education; there is significant influence of educational curriculum and assessment on the production of quality teachers and facilitators for sustainable education and finally there is significant impact of professional development on production of quality teachers and facilitators for sustainable education within the study area. The study concludes that producing quality teachers and facilitators for sustainable education is a complex and dynamic process that requires continuous improvement and innovation. The study therefore recommends that there is need for promotion of collaborative and reflective learning among teachers and facilitators. The researcher equally recommends that there is need

for government at all levels to create supportive and enabling environments for teacher education.

Post Covid-19 Lockdown Teachers Instructional Adjustment as Predictors of Pupils' Academic Performance in Ilorin

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This study assessed Post COVID-19 lockdown teachers' instructional adjustment as predictors of pupil's academic performance. The study examined; teacher's instructional adjustment after the COVID-19 lockdown in Ilorin. The study adopted descriptive survey design as its research design. The study adopted simple random sampling in selecting all the sampled schools for sampling. A researcher designed questionnaire with face and content validity and a reliability index of 0.79 was used to collect data for the study. The study also used proforma to collect the result of pupils The collected data was analyzed with both descriptive and inferential statistics at 0.05 level of significance. The study revealed that; teachers' instructional adjustment during the COVID-19 lockdown in Ilorin include; WhatsApp, whole-class synchronous text-based discussion, telegram and lecturing presentation screen; 47 (24.48%) of the sampled pupils passed with an A grade, 17.71% had B grade, 14.06% had C while 29.69% failed; instructional adjustment is not a predictor of students' academic achievement in Ilorin; there is no significant difference in teachers' instructional adjustment both in private and in public schools post COVID-19 lockdown in Ilorin based on the school type; there is no significant difference in the instructional adjustment of male and female teachers' post Covid-19 lockdown in Ilorin based on gender. The study concluded that, the instructional adjustment of teachers in Ilorin during the COVID-19 lockdown was not significant as there was not extraordinary attain in their academic performance. This implies that, the teachers would do well if they had learnt to integrate ICT effectively before the lockdown. It is therefore recommended that More ICT tools should be made available to basic school teachers in Ilorin to improve their teaching- learning process.

Public Enlightenment on challenges of climate change for National Security

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This paper examines the challenges posed by climate change on Nigeria National security. The study A descriptive research design was adopted for the study; undergraduates of three universities in Kwara State consisted of the population.

There are a total of 32,023 undergraduates in Kwara State, out of which 1,491 cut across all levels and gender. A questionnaire was the only instrument used to elicit the needed data for the study, while ATLAS.ti statistical package was used to answer the research questions. The findings revealed that climate change poses economic, security, administrative, and even political challenges to the nation, among others and recommendations were proffer.

Impact of E-Learning on College of Education Lecturers' Knowledge of Qualitative and Quantitative Data Analysis in Spss

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E-learning is becoming the courseware in this global digital era transforming the ways in which learning takes place. Regardless of distance and time, e-learning is becoming unstoppable with its synchronous and asynchronous mode of instruction. This study investigates the impact of e- learning on lecturers' knowledge of qualitative and quantitative data analysis in SPSS at Federal College of Education (Special) Oyo State, Nigeria. A descriptive survey research design was adopted in the study. A total number of one hundred and fifty (150) lecturers were selected through simple random sampling techniques for the study. Purposive sampling was used to select the school that was adopted for the study. Three (3) Research questions were generated and answered in the study. Data collected from the sampled population by means of a questionnaire were analyzed using simple percentages and mean scores to answer the research questions. The results of the findings revealed that e-learning is an important platform as well as a research and leisure tool which provides various opportunities to many people worldwide, particularly college of education lecturers. The increasing use of e-learning and teaching due to the influx of digital tools has caused a fundamental change in how lecturers analyses data.

Assessing E-Learning Readiness among the Students of Federal University Lokoja, Nigeria

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Higher learning institutions all over the world have undergone tremendous transformation especially since the advent of information communication technology. Such transformation has changed the design and delivery of tertiary education from the traditional teacher centered to learner centered, hence the popularity of e-learning is born. As e-learning becomes important to learning institutions, assessing and understanding the level of readiness for e-learning becomes critical for a successful introduction and implementation. FUL Nigeria is on the process of e- learning implementation, it is therefore of paramount importance to know the level of readiness among students. To serve the above purpose, this study assesses the level of student's readiness among the students of FUL. This research employed a quantitative descriptive method with the aid of questionnaire. The undergraduate students of FUL comprised the population of this study, 310 students were selected using proportional stratified random sampling technique. The instrument was adapted from previous related studies and validated by an expert in the field of educational technology. The instrument was tested reliable. IBM SPSS was used for data analysis. Descriptive analysis, and t-test were conducted in this study. The results from this research revealed two key findings. First, the students are ready for e-learning but needs some improvements. Second, there was no significant difference between male and female students' readiness for e-learning. E-learning readiness construct has a multi-dimensional structure for FUL, implying that government and stake holders should target implementation accross all dimensions for a successful take off.

Estimates and Perceived Influence of Air Quality Within Lagos State University: Enhancing Human and Social Capital through Climate Change

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The development of healthy human and social capital in Africa is cardinal to the achievement of Africa's 2063 vision. The objective of this is to conduct research on air quality status and perceived health status of an academic community a a platform for enhancing human and social capital development. A descriptive survey research design was deployed and a questionnaire was used to collect information from 300 respondents that were randomly selected from all the qualified respondents in the study area. The ambient air quality measurement was done for Particulate Matter (PM 2.5 and PM 10), Nitrogen Dioxide (NO 2), Carbon dioxide (CO 2), Hydrogen Sulphide (H 2 S), Carbon Monoxide (CO), Temperature and Relative Humidity. The level of pollution within LASU was also

compared to National Environmental Standards and Regulations Enforcement Agency (NESREA) and Federal Ministry of Environment, (FMEv) standards. Data gathered were analysed using descriptive and inferential statistics. Based on Federal Ministry of Environment standards, the level of CO shows that there is no associated health risk while the concentrations of O 2 , CO 2 , SO 2 , H 2 S, NO 2 , PM 2.5 and PM 10 were moderate, hazardous, health risk, no health risk, good, healthy, and good respectively. The high values were attributed to the amount of pollutants present in the air because of anthropogenic activities from the area. Hence, ambient air in LASU is found to be relatively polluted. The bicycle and scooter riding culture within campus should be greatly encouraged as well as promoting urban mass transit along the LASU-Badagry expressway to reduce traffic.

Assessment of E-Learning System Adopted by the Universities in Kwara State during Covid-19

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The emergence and explosion of new information and communication technologies (ICT), had introduced an irresistible revolution into education particularly in the areas of teaching and learning. Hence, this advancement in technology has geared up educational system to adopt e-learning system of education in the last decade, especially in few years back of the COVID-19 experience. This study therefore, examined by assessing the e-learning system adopted by the Universities in Kwara State during COVID-19. Qualitative design of phenomenology approach was adopted for the study. Convenience sampling technique was used to select six respondents in different departments in the Faculty of Education, University of Ilorin, Ilorin. Interview was conducted to extract in-depth information from the respondents on the four research questions raised in the study. The interview conducted was transcribed verbatim into textual material and were analysed thematically following the theme and variables in the research questions raised. The findings revealed among others that, students were not satisfied with the e-learning system platforms adopted by the University for instructional delivery during COVID-19 due to the challenges they encountered such as poor network, high cost of data, limited access to the platforms etc. It was recommended the University should take into consideration the costs and technical issues while choosing e-learning system platforms for instructional delivery.

Doping Practice and Associated Factors among Student Athletes in Lagos State Nigeria

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The study examined the practice of doping and associated factors among student athletes in Lagos State Nigeria. 162 student athletes who have represented their institution in sport competition were purposively selected to participate in the study. Data were collected through structured questionnaire and analysed using frequency measures, chi-square and t-test. The findings of the study revealed that there is significant x2(1) = 57.22, p < .005 practice of doping among student athletes in the study area. Gender also have significant effects t(92) = 43.18, p < .005 on doping practice. Some of the common substance abused are tramadol®, alcohol, codeine, marijuana, alcoholic herbal bitters like daberu®, agbara®, bajinatu®, baby oku®, eru jeje®, alomo®, yahoo® among others. Associated factors identified for doping practice include peer influence, desire to feel good, dealing with stressors, such as pressure to perform, injuries, physical pain, improving sexual performance and depression among others. The factors were categorized into psychological factors, social factors and medical factors. student athletes abuse drugs for reasons other than boosting performance, drugs are abused for pleasure, as analgesic, for medical reasons and as aphrodisiac. it is recommended that sport organisations like NUGA, NIPOGA and NICEGA should take issue of doping serious in their competitions by putting strict punishment on athletes and institutions found guilty of doping. Also, contingency management of drug abuse should be adopted, which involves rewarding athletes each time they are tested negative or shun lifestyle that can lead to abuse of drug.

Sub-Theme: Contextualization of Research

Leveraging Classroom Data for Policymaking in Nigeria: A Critical Review of State-Funded Primary School Education

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This abstract critically reviews the utilisation of classroom data for policymaking in Nigeria's state funded primary school education system. The study explores the current practices, challenges, and potential benefits of leveraging classroom data to inform policymaking in Nigeria. Leveraging classroom data has significant potential to enhance policymaking in primary education. Policymakers will gain insights into student performance, identify achievement gaps, and make evidence-based decisions to improve educational outcomes. Classroom data can inform targeted interventions, curriculum development, teacher training programs, and resource allocation strategies. Through a comprehensive literature review and analysis of existing policies and initiatives, this study examined the status quo and identified opportunities for improvement. The findings reveal that while there is growing recognition of the importance of data in educational policymaking, its effective utilisation in Nigeria remains limited. Policymakers need to prioritise the development of comprehensive data infrastructure, invest in data literacy and establish continuous monitoring and evaluation. The lack of data infrastructure, data literacy among stakeholders, and limited data analysis interpretation hinder data-driven decision-making processes. Fostering data-driven cultures within institutions and collaborations between policymakers, teachers, and researchers will realise these benefits. Providing training and data analysis support is essential for successful implementation. These recommendations aim to promote evidence-based policymaking in Nigeria, ultimately improving the educational system.

Impact of Globalization on Poverty in Nigeria

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The role of globalization on the citizens and the generality of a developing economy such as Nigeria cannot be overlooked. Households and other entities require financial and other forms of assistance to be able to meet several of their daily needs. Conversely, the significance of all the assistances received from foreign bodies on households and nonprofit institutions serving households in Nigeria is not yet very clear. Therefore, the study examined a factor of globalization {Net Official Development Assistance and Official Aid Received (NAID)} herein referred to as foreign aids and its effects on an indicator of poverty {Households and NPISHs Final Consumption Expenditure (HNFC)} herein referred to as consumption expenditure in Nigeria. Time series research design was adopted in this study and the study relied mainly on secondary source of data. The study employed Augmented Dickey Fuller (ADF) as unit root test to ascertain the stability of the data in order to avoid spurious results. The study further tested the long run relationship among the variables via Johansen co-integration test. The simple regression model equation was adopted for the research work. The study revealed that Net Official Development Assistance and Official Aid Received have a positive and significant effect on Households and NPISHs Final Consumption Expenditure. Thus, the study recommends that the controllers of Nigeria should adopt measures to encourage the inflow of foreign aids to the country. Also, UN, The World Bank and other foreign donors should increase their aids to keep reducing poverty rate in Nigeria.

Investigating Mixed Method Research Within Conceptualisation and Contextualisation: A Systematic Review

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Mixed method research is a growing phenomenon within the context of research and research methodologies which combines the theoretical and philosophical perspectives of both quantitative and qualitative research but with ambiguity in its conceptualisation and categorisation. The main objective of this study was to investigate the conceptualisation and contextualisation of mixed method research within the research methodology paradigm with a view to ascertain the categorisation of mixed method as a type of research, research design or research approach. The methodology adopted for this paper is qualitative in nature and it involves
analysis of documents and contents. Content of journals and books were analysed with a view to
review and draw inferences relating to the themes set out for investigate\ion in the study. Thematic analysis was used for the analysis of data for the study. The study revealed that mixed method research was situated within the context of types of research, research design and research approach as evident in the result

of the systematic review of the articles selected for the study. Findings from the study further revealed that the conceptualisation of mixed method within the context type of research and research approach was more than that of a research design. Just like qualitative and quantitative research, there is need for definitive conceptualisation, contextualisation and categorisation of mixed method research. Meanwhile, this article is a synthesis for further discourse on mixed method research with a view to establishing a definitive conclusion on mixed method research conceptualisation.

Effect of Cisco-Packet-Tracer Simulator on Senior School Students' Comprehension and Skills Acquisition in Computer Network Topology in Ilorin

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Excellent performance in network topology cannot be achieved without adequate comprehension of the concept and experimenting with real-life or simulated environment. Cisco packet tracer simulator as a tool for teaching and learning computer science concepts, provides simulation, visualization, authoring, collaboration capabilities, and assessment experiences for both teachers and students. Thus, this study determined the effect of using CISCO-packet-tracer on senior school students' skill acquisition and comprehension of network topology designing, configuration and troubleshooting skills when taught using CISCO packet-tracer simulator. A quasi-experimental research design was adopted with a purposively-sampled intact class of 26 computer studies students in a senior secondary school in Ilorin. Three research questions were answered with the use of validated research instruments (an adopted software (CISCO-packet-tracer simulator; a network topology skill acquisition observation checklist; and an adopted standardized network topology comprehension test (NTCT). It was found that there is a significantly positive effect of CISCO-packet-tracer simulator on students' skill acquisition (95.2%) and comprehension (61.5%) of network topology, (95.2%) of the students acquired a substantial level of skills (software initiation skill - 98.5%; configuration skill - 93.1%; redirection skill - 92.3%; simulation skill - 98.7%; and connection skill 94.2- %) and students' comprehension of network topology concept was averagely high (61.5%). The study concluded that the CISCO-packet-tracer simulator is an effective tool for fostering students' skills acquisition and comprehension of computer science concepts, while also recommending that educators should use the Cisco packet tracer to allow students gain practical and cognitive skills in computer science concepts.

Psychology of Learning Relating to Assessment Using Technology in Schools

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The process of learning has been studied extensively by psychologists who seek to understand the various factors that contribute to effective learning. One such factor is assessment, which is the process of evaluating the knowledge and skills of learners. This study examines the psychology of learning as it relates to the use of technology in schools for assessment purposes. This research aims to investigate the impact of technology-based assessments on student learning outcomes, specifically looking at motivation, engagement, and academic achievement. The study adopted a descriptive method of the quantitative research. 3 research questions were developed and answered. 70 respondents were randomly sampled from 3 secondary schools. Frequency counts and percentage were used to answer the 3 research questions. The findings of the study revealed that technology-based assessments have a positive impact on students learning outcomes and provided more accurate and timely feedback to both teachers and students. And teachers' attitude towards technology has a great impact on their instructional practices. It was evident from the study that the use of technology in assessment can have both positive and negative effects on students' motivation and engagement in the learning process. However, the benefits seem to outweigh the drawbacks, based on this, it is recommended that schools should
continue to incorporate technology into their assessment practices to enhance student learning
and achievement.

Philosophical underpinnings of Strengthening and contextualizing research as a catalyst for attaining the African Union Agenda 2063 in teaching and learning

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This philosophical paper examines the underpinnings of strengthening and contextualizing research as a catalyst for attaining the African Union Agenda 2063 in teaching and learning. It explores the intersection of philosophy, education, and research as they relate to the ambitious goals outlined in Agenda 2063 of the African Union. This is a strategic framework adopted by the AU member states to guide the socio-economic transformation of Africa over the next five decades. It envisions a prosperous, united, and integrated continent, driven by its citizens and capable of asserting its rightful place in the global arena. The purpose of this discourse is to explore the philosophical underpinnings of strengthening and contextualizing research as a catalyst for attaining the African Union Agenda 2063 in teaching and learning. By delving into the intersection of philosophy, education, and research, this discourse seeks to highlight the importance of philosophical foundations in guiding research practices and

methodologies to ensure their alignment with the specific needs and aspirations of African societies. The paper emphasizes the importance of philosophical foundations in guiding research practices and methodologies to ensure that they align with the specific needs and aspirations of African societies. By contextualizing research within the African context, this paper argues that it can become a powerful tool for transformative education and sustainable development.

Assistive Technologies as predictors of academic achievement among physically challenged students in Universities in Southwest Nigeria

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Inclusive education has been on the front burner of successive government administration in Nigeria. Yet, it appears that only lip service has been paid to the needs of physically challenged students at university level. Therefore, this study investigated Assistive Technologies as predictors of academic achievement among physically challenged students in Universities in Southwest Nigeria. This study adopted a descriptive survey research type. The population comprised 100 physically challenged students in all the State and Federal-government owned Universities in Southwest Nigeria. Since the population is not large, total enumeration sampling technique was used. To gather information from the respondents, the researcher developed a research instrument titled Assistive Technology as Predictor of Academic achievement of Questionnaire (ATPAQ). The data demographic data were analyzed using descriptive statistics while multiple regression analysis was used to explain the amount of the variance accounted for in the dependent variable by the independent variables. Result showed that r = .777 and a multiple R 2 of .603 implying that the joint contribution of availability, accessibility and utilization of Assistive Technologies to academic achievement of physically challenged students in Universities in Southwest Nigeria was statistically significant. Among other things, the findings showed that the accessibility of the available assistive technology was poor and that it was insufficient. It was recommended among other things, that people with special needs should have access to the availability of assistive technology in order to ensure the success of their quality education and development.

A Phenomenological Study of Dietary Diversity among Adults in selected parts of Zambia

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Dietary diversity contributes to attainment of good nutrition among consumers. Dietary diversity is associated with individual food availability and intake of nutrients from different food groups (Nithya and Bhavani, 2018). An increase in individual dietary diversity score is related to increased nutrient adequacy of the diet. Individual dietary diversity score captures nutrient adequacy. Dietary diversity scores are positively correlated with increased mean micronutrient density adequacy of complementary foods (FANTA, 2006). To assess dietary diversity among adults.
Objective: To ascertain diversity in food intake. A qualitative approach, in particular phenomenology, was used to conduct the study. The sample comprised 45 adults aged was selected purposively. Data were collected using interview guides and questionnaires. A qualitative 24-hour recall of all the foods was used to determine dietary diversity. Data were analyzed using frequencies. Dietary diversity scores were calculated. Dietary diversity was limited among adults where proteins were concerned. The majority of the adults obtained their proteins from plant sources. Legumes provided sources of proteins for the majority of the adults. Less than half of the adults showed that they ate citrus fruits. Dietary diversity was limited among adults were proteins were concerned. Dietary diversity was limited among adults where proteins were concerned. The majority of the adults reported high consumption of staple food sources. Households, nutritionists, communities and government should invest more in mass education for adults to improve dietary diversification by including other food groups to attain the desired diversity.

Digital Forensic Tools in Cybercrime Investigations and Criminal Prosecution in Nigeria

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The evolution of Information Communication Technology has transformed the world tremendously. However, some have taken advantage of the technological advancements to commit cybercrimes like online theft, spamming, identity theft, and hacking which has inflicted financial hardship on their victims. Without a doubt, these actions pose a substantial risk and threat to governments and businesses. These threats are reasons why digital forensics tools are essential and should be used by law enforcement bodies. The prevalence of these crimes has drawn global attention to the need for stringent laws to combat the crime and repair Nigeria's battered image in the comity of nations and, promote the country's economic development. This research examines the efficacy of digital forensic tools in cybercrime investigation and criminal prosecution in Nigeria using doctrinal legal research methodology. The study also looks at the role of the Economic and Financial Crimes Commission (EFCC), one of the law enforcement agencies in cybercrime investigations. The result of the study reveals that an independent agency should be obligated with the sole responsibility of combating cybercrime investigation and criminal prosecution in Nigeria and that law enforcement officers should receive extensive training in conducting digital forensic investigations in other to remain up to date with new technological developments. In conclusion, to ensure that cybercrime investigations and prosecutions are free of corruption, it was recommended that the government should ensure that Law Enforcement Agencies swiftly charge suspected cybercriminals in court, allowing for the use of various digital forensic tools to remove corruption from its agents.

Undergraduates' Awareness of the Use of Technological Tools for Information Collection and Analysis in Adekunle Ajasin University, Akungba-Akoko, Nigeria

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Undergraduates need to have an awareness of information-collecting methods and various technological tools for collecting and analyzing information before they can use it for research. The study examined undergraduates' awareness of the use of technological tools for information collection and analysis in Adekunle Ajasin University, Akungba-Akoko, Nigeria. Specifically, the study: (i) examined how often final-year undergraduates have heard about the different methods used to collect information about a respondent or participants (ii) investigated how commonly final-year undergraduates believe technological tools are used to collect information (iii) examined how frequently final-year undergraduates have heard about technological tools used to analyze information. The sample of the study comprised hundred (100) undergraduates selected using Krejcie and Morgan sample size determination table. A descriptive survey method was adopted for the study using an adapted questionnaire. Data collected were analyzed using
frequency count and percentages to interpret three research questions raised. The results revealed that the respondents are often aware of questionnaire, experiment and interview as the common methods to collect information. The result also showed that the use of computer-assisted tools, social media, and audio-visual tools are common amongst the undergraduates with low awareness of the use of Google forms and email. The result also revealed that the use of SPSS
and Microsoft Excel is frequent amongst undergraduates with high awareness while ACTIVITY INSIGHT, STATA, and NVIVO showed low awareness. It was concluded that final-year undergraduates would find the use of technological tools handy for collecting and analyzing information in their research projects.

Effect of Padlet Online Collaborative-Board on Undergraduate Academic Performance In Computer Science In Kwara State, Nigeria

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Padlet is an innovative platform that facilitates communication between teachers and students and works as an online noticeboard. The notes posted on Padlet by teachers and students can contain links, videos, images and document files. While this tool offers enormous benefits to its users, it has not been fully incorporated into teaching and learning system. Hence, this study examined the effects of Padlet on Undergraduate academic performance in computer science concept in Kwara state, Nigeria. Quasi-experimental design of non-randomized control group design was employed for the study. Research sample was drawn from two randomly selected Universities in Ilorin, Kwara State. The instruments used for data collection were Adopted online Padlet and Computer Science

Performance Test (CSPT), CSPT was formulated by the researcher on the topic Operating System and was validated by three experts. The CSPT was administered as post-test to both experimental and control group. The findings of the study showed that: experimental group performed better than control group; the attitude of Undergraduates towards the use of Padlet bulletin board for learning is positive; there was no significant difference in the performance of male and female Undergraduates taught computer science concept using Padlet bulletin board and, there was no significant differences between male and female Undergraduates' attitude towards the use of Padlet board for learning. The study concluded that padlet influence students' academic performance in Computer Science concept. It is recommended among other that Universities should implement platforms that support online learning activities to engage the students virtually.

Healthful School Environment: An Indispensable Tool for Attaining the African Union Agenda 2063 for Teaching and Learning

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The physical and social components of a school environment are strong determinants of the health and safety of the members of the school community and the effectiveness of the teaching and learning process within such a school. While a safe and healthy school environment contributes positively to the teaching and learning process, the opposite is for a school having an unsafe, unhealthy physical and social environment. This paper provides insight into how a healthful school environment, in terms of its physical and social components, could enhance the attainment of the African Union's Agenda 2063 for teaching and learning. The source of information in this article was the review of relevant literature. Based on this review, it is evident that a healthful school environment at all levels of learning is an indispensable tool for attaining the African Union's Agenda 2063 for teaching and learning. Therefore, a conscious effort is required from all the concerned bodies to provide the resources to ensure the healthful environment of schools within the African Setting to achieve the African Union's Agenda 2063 for teaching and learning.

Formative and Summative Assessment Using Technology: A Critical Review

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The purpose of this research is to critically assess a variety of technological approaches that were particularly chosen for their compatibility with and ability to improve on existing assessment for learning practices. The underlying viewpoints are that (a) summative and formative evaluations are both important learning opportunities, and (b) utilizing technology can improve learning throughout evaluation and feedback processes. The benefits and downsides of employing technology are evaluated using research from a research study through literature. It is said that the usage of various forms of technology can aid in the facilitation of efficient assessment for learning and feedback in higher education by adopting a flexible strategy and taking tiny incremental steps.

Effect of Multimodal Representations on Senior Secondary School Students' Critical Thinking Ability in Physics

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This research explored the effect that multimodal representations had on the critical thinking ability of senior secondary school students in physics. A total of eighty students from two public senior secondary schools under the Education District 5 of Lagos state, Nigeria were used in this study. The study employed quasi-experimental design that employed a pre-test and post-test. The results showed that the use of multimodal representations significantly improved students' critical thinking ability in physics. The participants became more intuitive and analytical in their thinking and were more confident in their understanding and mastery of physics concepts. It was concluded that the use of multimodal representations should be encouraged in the teaching of physics as this would enhance students engagement, performance, knowledge and attitude towards physics.

Chemical composition and total antioxidant capacity of underutilized indigenous tree: Morinda Lucida Leaves, seeds and bark

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Morinda lucida (Brimstone tree), a tropical indigenous plant used for medicinal purposes is reported to be a major source of antioxidants. Freshly collected leaves, seeds and bark of the tree were freshly collected, sun-dried and assayed for proximate, minerals and antioxidants using standard analytical techniques. Protein, crude fibre, ash, crude fat were found at appreciable levels in all the samples. Na, K, Ca, occurred significantly in the extract with K having the highest value of 422.45ppm, 374.35ppm and 462.7ppm for leaves, seeds and bark respectively. Na/K was found to be less than1, suggesting that the extract can be utilized for treating hypertensive patients. Antioxidant Activity has the highest value of 91.62%, while the bark was the least value of 69.03% Total

Phenolic Content of the seed extract had highest value of 32.16mg/100g while that of the leaves 25. 38mg/100g. The leaves, seeds and bark of Morinda lucida were found to be rich sources of basic nutrients, essential minerals and antioxidants, therefore suggesting that the extract could be used as food/feed supplement for human/animal diet. It can possibly be utilized as scavengers of free radicals produced by essential metabolic processes of humans and environmental pollution.

Language Planning in the Zambian Healthcare System: Applying the Sociolinguistics Lens

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This paper is premised on three important realities that directly impact on how language is used in the health sector in Zambia which in turn influences how health services are delivered: The Zambian Multilingualism, the increasing number of immigrant masses, and the Language Policy in health sector. The objective of the study was to describe a sociolinguistics Model of language use in the health sector in Zambia and its effects on health care delivery, patient and doctor interactions, and its overall effects on the public health. The study was a purely qualitative study, employing the narrative inquiry. It falls within the post-positivism. The study did not have a predetermined sample size; instead, the number of participants kept increasing as they were being selected conveniently. Data was collected through observation guides, interview guide and document review. Data was analyzed thematically. Zambia is a multilingual country with about 72 languages. Bemba, Kaonde, Lozi, Lunda, Luvale, Nyanja and Tonga serve as national languages and English which stands as both the official language and the language of instruction. It has been observed that while all the seven languages are used in health facilities, Bemba and Nyanja predominate. The second reality is the increasing number of migrants who come to Zambia (a large number of them being refugees) with their own languages. This also adds to the already existing linguistic difficulties facing the Zambian health sector creating the need for well-trained interpreters and or multi-lingual health care providers. The third reality is the poor language planning policy in the Zambian health sector that can be easily discerned through the insufficiency of medical terminology database (SOURCE). Kaplan and Baldauf (1997:32) argue that "language choice cannot be made in a vacuum, but rather needs to be made in light of linguistic information,

which in most cases does not readily exist." This calls for factual information as a basis for language policy formulation in this sector. Sadly, this aspect of sociolinguistics has not been given sufficient attention in studies on language in Zambia. Suffice to say, informal terminologies based on ethnic orientation and affinity have always been adopted by people in various local areas, for example the Bemba speaking people call terminal illness as 'ama lweleya ntanda bwanga'; the Bemba speaking people also informally labeled HIV/ AIDS as 'kalayenoko'.

Assessment Models in HEIs in Zambia: Interrogating Policy and Practice

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Higher education in Zambia dates as far back as the time she attained independence in 1964. Since then, the State enjoyed monopoly in the provision and regulation of higher education. Then, it was easy to standardize and regulate higher education provision. Starting in 2005, policy on higher education provision in Zambia was amended and now allowed the private sector to supplement government efforts, thus leaving the government with the mandate of regulating, monitoring and quality assurance. Pluralizing high education provision led to the multiplicity in teaching-learning styles, assessment, quality assurance and management. The Objectives: (1) To establish the form of assessment models used in higher learning institutions in Zambia; (2) To describe the pros (constraints) or limitations of each form of assessment model in higher learning institutions in Zambia (3) To ascertain the cons (opportunities) of each form of assessment model in higher learning institutions in Zambia. This is study was deep rooted into epistemology, in particular realism. It employed a qualitative research paradigm, following the descriptive research approach. Using critical case sampling strategy, 4 universities, 2 public and 2 private were selected. A total of 20 participants, comprising 5 from each one of the 4 universities, were selected conveniently. Interview guide and questionnaire were used to collect primary data with secondary data collected through desktop review and document analysis. Data was analysed using both descriptive and thematic data techniques. Preliminary findings point a multiplicity of assessment models in the two types of HEIs in Zambia, private and public. Four types of delivery modes exist, blended, distance, face-to-face and online. One interesting finding points to the existence of varying policies on assessment in HEIs. Findings point to the nonexistent harmonization of assessment in HEIs in Zambia. This is an ongoing study. No conclusion is drawn yet.

Evaluation of the performance of Higher National Diploma Graduates of Automobile Technology in Nigeria

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The study evaluated the performance of Higher National Diploma Graduates of Automobile Technology in Nigeria. Specifically, the study ascertained the skillfulness of graduates in design of automobile vehicle parts, maintenance of auto-electrical systems. Research questions and Hypotheses were formulated based on these areas. Survey research design was used for the study. The accessible population of the study was 560 which comprises of 70 Heads of Departments,60 supervisors and 430 Graduates working in the organizations. In view of the few accessible population, the entire population was used. Therefore, there was no Sample. The questionnaires were validated and the reliability of the instrument was found to be 0.95 using Cronbach Alpha Statistical tool. Mean and standard deviation were used to answer the research questions, while hypotheses were tested using One way ANOVA and Post HOC Test of Homogeneous Subsets statistics at 0.05 level of significance. The study revealed that graduates, were skillful in design of Automobile vehicle parts. Graduates were Unskillful in the maintenance of airbags, sensors, actuators, pretensioner and aspect of auto-electrical systems. Based on the findings of the study, it was recommended that the managements of the polytechnics should organize capacity building workshop for lecturers in auto-electrical/mechatronics, the managements of the polytechnics should develop the competence of workshop technologist in auto-electrical/mechatronics in order to assist the lecturer in practical teaching.

Prospective Teachers' Awareness and Utilization of E-learning Skills in Collecting and Analysing Qualitative and Quantitative Data in Universities in Gombe State, Nigeria

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The study aimed to examine the level of prospective teachers' awareness and utilization of e-learning skills in collecting and analysing qualitative and quantitative data in universities in Gombe State. The research adopted descriptive research design. The sample of this study was drawn from two universities in Gombe State. A total of 333 prospective teachers were selected from the universities in Gombe state. Mean and standard deviation were used to answer the research questions and the hypothesis was tested using t-test at 0.05 level of significant. The findings indicated that respondents averagely aware about different types of e-learning skills in collecting and analysing qualitative and quantitative data. Also, the findings show that some respondent utilized e-learning skills in collecting and analysing qualitative and quantitative data. The implication is that if prospective teachers were more encouraged to utilize e-learning skills in collecting and analysing qualitative and quantitative data, then it will improve students' learning. Thus, the study recommended that prospective teachers should be encouraged to utilize e-learning skills in collecting and analysing qualitative and quantitative data. The study also recommends that teachers of higher institution should create awareness about e-learning skills in collecting and analysing qualitative and quantitative data among prospective teachers in universities.

Contextualizing Doctoral Research in African Universities to Accelerate the Achievement of Agenda 2063: The Case of the University of Burundi

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Many African universities are still using doctoral training models based on models implemented
in Europe. It is generally accepted that doctoral education models in Africa should be designed on the basis of in-depth SWOT analyses that take into account the current strengths and weaknesses of African universities and the opportunities and challenges related to the implementation of Agenda 2063. In this presentation, we analyse the doctoral training model set up by the University of Burundi. This model is built on specific pillars identified on the basis of a SWOT analysis specific to this university and the opportunities and challenges associated with Agenda 2063. This model has already helped to achieve several major results that clearly could not be obtained using conventional models similar to those used in Europe.

Perceived Influence of Social-Media on Students Academic Performance in Schools

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At this contemporary period of information age, there is growing recognition of young people as autonomous consumers of information. Youths of all ages, are known to use media in conjunction with ICT for example, the Internet, instant messaging, and e-mail - to communicate with their peers and relatives, to stay current in what matters to them, to shop, to relax, to create personal Web pages, and to complete homework assignments, among other things. In view of this, Social media among secondary school students has become more popular over the years, which has raised questions of whether students' performance are being affected by how much time they spent on various sites of social media. Therefore, this study empirically answered three research questions. A self-designed questionnaire was administered to fifty teachers randomly selected among serving teachers in ifako-ijaiye Local Government Area of Lagos State. Data collected was analysed using frequency count, percentages and mean. Findings showed that social media positively enhance students' academic performance in school and recommendations were made.

Sub-Theme: Cultural Diversity in learning and teaching STEM concepts

Understanding STEM Concepts in the Early Years Using Community-Linked Approach

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The teaching and learning of STEM concepts in early years require a multi-faceted approach in achieve overall objectives of Early Childhood Education in Nigeria. (NPE, 2012); aside the quest to attain Sustainable Development Goals (SDG4). The objective is to catching children young for STEM through out-of-school activities, community-linked and integrated approaches. Theoretical Frameworks used in STEM concepts in early year are non-formal approach and STEM play cycle. STEM concepts are incorporated into learning at early childhood education using out-of-school activities, community-linked and integrated approaches (Ogunlade, 2005) and STEM Play cycle (Tunnicliffe, 2021). Incorporating STEM at early childhood through building blocks, identifying shapes has improved vocabularies, reading, numeracy and critical thinking of the children. STEM play cycle creates curiosity; develop skills for investigation and observation in children. STEM can be a lot of fun for children when games are built in teaching or learning process.

Comparative Effect of Virtual Laboratory and Real Laboratory Learning on Students Achievement in Senior Secondary School Biology

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The problem of poor achievement of students in Biology in external examinations has been a matter of concern to the nation. As part of the contribution to arrest the situation, this study was designed to determine the comparative effects of virtual and real laboratory learning on students' achievement in Biology. To carry out the study, three research questions and two null hypotheses were formulated. Design for the study is a quasi-experimental non-equivalent control groups pre-test and post-test design. The study was carried out in two purposely

selected co-education secondary schools in Odi-Olowo Local Government Area of Lagos State. Sample for the study consisted of 81 (SS II) students from two selected intact classes in the sampled schools. Data for the study were collected through the researcher-developed instrument, Biology Achievement Test (BAT). The two intact classes of 43 and 38 students were assigned to experimental group I and II respectively. The experimental groups I and II were exposed to virtual and real laboratory methods of learning respectively. Data for the study were analyzed using mean, standard deviation and ANCOVA statistics. The null hypotheses were tested at 0.05 level of significance. Findings of the study revealed that virtual laboratory learning enhanced students' achievement in Biology more than real laboratory learning. Findings of the study also revealed that there was a significant difference in the achievement of male and female students in Biology using either of these two learning methods. Recommendations and suggestions for further studies were made based on the findings.

Transformative Leadership on Lecturers' Performance and Learning Management System Adoption in Higher Education - A Review

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This article examines the impact of transformative leadership models on lecturers' performance and the adoption of learning management systems (LMS) in higher education institutions. The background of the research highlights the need for higher education institutions to adopt LMS to enhance students' learning experience, but faculty resistance and inadequate training often hinder adoption. Therefore, this study aims to investigate how transformative leadership models can improve lecturer performance and LMS adoption. This research uses a mixed-method approach, consisting of a survey of 150 lecturers and semi-structured interviews with 20 key stakeholders. The results showed that the application of transformative leadership models positively affected lecturer performance and LMS adoption, emphasizing the importance of transformative leadership in facilitating LMS adoption. The study recommends that higher education institutions invest in upskilling and development opportunities for their staff, provide tools to support their work, and make performance data transparent to everyone. In addition, senior management should prioritize implementing transformative leadership models and providing effective training programs to support lecturers in adopting LMS, which will enhance students' learning experiences and improve overall institutional performance.

Fostering a Cultural and Contextual Revolution in Teaching and Learning Biology: Standpoint of Culturo-Techno-Contextual Approach

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The teaching and learning of biology in Nigeria has been heavily influenced by Western culture due to colonialism, leading to a lack of appreciation for pre-colonial knowledge systems. This has resulted in a fear of STEM subjects among students and high attrition rates, this study sought to investigate the efficacy of

Culturo-techno-contextual approach as an intervention in enhancing the knowledge of secondary school students in biology. This study employed a mixed method (explanatory sequential) design. The quantitative phase was quasi-experimental (a pre-test post-test non-equivalent group), and the qualitative phase was an in-depth interview. The Achievement Test in Tissue and supporting System (ATTSS), which had a reliability coefficient of 0.80, was designed to collect data on students' knowledge retention. The experimental group (61) was taught with Culturo-techno-contextual approach while the comparison group (42) was taught with the conventional lecture method. The data (pre-test and post-test scores) collected were analysed using ancova since the participants were not randomly assigned to the groups. The study found a statistically significant difference in the knowledge retention of students taught using the CTCA and conventional method [F(1,100)= 0.00; P< .05]. Also, students' perception towards the use of CTCA was generally positive. Hence, the study concluded that CTCA approach is an effective tool for enhancing student knowledge retention in biology. Recommendations which concern the government, school owners and biology teachers for the implementation of the findings of this study and further research were made.

Development of Technology-Education-Art (TEA) Application and Exploration of its Impart on Students' Attitude towards Biological Drawing

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Biology is considered to be the most visual of the sciences and has a long history of the use of imagery for defining and linking concepts in living systems. Biological drawing is the use of technical illustration to visually communicate the structure and specific details of biological subjects of study. This can be used to demonstrate anatomy, explain biological functions or interactions, and exposing what is unseen in the natural world through external representation using drawings. Studies also revealed that students have difficulty in biological drawing and visual literacy. The objective of the study is to explore how the TEA learning portal which includes demonstration and motivational text and videos can impart students' attitude towards biological drawing. Pretest-posttest quasi-experimental design would be used in this study, while purposive sampling technique will be used to select sample from Lagos State University. Questionnaire on students' attitude toward biological drawing would be administer to the students before been exposed to the TEA application and a post-test done. The study will employs a mixed-methods approach. The quantitative data will be analysed using IBM-SPSS software, while the qualitative data would be analyses thematically. ANCOVA data analysis will be used to

answer the null hypotheses posed for the study with the F-tests measured at p < 0.05 level of significance. The result would be interpreted and reported accordingly.

Availability and Utilization of ICT as it Correlate to Students' Academic Performance of Selected Secondary Schools in Oyo State

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Information and Communication Technology (ICT) is not completely strange to Nigerian youths. However, the challenge is how much of ICT is utilized in education in general and science education in particular. This study examined the availability and utilization of ICT as its correlate to students' academic performance in six selected Secondary Schools in Oyo State. Expost facto research design was used to determine ICT utilization in teaching, learning and students' performance in Biology, Chemistry and Physics. It also considered the influence of gender on utilization and attitude of both students and teachers. There were nine research questions and eight hypotheses. Eight instruments were used: Availability of ICT Tools Questionnaire (AICTQ), Teachers' Information and Communication Utilization Questionnaire (TICTUQ), Students' Information and Communication Utilization Questionnaire (SICTUQ), Students' Attitude Scale Questionnaire (SASQ), Teachers' Attitude Scale Questionnaire (TASQ), Students' Biology Achievement Test (SBAT), Student Chemistry Achievement Test (SCAT), Students Physics Achievement (SPAT). Data were analyzed using percentage, t-test and Pearson Product-moment Correlation. The results showed that though most of the listed ICT resources were available except fax machine, scanner and audio CD, none was adequate. There was no significant difference between male and female teachers' utilization of ICT ($t = 0.2447$ $p < 0.05$). There was significant relationship between teachers' utilization of ICT tools and both students' achievement and attitude ($r = 0.9201$, $r = 0.815$ respectively $p<0.05$). The study concluded that there is need to improve learners' interest and attitude in sciences by provision of functional ICT resources into Secondary Schools through funding/supervision.

Students' Anxiety Level, is it a Death Sentence for Chemistry Students?

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Anxiety is a feeling of unease, such as worry or fear that can be mild or severe. Everyone has feelings of anxiety at one point or the other in their life. Anxiety is the main symptom of several conditions such as panic disorder; phobias, such as agoraphobia or claustrophobia; post-traumatic stress disorder (PTSD); social anxiety disorder (social phobia) and so on. The purposes of this study were to determine: statistically significant difference in the anxiety level of students taught using CTCA and those taught using lecture method and statistically interaction effects of method of teaching and gender on anxiety of students. The sample size of the study was 134 students from the two senior secondary schools. It was an experimental study containing an experimental and a control groups. There were 75 students in the experimental group [CTCA] (19 males; 56 females) and 59 students in the control group [lecture] (26 males; 33 females). Chemistry Anxiety Scale (CAS) was administered after obtaining the reliability coefficient value of 0.82 through Cronbach's alpha to both groups as pretest and posttest respectively. Statistically, a significant difference was found in the method of teaching through ANCOVA [$F(1,131)=56.08$; $p=0.00$] which was in favour of the CTCA group. No statistically significant difference was found for the interaction of method of teaching and gender through ANCOVA [$F(1,129) = 3.15$; $p<0.05$]. Within the limitations of the findings of this study, it is hereby recommended that, teachers should keep their communication short and simple while teaching.

Exploring the effectiveness of CTCA in enhancing Achievement and Attitude of Secondary school students towards Artificial Intelligence

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The study examined the effectiveness of the culturo-techno-contextual approach (CTCA) in improving students' achievement in Artificial Intelligence with a specific focus on the Artificial intelligence. The study was guided by four research questions and four hypotheses and it adopted the quantitative method, which was the quasi-experimental method. Two schools purposively drawn from Private co-educational senior schools in Lagos State educational district V and a total of 30 students comprising of 15 students (5 males, 10 females) students taught using CTCA and 15 students (7 males, 8 females) students taught using the conventional lecture method made up the sample. Artificial intelligence Achievement Test (AIAT) with a split-half reliability coefficient of 0.71 and Students' attitude towards climate change questionnaire with a reliability of 0.61 were used to collect data for the study. Analysis of Covariance (ANCOVA) was used to test for significant differences between the two groups at a 0.05 level of significance. The results revealed no statistically significant difference in the mean achievement scores of students taught using CTCA and those taught using lecture method in favor of the former [(experimental)= 20.60 (control)=21.33]; F(1, 27)=1.52; p>0.05]. Within the scope and limitations of the study, it was tentatively recommended that CTCA should be adopted by secondary schools Computer Science teachers in teaching artificial intelligence.

Leveraging Classroom data for Policymaking in Nigeria: A Critical Review of State-Funded Primary School Education

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This abstract critically reviews the utilisation of classroom data for policymaking in Nigeria's state-funded primary school education system. The study explores the current practices, challenges, and potential benefits of leveraging classroom data to inform policymaking in Nigeria. Leveraging classroom data has significant potential to enhance policymaking in primary education. Policymakers will gain insights into student performance, identify achievement gaps, and make evidence-based decisions to improve educational outcomes. Classroom data can inform targeted interventions, curriculum development,

teacher training programs, and resource allocation strategies. Through a comprehensive literature review and analysis of existing policies and initiatives, this study examined the status quo and identified opportunities for improvement. The findings reveal that while there is growing recognition of the importance of data in educational policymaking, its effective utilisation in Nigeria remains limited. Policymakers need to prioritize the development of comprehensive data infrastructure, invest in data literacy and establish continuous monitoring and evaluation. The lack of data infrastructure, data literacy among stakeholders, and limited data analysis interpretation hinder data-driven decision-making processes. Fostering data-driven cultures within institutions and collaborations between policymakers, teachers, and researchers will realize these benefits. Providing training and data analysis support is essential for successful implementation. These recommendations aim to promote evidence-based policymaking in Nigeria, ultimately improving the educational system.

Comparative Effect of Virtual Learning and Lecture Method on Student Academic Performance in Agricultural Science

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Virtual learning, also called e-learning, refers to a style of education in which teaching and learning take place through digital platforms and technologies. It is a system of instruction that allows learners and educators to interact and exchange information remotely, without the need for physical classrooms or face-to-face interactions. Its study content is design in synchronous and Asynchronous methods. This work examined the effect of virtual leaning on students' academic performance in teaching and learning Agricultural Science in secondary schools in Oye Local government of Ekiti State. One Hundred JSS3 students from two public schools were used for the study. Three research questions guided the study. Agricultural Science student Achievement Test (ASSAT) was used as instrument for data collection. The instrument was subjected to face and content validation by three experts from Science Education Department, Federal University, Oye Ekiti, Nigeria. While reliability index values of 0.86 were obtained using Cronbach alpha. Means and ANCOVA were used to analyze the research questions. Results revealed that student taught using

virtual learning had higher mean score than those taught with Traditional method in the achievement test. Subsequently, it was recommended that Agricultural science and other teachers should improve academic achievement of their students by incorporating technological tools into their teaching. It is therefore recommended that teachers should avail themselves the opportunity of various conferences and workshops to acquire the needed skills for effective utilization of ICT tools.

Overview of Technology in Classroom Assessment from the Perspective of Students, Educators and Administrators

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The application of technological widgets for classroom assessment will have a giant influence on students, educators, and administrator achievement. Still, success will depend upon close collaboration between educators, students, and administrators in the design, development, and application of technology-grounded assessments. This study, thus, delved into the overview of technology in classroom assessment from the perspective of students, educators, and administrators. The objectives of this study were to examine the perspective of students towards the use of technology for classroom assessment, probe the educators' perspective towards the use of technology for classroom assessment, and ascertain the utility of technology in classroom assessment from the perspective of administrators. The exploration espoused the cross-sectional check approach, using the quantitative system. 175 questionnaires formed the data analysis sample of the study. An exploration-designed questionnaire was used to gather data for the study. Frequency count and percentage were used to answer all exploration questions. The findings of this study show that: veritably, many students perceive that a lack of ICT chops hinders their use of technology; 90 of educators believe that the use of technology for assessment in the classroom is brisk and more dependable than traditional ways of assessment; and 90 percent of the administrators organize forums for their educators on the use of technology for classroom assessment. Based on the findings, it was recommended that the use of technology bias for classroom assessment be embraced within the classroom by students, educators, and administrators.

An African Child asked how do I recall what I am taught? CTCA gave the Answer

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This study examines the effectiveness of CTCA on improving students' retention and promoting meaningful learning of flowchart and algorithm among junior secondary school students. The study's theoretical framework is based on Ausubel's theory of the advance organizer and Vygotsky's theory of social constructivism. The study employed a mixed method using quantitative and qualitative data-gathering techniques. The sample was drawn from the intact classes of two junior secondary schools in Lagos, Nigeria. The experimental class comprised 82 junior secondary school III students equivalent to 9th grade, while the control group had 103 students The data was collected using the flowchart and algorithm achievement test with a reliability value of 0.74. All 185 students in the two representative schools used for the experimental and control groups were given a pretest achievement to determine the entry level of the students. After the pretest exercise, the treatment was implemented for four weeks. Preliminary tests revealed that data on the measure of knowledge retention met the assumptions of normality and covariance homogeneity ($F = 1.86$; $p > .05$). According to descriptive statistics, the culturo-techno-contextual approach had the highest retention mean score of 13.94, compared to the traditional teaching method, with a mean score of 7.67. The ANCOVA results revealed a statistically significant difference in the knowledge retention measure [$F(1,185) = 145.21$; $p < .05$]. Within the scope and limitations of the study, it was recommended that CTCA should be adopted by secondary school teachers in teaching science concepts.

Digital Technology Tools for Science Classroom: Availability and Use for Teaching Effectiveness in Senior Secondary Schools

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Teachers have to integrate traditional teaching practices with digital technology to make learning engaging and academically relevant in the twenty-first century. This research work assessed the availability and use of digital technology on teaching effectiveness of secondary school science teachers in Lagos State. It adopted a descriptive survey approach where multistage sampling techniques were used to purposively select 160 science teachers. One hypothesis was tested and answered accordingly, and was rejected. The scope of the study was within the confinement of the six (6) educational districts of Lagos State. A researcher-designed questionnaire that intended to reflect the impact of digital technology on science teachers teaching effectiveness based on gender was used as the research instrument. The reliability coefficient of 0.78 was obtained. A descriptive analysis was used to explain the demographic data and the use of means was considered to answer research questions while inferential statistics of T-test was used to test the hypothesis at 0.05 significant levels. The results revealed that there was a significant difference in the use of digital technology by science teachers in Lagos State secondary schools based on science teachers' gender. These findings recommended among others that the government should engage science teachers in rigorous trainings in order to be adept with digital technology and science teachers should allow students to become more motivated, more active and independent as they choose to be very intentional in using digital technology to teach them their science classes.

Teaching Biology with Cultural Diversity Strategies: The panacea for STEM Attainment in Nigeria

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The place of science, technology, engineering and mathematics (STEM) education is of great importance in meeting the required standards of Education. There is need for quality in the Nigeria educational system in order to change the process of education from just preparing candidates for examinations, but to also make the educational products acquire cultural diversity. Biology is one the science subjects that requires STEM approach in its teaching and learning. Teaching Biology with the Cultural Diversity Strategies becomes paramount in order to attain STEM objectives in Nigeria. Many studies were carried out to evaluate the capacity of Nigeria educational system in the achievement of the set goals of the SDG but much attention have not being focused on teaching of biology with strategies of cultural diversity. Therefore, this is a descriptive study that described the concept of cultural diversity, how biology as a subject could be taught with different strategies of cultural diversity, and the importance of diversity for teaching biological concepts. It was concluded that teaching biology with cultural diversity could solve the challenges that are experienced with the attainment of STEM objectives in Nigeria. It was therefore recommended that such strategies could be applied to other subjects in order to promote quality education.

Relative Efficacy of Culturo-Techno-Contextual Approach (CTCA) and Peer-Led Team Learning (PLTL) On Secondary School Students' Academic Achievement in and Attitude to Machine Language

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This study investigated the use of the Culturo-Techno-Contextual Approach (CTCA), and the Peer-Led Team Learning (PLTL). Objectives: To improve students' academic achievement in and attitude to machine language in Senior Secondary School. Methodology: A mixed method. A total of 207 Computer Studies students SS2, 106 female and 101 male. Instruments were machine language attitudes questionnaire (MLAQ) and machine language achievement test (MLAT), which had a reliability coefficient of 0.71 and 0.70 respectively. Results: Hypotheses one and two were rejected, there were statistically significant differences in teaching methods and students' academic achievement and attitude.

Hypotheses Three and Four was not rejected, there was no statistically significant effect of student gender, and class stream on academic achievement and attitude. Hypothesis Five, the two-way MANCOVA results multivariate F (Pillai's Trace) not significant [F = 2.26; p < 0.05]. Univariate on achievement [F(2, 199) = 3.42; P =.04] and on attitude [F (2, 199) = 5.38; P =.005] was significant. The interaction effect of gender and training method on achievement [F (2, 199) =.90; P =.41] not significant, but the interaction effect on attitude [F (2, 199) =3.67; P =.03] was. Educators are encouraged to use the CTCA and PLTL. The strategies help to gain respect for local activities and culture, and appreciate indigenous science and technology and the use of local resources. They encourage collaboration among students. The study gave both male and female and students' classes equal opportunities having no influence over the other.

Can the culture-Related Pedagogy Promote Students' Meaningful Learning of Concepts in Data Processing?

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Data processing topics such as related to programming are generally threatening for students in schools. Within this context, this study investigated the effectiveness of culturally related pedagogies (CRP) in improving the achievement of students in data processing. A quantitative approach was employed using a quasi–experimental, pre-test, and post-test, control group. Two teaching approaches, CRP and LM were used to measure achievement of computer studies students in algorithm and flowchart. Using this design, one experimental (treatment) group and one control group were used. Intact classes from two private senior secondary 2 were purposively assigned to the experimental group and control group. A total of 99 students participated in the study. The experimental group (N=47) students were taught using CTCA while the LM (N=52) were taught using traditional lecture method. A 30 items achievement test were designed by the researcher in order to test the students' ability and understanding in algorithm and flowchart. Inferential statistics such as analysis of covariance (ANCOVA) were used to test for statistical difference in the study at the confidence level of 0.05. Findings from the study revealed that there was a statistically significant difference in the achievement of student taught AAF

using culture and those taught with LM, [F (1, 96) = 40.54; p<0.05]. It is recommended that teachers must consider students' cultural backgrounds in order to identify various traditional and religious beliefs associated with all ICT concept and utilize this information as a guide during the teaching-learning process to aid students' comprehension.

Overview of technology in classroom assessment from the perspective of students, educators and administrators

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This study focused on selecting the right technology tool for classroom assessment: A dipstick paper for teachers. Teachers no doubt are saddled with many responsibilities which range from writing lesson plans, notes, instructional delivery, and assessment. Hence there is a need for teachers to span to the innovation technology is offering by embracing technological-based assessment. This paper explored the roles of technology in bridging the gap between the paper-pencil assessment to paperless assessment and proffers strategies on how these assessment apps can be used in the classroom. The study revealed that there are free assessment applications teachers can use to grade students, thereby reducing their workloads. It was therefore recommended among others that training and seminars should be organised for teachers to enlighten them on technology-based assessment. This would help to arouse in the use of technology among teachers.

Exploring the Efficacy of Culturo-Techno-Contextual (CTCA) in Improving Academic Achievement of Secondary School Students: A Study on Computer Networking

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Students' underperformance in ICT has been a major concern for educators in Africa, particularly in Nigeria and this is because technology is fast growing in

the world. The skills can serve as a catalyst for sustainable development. The objective of the study is to examine the effectiveness of CTCA on secondary school students' achievement in computer networking. A quasi-experimental research design was adopted with a total of 106 ICT SS2 ICT students from two schools in Lagos State Education District V. The experimental group taught with CTCA, had 55 students (27 males; 29 females) while the control group taught with lecture method had 50 students (26 male and 24 females). Both groups had a pre-test and post-test. An Instrument titled Computer Network Achievement Test (CNAT) was used for data collection. The reliability coefficient of the CNAT was determined to be 0.88. Data collected were analysed using ANCOVA. The finding from this study showed that the experimental group performed better (mean for experimental = 18.36; [F (1, 103) =953; p<.05]) than the control group control = 10.16. Based on the findings it was concluded that CTCA had a significant impact on students' academic achievement in ICT. It was recommended that if CTCA is well implemented, it will help in breaking down barriers in ICT difficult concepts into meaningful.

Influence of Social-media on Senior Secondary School Students' Acquisition on Hidden Curriculum in Iseyin, Oyo State

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The present study investigates the influence of social media on Senior Secondary School Students Acquisition of hidden curriculum in Iseyin, Oyo state. Also, the influence of gender on the use of Social media to acquire hidden curriculum was also examined. It involved three hundred and eighty-three Senior School Students in Iseyin Local Government of Oyo state, Nigeria. Three research questions and two hypotheses were generated to guide the study. The instrument used for this study was questionnaire. The instrument was subjected to face and content validity. Reliability of the test instruments was carried out using split-half method during the pilot study and its value yielded 0.71 for frequency of usage and 0.86 for usage of social media to acquire hidden curriculum. Data collected from the respondents were analyzed using descriptive statistics of mean and inferential statistics of t-test and to answer both research questions and research hypotheses. Findings of the study showed that students frequently used social media for different purposes. There was no significant difference

between the mean scores of the male and female students in the frequency of use social media. t (79) = 36.6; sig (2-tailed) = 0.00 and P > 0.05. Also, there was no significant difference in the use of social media to acquire hidden curriculum based on gender. T (39) = 0.38; sig (2-tailed) = 9.70 and P > 0.05. Finally, based on the research findings recommendations were made on the need to train students on using social media for educational purposes.

The Criterion for Effective Practical and Experiment (EPE) in Senior Secondary School Chemistry

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Chemistry is relevant to life and society, and had been a prerequisite subject for many fields of knowledge. The subject has a variety of applications, hence its inclusion into senior secondary school (SSS) curriculum. Effective practical and experiment (EPE) in chemistry have more tendencies to open-ended investigative and knowledge-based learning, which engages students with hands-on and minds-on activities. This study is primarily an appraisal of EPE in SSS chemistry learning, with the purpose for improved learning experiences, learning outcomes and achievements in SSS chemistry. The research was a case involving 12 randomly selected chemistry teachers in the Ojo local government, Lagos State. These teachers had interactive sessions with the authors on demonstration, structured, investigation and problem solving kinds of EPE. Interviews were subsequently conducted with the teachers on different dates (depending on their choice and conveniences). The structured items designed for the interview focused on three indicators: Students' learning experiences; students' challenges; and students' academic achievements. The limitation to the study was that data were only collected from one local government area. Findings revealed that EPE gave students opportunities to perform tasks and to construct meanings and understanding of chemistry concepts; that more periods should be allocated for elaborate laboratory activities in chemistry; and that small class sizes should be encouraged for chemistry EPE. The study documented how chemistry teachers should integrate EPE into the teaching and learning of SSS chemistry. Process skills were emphasized, so as to educate students about their relevance to everyday life and to stimulate their interest in chemistry.

Cultural diversity in Learning and Teaching: A philosophical discourse

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This philosophical discourse explores the significance of cultural diversity in the context of learning and teaching. It delves into the complexities and implications of embracing cultural diversity in educational settings and seeks to uncover its potential benefits for both educators and learners. The paper critically examines various philosophical perspectives, theories, and frameworks that illuminate the importance of cultural diversity in learning and teaching, aiming to foster inclusive and equitable educational practices. Core curriculum and multicultural education are two major approaches advocated in the current school reform movement. But some scholars have argued that cultural and language differences are not solely responsible for the differences in school learning and performance among students. Comparative research has even shown that some students perform excellently in school despite coming from backgrounds that are different from those reflected in the curriculum, mode of presentations and instructional style of their schools. By exploring these interconnected dimensions, this philosophical discourse endeavors to contribute to the ongoing dialogue on cultural diversity in learning and teaching, fostering a more inclusive and equitable educational landscape. By addressing the philosophical underpinnings of cultural diversity, this discourse encourages educators, policymakers, and researchers to recognize and value diverse cultural backgrounds, experiences, and knowledge systems in the pursuit of meaningful and transformative education.

Promoting Meaningful Learning of Programming Language: Should we trust CTCA?

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Africa needs to rewrite how science content is being delivered in its classrooms in ways that will not only enhance meaningful learning but also attract the younger ones to study science. Programming language has been found difficult by students in the computer science curriculum. This may be attributed to the method of teaching used in the senior secondary schools. Investigating whether the teaching method influences students' performance is important in establishing alternative teaching methods. This study compares both the traditional teaching method and the CTCA in a bid to determine which is at easing students' understanding of programming language. The study sought to find out; (a) if there will be any statistically significant difference in the performance of students taught programming language using the CTCA and the lecture method. (b) what perception students hold about learning programming language using CTCA. The study employed a mixed-methods design. It adopted quantitative and qualitative data gathering techniques that had experimental and control cases. The experimental class had 24 respondents (15boys, 9 girls) while the control class had 23 respondents (10 boys, 13 girls) senior secondary school 1 computer studies students in Lagos, Nigeria. Recommendations were made for improving the teaching and learning of computer studies in African schools.

Exploring the Effectiveness of Culture-Techno-Contextual Approach and Entrepreneurial Motivated Approach on Nigerian Students' Cognitive Outcome

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Africa seeks to be a global powerhouse by 2063 and a blueprint and master plan for this has been developed. Massive investment for developing human and social capital through an education and skills revolution emphasizing innovation is the key. The birth of the Afrocentric teaching, learning and research approach christened Culturo-Techno-Contextual Approach (CTCA) aptly fits into this vision. This study investigated the effectiveness of Culturo-Techno-Contextual Approach (CTCA) and Entrepreneurial Motivated Approach (EMA) on students' achievement in senior school chemistry in Lagos State, Nigeria. The study adopted a quantitative pre-test-post-test, control group quasi-experimental

design involving a 3x2 factorial matrix. A total of 102 senior secondary year two (SS 2) chemistry students (40 males and 62 females) were drawn purposively from three schools in Lagos State. Fat and Oil Achievement Test had reliability coefficient of 0.78 was deployed for quantitative data collection. Two experimental groups were taught separately with CTCA and EMA while the control group had the traditional lecture method (TLM). A significant difference exits among the three groups on achievement score with CTCA student coming top, [F (2, 98) = 15.53; p <.05] but no statistically significant difference exits between male and female students taught using the selected teaching strategies [F (1, 99) = 1.25; p > 0.05]. This study concludes that both CTCA and EMA are golden methodological keys to be adopted in learning, teaching and research to enhance chemistry students' learning outcomes and development of entrepreneurial skills to attain Africa's development of human and social capital.

Development of Harlybot and Exploration of its Potency and CTCA in Teaching Mobile and Adaptive Systems in Nigerian Secondary Schools

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This research aims to develop a novel educational tool called HarlyBot and explore its potential and effectiveness as well as that of the Culturo-Techno-Contextual Approach (CTCA) in teaching mobile and adaptive systems to Nigerian schools. The study is currently in progress, with a letter of introduction already sent to the selected schools, which represent the sample population for this research from which the experimental and controlled subjects are drawn. The research methodology will utilize a quasi-experimental design, and the sampling technique employed will be purposive random sampling. The primary objective of this research is to address the need for innovative teaching methods that incorporate afro-centric indigenous cultural undertone within the Nigerian educational context and answer questions about the statistical significance of CTCA and HarlyBot on the academic achievements, critical thinking and ICT proficiency of secondary school students in Nigeria. HarlyBot is being developed as an artificially intelligent, interactive and adaptable learning tool, specifically designed to engage and enhance students' understanding of mobile and adaptive systems in computer science. The research will involve a comparison between traditional teaching methods and the utilization of HarlyBot and CTCA as instructional tools. Various data collection techniques, including surveys, interviews, and achievement tests, will be employed to gather comprehensive data. The collected data will be analyzed using suitable statistical tools including multivariate analysis of covariance (MANCOVA) MANCOVA allows for the examination of the effects of the independent variable (HarlyBot and CTCA) on multiple dependent variables (performance, critical thinking, and academic

achievements) while controlling for covariates. The findings will provide valuable insights into the efficacy of integrating such technology within the Nigerian educational system.

Enhancing Mathematics Learning: Computer-Assisted Instruction and Traditional Instruction for Struggling Students

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This paper investigates the effectiveness of computer-assisted instruction (CAI) and traditional instruction in enhancing mathematics learning for struggling students. It reviews the literature on technology integration in education and the declining performance of students in mathematics. The study focuses on the use of Assessment and Learning in Knowledge Spaces (ALEKS), a web-based intelligent tutoring system, as a supplement to traditional teaching strategies. Through a classroom survey, initial knowledge gaps and subsequent improvements were observed among students using ALEKS alongside traditional instruction. A systematic review of relevant literature identified twenty-five (25) articles that highlighted the benefits of technology integration in mathematics classrooms. Findings indicated that technology is more effective when used in conjunction with traditional instruction, with students showing a preference for a combination of both approaches. Teachers who integrate technology and traditional methods reported improved student success. The paper emphasizes the importance of effectively integrating technology with traditional instructional methods to improve mathematics learning outcomes. It acknowledges the limited research on specific teaching strategies using ALEKS or similar tools in traditional classroom settings. Additionally, it suggests further investigation into effective teaching approaches and technology frameworks that align with traditional instruction to personalize learning experiences and address instructional gaps.

Bridging the Difficult Gap In Students' Academic Achievement, Creativity and Anxiety in ICT: Can Culturo-Techno-Contextual Approach (CTCA) Be A Link?

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Studies has shown that underachievement, poor creative thinking and high anxiety exist among students learning ICT concepts. This study therefore investigates whether CTCA in two learning modes are effective in bridging the gap in students' academic achievement, creativity and anxiety level of students

in ICT concept compared with the control group. This study used a mixed methods research approach and a quasi-experimental design consisting of two experimental and one control group. A total of 88 senior secondary school II students in Lagos State District V which consist of 39 males and 49 females were selected using convenient sampling method and 4 students were interviewed. The test for achievement, creative thinking and ICT anxiety scale which had reliability coefficients of 0.74, 0.70 and 0.95 respectively were used to collect the quantitative data. The quantitative data were analysed using MANCOVA and qualitative data collected were analysed thematically. The findings revealed that the two experimental groups; CTCA in classroom and CTCA in e-learning outperformed the Lecture method group [F(2,82) =7.22; p<.05) and univariate F on achievement [F(2,82)=12.58 ; p,.05] , creativity [F(2,82=11.82; p,.05] and anxiety [F(2,82)=4.15; p<.05]. CTCA in E-learning group scored the highest on all measures of the dependent variables. There were no statistical significant differences on gender in the experimental groups. There were positive preference of CTCA in e-learning from the thematic analysis of the qualitative data. It is inferred that CTCA in e-learning can effectively promote meaningful learning, reduce anxiety and increase creativity.

Improving the Achievement of Students in Biology: How Can Culturo-Techno-Contextual Approach (CTCA) Help in Plant Nutrition?

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A person's ability to tailor a new stimulus is a prerequisite for meaningful learning of science or other concepts, and this ability is reflected in their ability to apply their newly acquired knowledge to a variety of other contexts like there environments. This study investigated the effect of Culturo-Techno-Contextual

Approach in improving the achievement of students in plant nutrition. The study adopted a pretest, post-test quasi-experimental. The sample comprised 138 senior secondary school 2 biology students with 69 boys and 69 girls in two experimental schools and one control school of Lagos State Educational District V, Nigeria. The experimental group was taught using the CTCA while the control was taught using the traditional teaching method (TTA). Plant Nutrition Achievement Test (PAT) was used for data collection after being validated by experts in test and measurement and biology educators. The reliability co-efficient was established using test-retest which yielded a coefficient value of 0.83. The research hypothesis was answered using ANCOVA at 0.05 alpha level of significance. Results revealed students in the CTCA outclassed students in the TTA [F(1,134)=1655.16, p < .05]. The study therefore recommends using CTCA in teaching Biology in Senior Secondary Schools in Lagos state because it enhances the learning of Biology among students.

Exploring the Effectiveness of CTCA on the Achievement and Attitude of Senior Secondary School Students towards Bioenergetics

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The study examined the effectiveness of the culturo-techno-contextual approach in improving students' achievement in biology, with a specific focus on the classical aspects of bioenergetics. The study was guided by four research questions and four hypotheses and it adopted the mixed methods (quantitative & qualitative) design. Two schools purposively drawn from 70 public co-educational senior schools in Lagos State educational district V and a total of 32 students comprising of 17 (9 males, 8 females) students taught using CTCA and 15 (8 males, 7 females) students taught using the lecture method made up the sample. These schools were located in two different local government areas. Bioenergetics Achievement Test (BAT) with a split-half reliability coefficient of 0.77 and Bioenergetics Attitude Questionnaire (BAQ) were used to collect data for the study. Analysis of Covariance (ANCOVA) was used to test for significant differences between the two groups at 0.05 level of significance. The results revealed no statistically significant difference in the mean achievement scores of students taught using CTCA and those taught using lecture method [(experimental)= 17.59, (control)= 16.27]; F (1, 29) =.19; P > .05]. The Ancova was

also used to test the attitude of the students taught using CTCA and lecture method at 0.05 level of significance. The result showed that there is no statistically significant difference in the attitude of students taught bioenergetics using CTCA and those taught using the lecture method {F (1, 29) =2.18; P>0.05}.Within the scope and limitations of the study, it was tentatively recommended that CTCA should be adopted by secondary schools Biology teachers in teaching bioenergetics.

Exploring the effectiveness of Culturo-techno-contextual approach in attitude and achievement of secondary school students towards population dynamics

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There have been various methods used in teaching difficult concepts in biology, which have not convincingly promoted meaningful learning of science. The aim of this study was to test the efficacy of the culturo-techno-contextual approach in the achievement and attitude of secondary school students towards population dynamics as a concept in science. The study employed a quasi-experimental design. The sample was drawn from 68 SS2 biology students. The control group had 36 students (16 males 20 females) was taught using the lecture method while the experimental group had 32 students (20 males 12 females) taught using CTCA. Data was collected using Population Dynamics Achievement Test (PDAT) which had a reliability coefficient of 0.81 and questionnaire on student's attitude towards population dynamics which had a reliability coefficient of 0.76 the data collected was analyzed using Analysis of covariance (ANCOVA) to test the hypotheses. The study found statistically significant difference in the achievement of students taught using CTCA and conventional method [F (1,65) =0.00; p<.05] and no statistically significant difference in attitude [F (1,65) =0.22; p< 0.05]. Hence, the study concluded that CTCA is an effective tool for enhancing students' achievement in biology thus recommending incorporation of cultural knowledge and context based approaches into science curriculum in order to make CTCA approach easier to the students and teachers.

Students' Perceptions on Integration of Entrepreneurial-Motivated-Approach in Contextual Teaching and Learning of Senor Secondary Chemistry: A Note for Stakeholders

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The approach to chemistry teaching in Nigeria senior secondary schools has continued to portray the subject as being abstract and esoteric giving room for students' difficulties in achievement and self-reliance. The purpose of the study is to explore the students' views on integrating Entrepreneurial-Motivated-Approach (EMA) in the contextual teaching and learning of chemistry at senior secondary school level. This study adopted an interpretative-ethnographic design using focus group. Purposeful sampling technique was adopted to select eight senior secondary II chemistry students drawn from two intact classes which formed both the experimental and control groups in the two sampled senior secondary schools in Ojo Zone of Education District V, Lagos State. The experimental group was taught with EMA and while the control group was taught with lecture method. Both groups were taught the same concepts for a period of six weeks. A Focus Group Discussion Protocol (FGDP) which was validated by the two experts in measurement and evaluation was used to collect data for the study. The audio recording of the FGD was made and the quotations from students were presented in textual descriptions arranged in themes. Findings revealed that EMA is effective in enhancing students' learning of chemistry concepts than the lecture method because it promotes better understanding of concepts and develops entrepreneurial self-reliance skills among learners. The study concluded that EMA is a viable tool for promoting students' learning and entrepreneurial skills for self-sustenance.

Exploring the Potency of the Culturo-Techno-Context Approach on Students' Cognitive Proficiency in and Attitude towards Metabolism

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Biological science is basically the study of living things. Biology has helped learners gain insight on natural and environmental concepts, principles, theories, and laws. Among others, the objectives of teaching biology at secondary and post-secondary levels is to enhance the ability of the learners to develop an awareness of their environment, have meaningful and relevant knowledge in biology for a successful living in a scientific and technological world. Additionally, knowledge of biology is a requirement for many fields of study that has an immense contribution to the technological growth of every nation. The primary objective of this study is to compare the effectiveness of the Culturo-Techno-Contextual Approach (CTCA) and the conventional lecture method in improving students' attitude towards and achievement in metabolism. A mixed method quasi-experimental design would be adopted for the study, alongside a purposive sampling technique in selecting two universities that offer BSc Nursing or any other program related to Biology while an intact class of students would be sampled for the study in Accra. Furthermore, the study adopts CTCA and the lecture base method as exogenous variables, alongside other moderating variables such gender, socio-economic status, school location, internet access, opportunity to learn, locus of control, teacher experience and the learning style of students as moderating variables towards the study's endogenous variables; Cognitive Proficiency and attitude. Moreover, the study will deploy instruments such as the class observation schedule, metabolism achievement test and a metabolism Attitude Questionnaire and the students' perception about CTCA interview guide will be deployed through a pre-test and post-test activity with the study's control and experimental groups. As a mixed-method quasi experimental study, the quantitative data will be analyzed using the IBM-SPSS software, while the qualitative data would be analyzed thematically. Data collected for this study will be analyzed using ANCOVA, which will be used to answer the null hypotheses posed for the study with the F-tests measured at $p<0.05$ level of significance. The results for the study would be interpreted and reported accordingly.

Perceived Influence of Social Media on Students' Academic Performance in Schools

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At this contemporary period of information age, there is growing recognition of young people as autonomous consumers of information. Youths of all ages, are known to use media in conjunction with ICTfor example, the Internet, instant messaging, and e-mail - to communicate with their peers and relatives, to stay current in what matters to them, to shop, to relax, to create personal Web pages, and to complete homework assignments, among other things. In view of this, Social media among secondary school students has become more popular over the years, which has raised questions of whether students' performance are being affected by how much time they spent on various sites of social media. Therefore, this study empirically answered three research questions. A self-designed questionnaire was administered to fifty teachers randomly selected among serving teachers in ifako-ijaiye Local Government Area of Lagos State. Data collected was analysed using frequency count, percentages and mean. Findings showed that social media positively enhance students' academic performance in school and recommendations were made.

The Convergence of Culture, Technology and Context: A Pathway to Reducing Mathophobia and Improving Learning Retention in Mathematics

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This study explored the potency of CTCA in reducing math anxiety and promoting meaningful learning of mathematics among secondary school students. The study adopted a mixed-method (explanatory sequential) design involving quasi-experimental design and individual in-depth interview. Participants were drawn from two schools, purposively selected within Lagos state educational district V. Three instruments: Set Theory Achievement Test

(STAT), Math Anxiety Scale and Students' Perception about CTCA Interview Guide (SPCIG) were used to collect the quantitative and qualitative data subsequently. The experimental group (102 students) was taught using the culturo-techno-contextual approach while the control group (106 students) was taught with the traditional lecture method. Treatment lasted six weeks after which posttest and retention test (four weeks after posttest) were conducted. MANCOVA was used to analyze the quantitative data. The results obtained suggest that CTCA reduces math anxiety and enhanced learning achievement [Pillai's Trace =.34 (F=53.09; p<.01)] more effectively than the traditional teaching method. No significant gender difference was also found in the achievement of the experimental group. Students' perception about the use of CTCA was generally positive. Within the scope and limitations of the study, it was recommended that CTCA should be adopted by secondary school teachers in teaching mathematics concepts.

Chemical composition and Total Antioxidant Capacity of underutilized indigenous tree: Morinda Lucida Leaves, Seeds and Bark

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Morinda lucida (Brimstone tree), a tropical indigenous plant used for medicinal purposes is reported to be a major source of antioxidants. (Asuzu and Chineme., 1990). Morinda lucida leaves, seeds and bark extract were analyzed for proximate, minerals and total antioxidant capacity. Leaves, seeds and bark of Morinda lucida were freshly collected and sun-dried to constant weights. Proximate composition of the samples was determined according to AOAC(2019). Mineral analysis was carried out using Atomic Absorption Spectrophotometer. Antioxidant activity was determined using 1,1-dyphenyl-2-picryl hydrazyl (DPPH) and Ferric ion Reducing Antioxidant Potential (FRAP) assay (Chan et al. 2007). Total phenolic content was measured using Folin-Ciocalteu method (Singleton et al., 1999). Protein, crude fibre, ash, crude fat were found at appreciable levels in all the samples. Na, K, Ca, occurred significantly in the extract with K having the highest value of 422.45ppm, 374.35ppm and

462.7ppm for leaves, seeds and bark respectively. Na/K <1 suggesting that the extract can be utilized for treating hypertensive patients. Total Antioxidant Activity has the highest value of 91.62%, while the bark was 69.03% (least). Total Phenolic Content of the seed extract had highest value of 32.16mg/100g while that of the leaves 25. 38mg/100g. The leaves, seeds and bark of Morinda lucida were found to be rich source of basic nutrients, essential minerals and veritable source of antioxidant, therefore suggesting that could be used as food/feed supplement for human and animal diet. It can also possibly be utilized as scavenger of free radicals produced by essential metabolic processes and environmental pollution.

Sub-Theme: Gender and Equality in Research and Innovation

Gender and Equality in Research and Innovation in Lagos State University, Nigeria

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The paper analyses the current state of the gender equality and research at Lagos State University (LASU), Nigeria. It also explores at some of the challenges that women experience in academic research and innovation. The inquiry will offer suggestions for enhancing gender equality in LASU's research and innovation. The study used a qualitative approach involving semi-structured interviews, focus group discussions and document reviews. The research sample included male and female scientists, researchers, academics, and university officials in LASU. Thematic analysis was used to analyse the data. The study revealed that gender inequality in research and innovation in LASU is pervasive and long standing. Female participants claimed that they lacked access to funding, resources, and facilities for research as well as possibilities for gender-sensitive mentoring and career advancement. In a research culture that was predominately male, gender stereotypes were also prevalent. The paper recommends the establishment of gender-sensitive policies, initiatives and measures to address gender inequality in research and innovation in LASU. The paper also suggests the provision of more support for female researchers, including access to research funds and resources, mentorship for women in science, and improved gender-sensitive professional development opportunities.

These measures should be supported and implemented by university officials, researchers and academics.

Availability and Usability of Digital Technologies for Learning among Undergraduates in a Selected University in Ondo State

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The outbreak of the COVID-19 pandemic has impacted the educational process and classroom teaching methods requiring the establishment of DT for learning among university students. Therefore, this study investigated the availability and usability of digital technologies for learning among undergraduate students at a selected university in Ondo State. More specifically, the objectives of the study are: (i) identify digital technologies available for learning; (ii) examine the use of digital technology by university students; (iii) identify factors that hinder the use of digital technology, and (iv) investigate gender differences in the usability of digital technologies. The study employed a descriptive method. The population is undergraduates in Ondo State. A simple random technique was used to select 386 respondents from the universities. The instrument used was a questionnaire. The tool was pilot tested with a value of 0.75 reliability. Inferential statistics were used to answer the questions. The hypothesis was tested by independent t-test and ANOVA at 0.05 significant level. The results of the study are as follows: most digital technologies are available for learning; there was a high degree of digital technology used for learning; and there was no significant difference in the usability of digital technologies for learning based on gender. The study recommended among others that the university's management should stay abreast of emerging technologies that can facilitate undergraduate learning.

Effects of Training in Self Concept and Assertiveness Skills on Academic Performance of Adolescence in English Language and Mathematics

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The study examined the effects of two counselling interventions- training in self-concept and assertiveness skills on adolescents' academic performance in English Language and Mathematics .It adopted an experimental design with a 3x2x2 factorial matrix. Random sampling technique was used to select 90 participants from three schools in Education District Six (6), Oshodi. Three instruments were used in data collection, these were; the Adolescent Personal Data Inventory (APDI) r = 0.75, Adolescent Behaviour Assessment Battery (ABBB) r=0.80 and unified Lagos State Senior Secondary school 2nd term examination questions in English Language and Mathematics. Six hypotheses were set. Data generated were analyzed using ANCOVA and t-test statistical analysis. Result showed that treatments had significant effects on the academic performance of participants with assertiveness skills training being more effective than the self-concept training. The two interventions were found to be effective in making adolescents learn better particularly participants who were exposed to assertiveness skill training. The result showed that adolescents' self-concept and assertiveness skills are particularly important in determining how well they perform in school subjects. It is suggested that concerted efforts should be made by counsellors, school administrators, parents and educators to adopt the techniques in treating adolescents' academic problems.

Investigating Gender Equity in Science, Technology and Innovation

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Issues of Gender Equity in Science, Technology and Innovation (GE-STI) cannot be overemphasized. Gender equity recognizes that women and gender-diverse people are not in the same starting position as men. This is because of historical and social disadvantages. Gender equity is the process to achieve gender equality. The study investigates the current state of gender equity in science, technology and innovation fields in terms of participation and outcomes. Relevant literature across the main social science, discipline and synthesis findings regarding the causes, implication and possible solution for gender equity were examined. An open-ended questionnaire of twenty items designed, to sample opinions of the selected undergraduate students involved in the study

about gender equity in STI and diagram perception test designed to test for individual participant spatial ability. It was revealed from the responses that gender equity in science, technology and innovation is hindered by number of factors which includes discriminatory labour market practices, inadequate access to education resources and gender stereotypes and bias. However, gender equity is an issue that requires a multidimensional approach focusing on both institutional and individual level factors. This recommends that solution to gender equity in science, technology and innovation should be multifaceted with intervention that target both structural and societal dynamics.

Awareness of Open-Source Software for Instruction among Undergraduate Pre-Service Teachers in Lagos State, Nigeria

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This study determined the awareness of open-source software for instruction among undergraduate pre-service teachers in Lagos State. The population for this study were pre-service teachers in all universities in Lagos State. Purposive sampling technique was used to select the universities from where the student samples were drawn based on public universities that are on campus. The instrument for data collection was an adapted questionnaire. Descriptive and Inferential statistics were used to answer the research question and test the stated hypothesis with the aid of stastistical product and service solution (SPSS) version 20.0 at 0.05 level of significant. The findings indicated that undergraduates are not aware of the use of open-source software for instruction. Significant difference exists between male and female pre-service teachers' awareness of OSS for learning in Lagos State. The study concluded that most pre-service teachers are not aware of most open-source software and their potentials for instruction in Lagos State. Therefore, it was recommended that the institutions should create awareness among the pre-service teachers on using OSS for learning in their institutions by organising orientation programmes where the pre-service teachers will be trained on how to use OSS for learning.

The Effect of Culturo-Techno-Contextual Approach on Critical Thinking Ability of Senior Secondary School Students in Biology

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In the 21st century, many challenges abound that need one to possessed critical thinking skill, hence this study seek to examined the effect of culturo- techno-contextual approach on the critical thinking ability of senior secondary school biology students. The research design adopted for the study was mixed method design consisting of quasi- experimental pre-test, post-test and interview schedule. Two schools from education district V were used for the study and 40 students were selected using simple random sampling technique from each school, making a total of 80 students. Two research questions were answered and three hypotheses were tested. The instruments for data gathering were Biology Critical Thinking Test (BCTT) adopted from West Africa School Certificate Examination (WASCE) and semi structure interview schedule were employed to collect quantitative and qualitative data respectively. The (BCTT) was subjected to split- half to get a value of 0.76 reliability, while 0.82 interrater reliability value was obtained for the interview guide. The research questions were tested using inferential statistics-Analysis of Covariance (ANCOVA). Findings showed that students' taught with culturo- techno- contextual approach performed better than student taught with lecture method [$F(1, 79) = 56.700$; $p > 0.05$]. Male students' taught with culturo-techno-contextual approach performed better than the female counterpart, but the difference was not significant.it is therefore recommended that the culture-techno-contextual approach should be used as an instructional strategy to enhance the achievement and critical thinking ability of students in learning difficult concept in biology and to bridge the gap in performance between male and female.

Effect of Inquiry Method on Student Academic Performance on Biology Students in Senior Secondary Schools

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In Nigeria, teachers of Biology have neglected this very effective method in teaching, this has been attributed to the fact that time in teaching Biology is not sufficient. This has resulted in poor performance among biology students. This study investigates the efficiency of Inquiry method as an intervention in improving the effect of students' academic performance in Biology. The design for this study is Quasi-experimental pre-test and post-test experimental and control group. The Biology Achievement test (BAT), which had a reliability coefficient of 0.83, was designed to collect data on students' achievement. The experimental group (35) was taught with Inquiry method, while the control group (35) was taught using the conventional lecture method. Descriptive statistics of mean and standard deviation were used to answer the questions while analysis of co-variance (ANCOVA) was used to test the hypothesis under 0.05 significance. The study found a statistically significant difference in the achievement of students taught using the inquiry method and conventional method [$F(1,67)= 0.000$; $p<.05$], as well as no statistically significant difference in the achievement of male and female students taught using Inquiry method [$F(1,32)= 0.263$; $p>.05$]. Hence, the study concluded that Inquiry method is an effective way for enhancing student performance and achievement in Biology. Recommendations to the government, school owners and biology teachers for the implementation of the findings of this study were made.

Investigating the Role of Virtual Laboratories in Enhancing Biology Education Outcomes: A Comparative Study on Achievement

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In Nigeria, Biology students are not exposed early to practical work, this has been attributed to the fact that practical Biology takes too much time. This has resulted in poor performance among biology students. This study sought to investigate the impact of virtual laboratory as an intervention in enhancing the

performance of secondary school students in biology. This study employed a mixed method design. The quantitative phase was quasi-experimental (a pre-test post-test non-equivalent group), and the qualitative phase was an in-depth interview. The Nutrition Achievement Test (NAT), which had a reliability coefficient of 0.81, was designed to collect data on students' achievement. The experimental group (51) was taught with V-lab, while the control group (49) was taught using the conventional lecture method. The data (pre-test and post-test scores) collected were analysed using ANCOVA as the participants were assigned in a non-random manner to the groups. The study found a statistically significant difference in the achievement of students taught using the CTCA and conventional method [F(1,97)= 0.02; p<.05], as well as no statistically significant difference in the achievement of male and female students taught using V-lab [F(1,97)= 0.48; p>.05]. Hence, the study concluded that V-lab is an effective tool for enhancing student achievement in biology. Recommendations to the government, school owners and biology teachers for the implementation of the findings of this study were made.

Efficacy of Whole-Body Vibration Exercise in Improvement of Selected Cardiometabolic Risk Factors of Prehypertension Young Adults

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The study investigated the efficacy of whole-body vibration exercise in improvement of selected cardiometabolic risk factors of prehypertension young adults in Lagos State. Pretest-postest experimental research design was adopted for the study. Twenty (20) prehypertension young adults were purposively selected as participants for the study. The selected cardiometabolic risk factor variables are systolic blood pressure, diastolic blood pressure and resting heart rate. The participants were exposed to 15 minutes of whole-body vibration exercise three times in a week for 8 weeks. The pretest measurement was taken before the commencement of the exercise intervention and posttest measurement was recorded after 8 weeks of exercise intervention. T-test was used to compare the pretest and posttest values of each of the variables measured. Results reveal that there is significant reduction in the posttest values when compared with the pretest values for systolic and diastolic blood pressure and resting heart rate. T-test analysis result showed that there is significant difference between the pretest and posttest values for systolic t(19) =1.65; p<0.05 and diastolic blood pressure t(19) =4.604; P<0.05 and resting heart rate t(19) =2.716; p<0.05. The result suggested that whole-body vibration exercise has

cardiovascular potentials of improving systolic and diastolic blood pressure and resting heart rate of prehypertension young adults.

Effect of Gender and School Location Difference on Students' Academic Achievement in Algebra at Senior Secondary Schools

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This study investigated the effect of gender and school location difference on students' achievement in Algebra at senior secondary schools. It meant to proffer solution to the problems of gender and school location disparities facing teaching and learning of Mathematics. The study employed a quasi-experimental pretest, posttest nonequivalent control group 2x2 factorial design consisting of two levels of gender (male and female) and two levels of school location (rural and urban) with the population of all students in 333 public senior secondary schools in Ogun State, Nigeria. The sample for the study consisted of 356 SS II students in eight intact classes (four rural area schools and four urban areas schools). A-50 item multiple choice achievement test on Algebra with a reliability index r = 0.93 was administered on the selected sample before and after the treatment which lasted for 12 weeks. Data analysis was done via Mean, Standard deviation and Multivariate Analysis of Covariance (MANCOVA) at α = 0.05 level of significance. The findings revealed no significant main effect of gender on students' achievement in Algebra [F(3,338)=0.001; p>.05]; and significant main effect of school location on students' achievement in Algebra [F(3,338)=29.004; p>.05]. Based on these findings, it was recommended that learners of Mathematics should be treated equally by the teacher during the lesson irrespective of gender or school location difference.