ORGANISATION DEVELOPMENT (OD) INSTITUTE, GHANA

Africa's Premier Graduate School in OD

12TH INTERNATIONAL ACADEMIC CONFERENCE FOR SCHOLARS AND RESEARCHERS IN AFRICA

BOOK OF ABSTRACTS

Theme:

INTEGRATION OF AI INTO THE CURRICULAR OF HIGHER SCHOOL OF LEARNING FOR SUSTAINABLE EDUCATION REFORMS IN THE 21ST CENTURY: A PHILOSOPHICAL DEBATE OF RESEARCHERS AND SCHOLARS IN AFRICA

JUNE 2026

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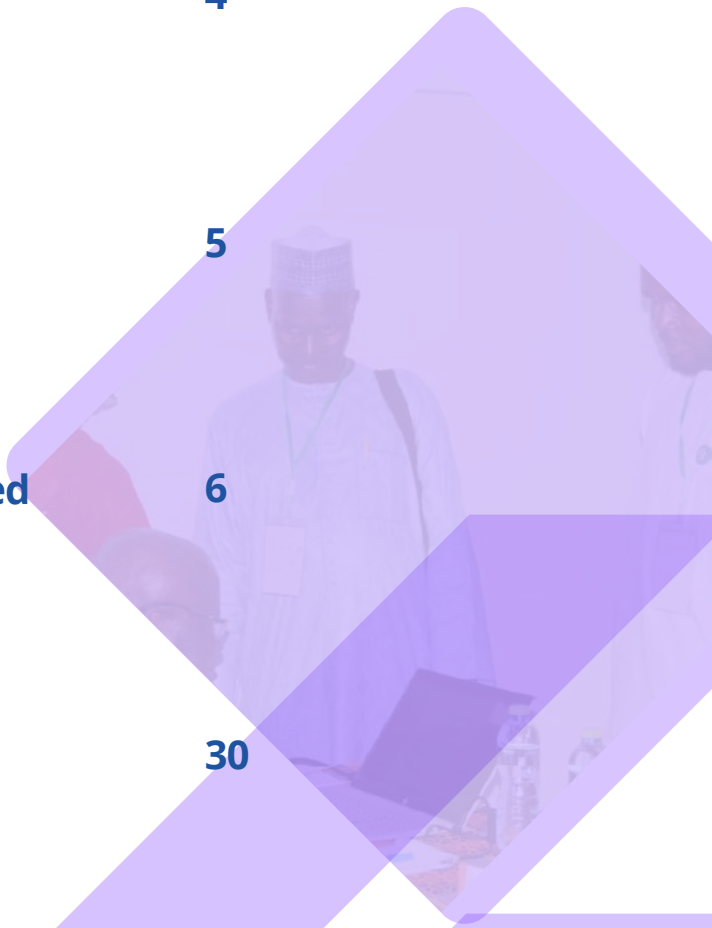

ABOUT OD INSTITUTE, GHANA

The OD Institute is Africa's premier tertiary educational institution solely devoted to training Organisation Development (OD) Practitioners and Change Managers. It is a rigorous practical and research oriented institution offering the Post Graduate Diploma (PGD) and Master of Arts (MA) programmes in Organisation Development.

The OD Institute was established after a decade of institutional partnership between the University of Cape Coast (UCC) in Ghana and the Organisation Capacity Improvement Consultants (OCIC) International, United Kingdom, in running the programme at the Masters and Post Graduate Diploma levels between 2003 and 2014.

The OCIC has transformed to become the OD Institute which is affiliated to the University of Cape Coast and the International Society for Organization Development and Change (ISODC),USA and accredited by Ghana Tertiary Education Commission (GTEC), formerly the National Accreditation Board (NAB), Ghana, to run courses in Organisation Development at the graduate level.

The PGD and MA programmes in OD offered at the OD Institute are well informed by the current trends and changes in the global economy and the need for Africa to harness its Institutional growth and leadership potential in the global economy.

Participatory and Experiential Action Learning coupled with high level of professionalism are integral components of Africa's premier transformative tertiary education offered through the OD Institute.

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Dr. Alice Anima Aboagye
Associate Consultant, OD Institute

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PROGRAMME OF EVENT

ARRIVAL & REGISTRATION: **Monday, 22nd June 2026 – 8:00 AM – 5:00PM**

OPENING CEREMONY: **Tuesday, 23rd June 2026 - 8AM - 11:00AM**

- **Opening Prayer**
- **Introduction of Guests**
- **Cultural Display**
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Auchi Polytechnic, Auchi,Edo State, Nigeria

S/No	Name of Author	Abstract Title
148	Dr. Edith Oyati	The Role Of Artificial Intelligence In Civil Engineering Technology: Enhancing Design, Construction, And Safety

Federal Polytechnic, Ede, Nigeria

S/No	Name of Author	Abstract Title
149	Tijani M.A.1, Sanusi M.A.1, Oladiran T.A.1, Atanda O.S.1, Bamikefa, I.A.1, Ogunwusi	AI-Driven Optimization-Based Instructional Framework For Teaching Renewable Energy Engineering In Developing Nations

Federal University, Birnin Kebbi, Kebbi State, Nigeria

S/No	Name of Author	Abstract Title
150	Abdullahi Shehu	Artificial Intelligence (Ai) And Entrepreneurship Development: Evidence From Selected West African Countries

National Institute for Nigerian Languages (NINLAN) Aba, Nigeria

S/No	Name of Author	Abstract Title
151	Dr. Anayo Maxwell Onanwa	AI Tools And Principal's Management Among Secondary Schools In Imo State Nigeria

Federal Polytechnic, Ede, Nigeria

S/No	Name of Author	Abstract Title
152	1Apata O. C., 1Ogunyemi B.R, 1Adejumobi M.K., & 2Adeleke J. S.	Assessing The Impact Of Artificial Inteligence On Project Management Of Construction Organizations

Usmanu Danfodiyo University, Sokoto State, Nigeria

S/No	Name of Author	Abstract Title
153	Shamaki, A. S.[1], Rabe, A. M.[2], Muhammad, S.[3], and Onu, A.[4]	Genotoxic And Phytotoxic Effects Of Heavy Metals On Onion (Allium Cepa L.) In Sokoto State

Auchi Polytechnic, Auchi, Nigeria

S/No	Name of Author	Abstract Title
154	Sado Hilda	Prospects And Challenges Of Artificial Intelligence (Ai) Integration In Fashion Design Education

Abdullahi Fodio University of Science and Technology, Nigeria

S/No	Name of Author	Abstract Title
155	Isah Musa Fakai1, Aminu Argungu Umar2 and Hassan Ibrahim Namaki1	Artificial Intelligence As Relevant Tool For Research In Biochemistry And Medicine

Federal Polytechnic, Ilaro, Ogun State, Nigeria

S/No	Name of Author	Abstract Title
156	Olakunle Ogunbi1,3 & Jumoke Soyemi2,3	Teacher Training And Readiness For AI Integration In The Developing Nations

S/No	Name of Author	Abstract Title
157	Zaharaddeen Adamu	An Author-Centric Scholarly Recommender System To Mitigate The Item Cold-Start Problem

Federal School of Surveying, Oyo, Oyo State, Nigeria

S/No	Name of Author	Abstract Title
158	Diyaolu, Akorede Muftau (Ph.D)	Artificial Intelligence (AI) And Applications For Service Delivery In Academic Libraries: An Overview

University of Calabar, Calabar, Nigeria

S/No	Name of Author	Abstract Title
159	Anashie, Annastasia Iwang (Ph.d)	AI- Driven Management Of Education In South - South Nigerian Public Universities: Implications For National Cohesion And Global Global competitiveness

S/No	Name of Author	Abstract Title
160	Yakubu Musa Yeldu, PhD, FORI	Reimaging Science And Technology Education In Africa: Harnessing Artificial Intelligence For Curriculum Innovation And Sustainable Learning Outcomes In Higher Institutions

National Mathematical Centre, Abuja, Nigeria

S/No	Name of Author	Abstract Title
161	RIMDANS Victor Zwalmak 1 BAMIDELE Oluchi Jennie 2, OKETAYO Abimbola Mujidat 3 ODUWOLE Omolara Oluwakemi 4, NRIAGU Chukwunonso Ugonna5, ARIH Sarah Nkemdilim6	AI-Driven Analysis Of Cybersecurity Challenges And Their Impacts On National Development In Nigeria

S/No	Name of Author	Abstract Title
162	Dahiru Gurama	AI and Educational Management

Auchi Polytechnic, Nigeria

S/No	Name of Author	Abstract Title
163	Oduntan, Evelyn Bosede (PhD)	Artificial Intelligence and Cybersecurity In ICT Systems

Kashim Ibrahim University, Maiduguri, Borno State, Nigeria

S/No	Name of Author	Abstract Title
164	Ibrahim Ali and Alhaji Umar Abubakar	Forecasting Material Flow Efficiency And Waste Generation In Africa Circular Economy Systems Using Random Forest Models

Kashim Ibrahim University, Maiduguri, Borno State, Nigeria

S/No	Name of Author	Abstract Title
165	Dr. Muhammad Abubakar Muhammad	The Significance Of Artificial Intelligence In Teaching Arabic Language To Non- Native Speakers

Gombe State College of Education and Legal Studies, Nafada, Nigeria

S/No	Name of Author	Abstract Title
166	Usman Muhammad Ahijo	Effect of Artificial Intelligence On Financial Management Practices In Colleges of Education In Gombe State

Auchi Polytechnic, Auchi, Nigeria

S/No	Name of Author	Abstract Title
167	Ofuokwu, Faith Oghenevwede (Ph.D)	Artificial Intelligence and Talent Management: Benefits And Challenges in Nigeria

Abdullahi Fodio University of Science and Technology, Aleiro, Nigeria

S/No	Name of Author	Abstract Title
168	Usman Mohammed	Lecturers' Perception On The Utilisation Of Artificial Intelligence For Education In Tertiary Institutions In Kebbi State

Auchi Polytechnic, Auchi, Edo State, Nigeria

S/No	Name of Author	Abstract Title
169	Abu Maliki	Artificial Intelligence (Ai) And Food Security In Nigeria: A Review

Adamu Augie College of Education, Argungu, Kebbi State, Nigeria

S/No	Name of Author	Abstract Title
170	Dr. Faruk Siddik Tilli	Curriculum Reform In Islamic Studies Under The Influence Of Artificial Intelligence

S/No	Name of Author	Abstract Title
171	Danladi Ali Msheliza	The Integration Of Artificial Intelligence (Ai) Into Nigerian Colleges Of Education Presents Transformative Possibilities For Human Resource Management (Hrm) Within The Teacher Education System

African Aviation and Aerospace University (AAAU) Abuja, Nigeria

S/No	Name of Author	Abstract Title
172	Ibrahim Umar Dodoji	Leveraging Artificial Intelligence In Pilot Training To Improve Weather Awareness, Decision-Making, And Aviation Safety In African Operations

Auchi Polytechnic, Auchi Edo State, Nigeria

S/No	Name of Author	Abstract Title
173	Edigan Bathlomew Imohimi	Artificial Intelligence for Sustainable Education Reform In African Polytechnics

Federal Polytechnic Ede, Nigeria

S/No	Name of Author	Abstract Title
174	Egbedeyi O. A. & Asa O. A.	Integrating Artificial Intelligence Into Environmental Management Curricula In Nigerian Higher Education: An Empirical Assessment Of Pedagogical Innovation And Sustainability Competencies

African Aviation and Aerospace University Abuja, Nigeria

S/No	Name of Author	Abstract Title
175	Timothy Epidi	The Role Of AI in Sustainable Pest Management In Organic Agriculture

S/No	Name of Author	Abstract Title
176	Umoru Abdulazeez FCA	Green Accounting Initiatives on Sustainable Development in Nigeria: Futuristic Implications

Adamu Augie College of Education, Argungu, Kebbi State, Nigeria

S/No	Name of Author	Abstract Title
177	Kasimu Zaki Birnin Kebbi	Impact Of Artificial Intelligence (AI) On Education and Value Re-Orientation For National Development In Nigeria: Challenges And Way Forward

Abia State College Of Education (Technical) Arochukwu, Nigeria

S/No	Name of Author	Abstract Title
178	Bldr. Dr. Kingsley O. Igboko	Instructional Activities And Resources For Quality Management Skills In Building Construction Trade In Technical Colleges In Nigeria In The 21st Century

National Institute for Nigerian Languages, Aba, Nigeria

S/No	Name of Author	Abstract Title
179	Chukwuma Victoria Azuka	Integration Of AI Tools Into Public Policy Direction On Food Security In Nigeria

Abubakar Tatari Ali Polytechnic (ATAP), Bauchi, Bauchi State, Nigeria

S/No	Name of Author	Abstract Title
180	Isah, Muhammad Lamir, PhD	Artificial Intelligence (AI) And Cybersecurity Management

Abdulkadir Kure University, Minna Niger State, Nigeria

S/No	Name of Author	Abstract Title
181	Prof Tsado Jacob	Transforming Electrical Electronics Engineering Education System Through Application Of Artificial Intelligence In 21 St Century: A Review Of Current Situation And Future Opportunities

National Institute for Nigerian Languages, Aba, Abia State, Nigeria

S/No	Name of Author	Abstract Title
182	Jacob Idoko Onogwu	Enhancing Student Learning Outcomes In Biology Through Ai-Driven Personalized Instruction In Secondary Schools

Federal Polytechnic Ede, Osun State, Nigeria

S/No	Name of Author	Abstract Title
183	1OLAWUYI S.T, 2ADELEKE J.S, 1LAWAL M.O, 1AJIBOYE B.O, 1PRINCE E. M.	Leveraging AI- Driven Insights For Optimal Financing and Investment Strategies In Emerging Economies Real Estate Development

S/No	Name of Author	Abstract Title
184	Engr Aishatu Ibrahim Birma, Raihanatu Mohammed Hamid, Emmanuel Dada Gbenga, Idris Ibrahim Wakil, Abdulkarim Abbas Gora	Machine Learning Driven Prediction And Optimization Of Urban Waste And Energy Management Using Iot Time-Series Data

African Aviation and Aerospace University (AAAU), Abuja, Nigeria

S/No	Name of Author	Abstract Title
185	Modibbo Aishat Altine	A Review On Characteristics Of Rain Attenuation On Satellite Links In Parts Of The North West

Auchi Polytechnic, Auchi, Edo State, Nigeria

S/No	Name of Author	Abstract Title
186	Braimah, Jafaru	Design, Modeling, And Performance Evaluation Of Closed-Loop Automatic Solar Tracking Systems For Enhanced Photovoltaic Energy Harvesting

Federal Polytechnic, Ede, Osun State, Nigeria

S/No	Name of Author	Abstract Title
187	ADEWOYIN Olawale Johnson	Exploring The Effect Of Ai-Driven Curriculum Development On Educational Policy Implementation In Public Polytechnics In South-West Nigeria

Abdulkadir Kure University, Minna, Nigeria

S/No	Name of Author	Abstract Title
188	Bala A. Shehu, PhD	Examining The Factors Influencing Adoption Of AI-Powered Mobile Learning Tools For Continuous Professional Development Of Primary School Teachers In Rural Areas Of Niger State, Nigeria

Waziri Umaru Federal Polytechnic, Birnin Kebbi, Kebbi State, Nigeria

S/No	Name of Author	Abstract Title
189	Yakubu Musa Yeldu, PhD, FORI	Reimaging Science And Technology Education In Africa: Harnessing Artificial Intelligence For Curriculum Innovation And Sustainable Learning Outcomes In Higher Institutions

Hussaini Adamu Federal Polytechnic, Kazaure, Nigeria

S/No	Name of Author	Abstract Title
190	Fowotade, S. A., 2Umar, A. A.., 3 Murtala Y. D., 4Haruna D. A., 5Mustapha, B. & 6Zainab, Y.	REMOVAL OF TOXIC HEAVY METALS FROM WASTE WATER IN KAZAURE METROPOLIS USING PALM KERNELS SHELL

Kashim Ibrahim University, Nigeria

S/No	Name of Author	Abstract Title
191	Fateema Umar Mustapha	Leveraging Artificial Intelligence to Strengthen Food Security Systems

Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria

S/No	Name of Author	Abstract Title
192	Kabir Mohammed Adamu	Supplementation Of Yellow Mealworm, Tenebrio Molitor Diet With Fruit Waste Enhances Its Crude Protein, Fats Contents And Nutritional Value
193	Prof. Salihu Mohammed Niworu	Artificial Intelligence, Educational Management And Corruption In Africa: The Nigerian Example

Federal University Oye-Ekiti, Nigeria

S/No	Name of Author	Abstract Title
194	Prof Olajide Patrick OLADELE	Digital Ecosystem Participation And Platform Utilization On Market Expansion Of Jumia In Lagos And Ogun States, Nigeria
195	Prof Yakibi Ayodele AFOLABI	Entrepreneurial Bricolage And Resource Optimization On Performance Of Paystack In Lagos State, Nigeria

Federal University Birnin Kebbi, Nigeria

S/No	Name of Author	Abstract Title
196	Aminu Adamu Bena	Subjective Evaluation Of Ai Knowledge Utilization In Building Simulation For Sustainable Architecture

Federal Polytechnic Ile-Oluji, Ondo State, Nigeria

S/No	Name of Author	Abstract Title
197	Yakubu Anakobe JImoh1, Ilupeju Akinola Mujeeb2	Sustainable Impact Of Artificial Intelligence-Driven Innovations On Engineering Measurement And Design In Nigerian Institutions

S/No	Name of Author	Abstract Title
198	Engr. Dr. Mrs. OYATI. EN	The Role Of Artificial Intelligence In Civil Engineering Technology: Enhancing Design, Construction, And Safety

National Institute for Nigerian Languages, Aba, Abia State, Nigeria

S/No	Name of Author	Abstract Title
199	Dr (Mrs) Ngozi A. Amazu	AI Companions And Undergraduates In Abia State: Awareness, Extent Of Use, Patterns Of Engagement, And Underlying Motivations

S/No	Name of Author	Abstract Title
200	Ebajemito, Joan Mojishola (Ph.d)	Application Of Artificial Intelligence On The Education Sector Of Nigeria: A Tool To Enhance Lecturer's Performance In Tertiary Institutions

Federal Polytechnic, Ede, Nigeria

S/No	Name of Author	Abstract Title
201	ANKELI Ikpeme Anthony	From Resistance To Readiness: Perceptions And Market Pathways For Artificial Intelligence Adoption In The Nigerian Real Property Management Subsector

University of Calabar, Nigeria

S/No	Name of Author	Abstract Title
202	Mary Mark Ogbeche	Managing Educational Institutions In Times Of Fiscal Constraints In Cross River State, Nigeria

Auchi Polytechnic, Auchi, Edo State, Nigeria

S/No	Name of Author	Abstract Title
203	Abu Maliki	Artificial Intelligence (Ai) And Food Security In Nigeria: A Review

Abdullahi Fodiyo University of Science and Technology Aliero, Kebbi State, Nigeria

S/No	Name of Author	Abstract Title
204	Dr. Gado Abubakar A.	Modelling And Analysis Of Wind-Solar Pv Hybrid Electricity Generation And Application To Electric Vehicles

Gombe State University, Gombe, Gombe State, Nigeria

S/No	Name of Author	Abstract Title
205	Abubakar Abdullahi Arawa	Artificial Inteligence (Ai) And Historical Scholarship: Prospects And Challenges In Nigeria

Federal College of Education, Gidan Madi, Sokoto State, Nigeria

S/No	Name of Author	Abstract Title
206	MALAMI, Mahmud Shallah	AI-Driven Predictive Analytics and Technostress Factors In Managing Student Retention and Teacher Emotional Exhaustion In Sokoto State Public Schools

University of Calabar, Nigeria

S/No	Name of Author	Abstract Title
207	Ndem, Blessing Emmanuel Ph.D	Capacity Building For Human Centered AI Pedagogy In Universities In South-South Nigeria

Polytechnic, N'Yak,Shendam, Plateau State, Nigeria

S/No	Name of Author	Abstract Title
208	Ramatu Aliyu Abarshi, Ojo Kayode Ayobami, Rachael S. Ugye, Bassi Jerimiah Yusuf	The Role Of Artificial Intelligence And Engineering Technologies For Sustainable Education Reforms In Nigeria: An Empirical Evidence Of Northern Nigeria

Auchi Polytechnic, Auchi, Nigeria

S/No	Name of Author	Abstract Title
209	Sado Hilda	Prospects And Challenges Of Artificial Intelligence (AI) Integration In Fashion Design Education

Abia State College of Education (Technical) Arochukwu, Nigeria

S/No	Name of Author	Abstract Title
210	Ogba Chinedu Treasure (Ph.D)	Analysis Of Emerging Artificial Intelligent (AI) Technologies And Teacher Readiness in Technical and Vocational Education And Training (TVET) In South-East Colleges Of Education In Nigeria

Kashim Ibrahim University, Borno State, Nigeria

S/No	Name of Author	Abstract Title
211	Fateema Umar Mustapha1, Hamsatu Mohammed Malut2, Modu Sheriff3, Goni Chamba4, Bintu Bukar Petrol5	Leveraging Artificial Intelligence To Strengthen Food Security Systems

Benjamin Uwajumogu State College of Education, Ihitte Uboma,Imo State, Nigeria

S/No	Name of Author	Abstract Title
212	Wilson Amandi Samuel	The Economics Of Access: Leveraging Ai To Improve Education Outcomes In Rural Africa

Ogun State Institute of Technology Igbesa, Ogun State, Nigeria

S/No	Name of Author	Abstract Title
213	Dr. Oluseye Abiodun Babatunde	Artificial Intelligence-Driven Research Analytics And Academic Performance Among Polytechnic Students In Southwest Nigeria
214	Gbadamosi Hameed O.	Leveraging Artificial Intelligence For Research And Development Enhancement In Polytechnics: Implications For Academic Performance In Southwest Nigeria
215	Asuelinmen Glory	The Role Of Artificial Intelligence In Strengthening Research Capacity And Academic Excellence In Nigerian Polytechnics
216	Adekunle Dada Surajudeen	AI-Supported Research Innovation And Its Influence On Students' Academic Performance In Polytechnics In Southwest Nigeria
217	Sholotan Kazeem Joshua	Integrating Artificial Intelligence Into Research And Development Practices For Sustainable Academic Performance In Polytechnics In Southwest Nigeria
218	Akomolafe Adewale Johnson	Artificial Intelligence Adoption and Knowledge Management Systems For Improving Research Productivity And Academic Performance In Polytechnics In Southwest Nigeria

Modibbo Adama University Yola, Nigeria

S/No	Name of Author	Abstract Title
219	Professor 1*Ibrahim Danjuma; 2Rose Ezekiel [PhD]	Artificial Intelligence and Entrepreneurship: Nexus and Conceptualization

Abịa State College of Education (Technical), Arochukwu, Abia State, Nigeria

S/No	Name of Author	Abstract Title
220	Chukwuma Samuel Chinonso, Attah Onyekachi Kevin (PhD) & Obiadi Ifeanyi Fredrick	Beyond Acceptance: Examining The Relationship Between Ai-Powered Assessment Tool Usage And Academic Performance Outcomes In Industrial Technical Education Programmes Of South-East Nigeria

Auchi Polytechnic,Auchi,Edo State, Nigeria

S/No	Name of Author	Abstract Title
221	Rehimetu Jimoh	Office Information Systems and Their Relevance In Tracking Insecurity and Crime In Nigeria

Federal Polytechnic Kabo Kano State, Nigeria

S/No	Name of Author	Abstract Title
222	Muhammad Sanusi Magaji	Competitive Aggressiveness and Financial Performance Of SMES: The Moderating Role Of Environment

Imo State University, Owerri, Imo State, Nigeria

S/No	Name of Author	Abstract Title
223	Maduwuba, Maryjoy Chidinma	Biorestoration Of Crude Oil-Polluted Sediment In Bodo Community Ogoniland, Nigeria Using Indigenous Bacterial Endophytes

Federal University Of Technology, Ikot Abasi, Akwa Ibom State, Nigeria

S/No	Name of Author	Abstract Title
224	Engr. Dr. Williams Anyebe Onuh	Developing And Integrating Artificial Intelligence (AI) That Reflects Cultural Hegemony Into Africa Educational Systems For Sustainable Education Reforms In The 21st Century

Umaru Ali Shinkafi Polytechnic, Sokoto, Nigeria

S/No	Name of Author	Abstract Title
225	Yakubu Idris	Agricultural Residues for Eco-Friendly Building In Sokoto
226	Nasiru Muhammad Sani	Assessment And Management Of Sediment Transport And Erosion In Irrigation Schemes Of Sokoto State
227	Abdu Tsoho	Assessment And Prevention of Corrosion In Mechanical Engineering Equipment In Higher Institutions
228	Ibrahim Abubakar Zarumi1 Saminu Umar2	Digital Financial Services And The Growth Of Small And Medium Enterprises In Nigeria

Federal University Of Technology, Ikot Abasi, Akwa Ibom State, Nigeria

S/No	Name of Author	Abstract Title
229	Umar Ali Bukar	SPS-DESR: A Human-Centred Framework for Conducting Systematic Literature Reviews in the Age of Generative AI

Taraba State University, Jalingo Nigeria, Nigeria

S/No	Name of Author	Abstract Title
230	Demas Sam Sarki, Ph.D	Harnessing Ai For Economic Growth And Poverty Reduction In Nigeria

THE SCHEDULE OF PRESENTATIONS

DAY 2 – TUESDAY, 23RD JUNE 2026						
DAY / TIME	ROOM 1		ROOM 2		ROOM 3	
	Name	Topic	Name	Topic	Name	Topic
11:00AM – 11:20AM	Amange, Arionin Ayodeji	AI-Driven Curriculum Reforms in African Universities: Implications for Health, Safety, and Educational Sustainability	Chinedu Jane-Madu Ugochi	AI-Driven Biomarker Discovery and Risk Stratification in Hypertension: A Narrative Review	Ogolo, Ifubaraboye Rosejean	Philosophical Foundations of AI Governance in Higher Education Curricula: Implications for Sustainable Educational Reform in Africa
11:20AM – 11:40AM	Kayode Gboyega OYENIRAN (PhD, CLN)	Preparing African Higher Education Institutions for the Fourth Industrial Revolution: The Role of Artificial Intelligence in Curriculum Development	Meregini-Ikechukwu, P.C.	Machine Learning: A Potential Tool in Maximizing Biogas Yield from Anaerobic Digesters of Domestic and Agricultural Waste	Laguo Gilbert	Artificial Intelligence (AI) and Change Management Implementation in the Nigerian Oil and Gas Business Environment
11:40AM – 12:00PM	Babatunde T. OGUNYEMI & Omotomilola O. OGUNYEMI	From Molecular Modeling to Machine Learning: Philosophical and Educational Implications of AI-Driven STEM Curriculum Reform in African Universities	Dr. Christopher Ononiwu Elemuwa	Reimagining Medical Microbiology in the Age of Artificial Intelligence: Diagnostics, Surveillance, Education, and the Future of Infectious Disease Science	Dr. Charles-Owaba, Tekenate	Investigating the Impact Trajectory of AI Integration in Mathematics Education: A Meta-Synthesis in Nigeria
12:00PM – 12:20PM	Dr. Lolo Teddy Adias	Artificial Intelligence as a Pedagogical Partner: Redefining the Role of Human Resource Lecturers in AI-Driven Learning Ecosystems	Diri I. Teilanyo	Artificial Intelligence and Scholarship: Some Humanistic Debates	Hembafan Pius Ogoina & Christopher Awam Diminyi	Artificial Intelligence-Enabled Virtual Simulation: Its Role in Tourism Education
12:20PM – 12:40PM	MAMUKUYOMI, Julie Bemigho; ANISIJI, Obiora Emeka & OBOGAI, Leo Eromina	Integrating Artificial Intelligence into Petroleum and Gas Engineering Education in Nigeria: A Sustainable Curriculum Reform for 21st Century Energy Challenges	Kosioma E. Owede	Blended Pedagogy and AI: Transforming Teaching Methods in Higher Institutions	Okechukwu Edward Okeke	Artisan Intelligence and Dissertation Writing in the Humanities: The Nigerian Experience
12:40PM – 1:00PM	Prof. Christian Tuotamuno DIRI, Ph.D.	Re-Skilling Media Professionals in the Era of Artificial Intelligence and Changing Dynamics in the Multi-Media Landscape for Sustainability	Chilaka Francis Chigozie, Ph.D.	AI Integration in Nigerian Universities: Analysing Opportunities and Policy Imperatives	Isaac B. Ado	AI-Driven Mathematical Modeling and the Development of Creative Mathematical Problem-Solving Skills among Undergraduates in South-South, Nigeria
1:00PM – 2:00PM LUNCH BREAK						
2:00PM – 2:20PM	Paschal Okiroro Iniaghe	Artificial Intelligence as a Scientific Instrument: Rethinking Teaching, Understanding, and Assessment in Chemical Sciences	Ifeoma Vivian Anyiam	The Role of Artificial Intelligence in Reshaping University Curricula: Ethical Challenges and Sustainable Educational Prospects	S. HALADU & A. A. ILELADEWA	Artificial Intelligence Applications in Poultry Health Monitoring and Production Optimization
2:20PM – 2:40PM	Thompson Olabode OJO & Juwon Ebenezer ADENIYI	Enhancing Food Security through Predictive Analytics: A Comparative Machine Learning Analysis of Crop Yield Dynamics in Developing African Economies	Olajide Adigun; Christian Nwaekpe; Babalola Amosa	Multi-Objective AI Scheduling for Faculty Workload Optimization	Christian Nwaekpe; Olajide Adigun; Babalola Amosa	AI-Powered Inventory Immunization Models for Post-Pandemic Trade Shocks
2:40PM – 3:00PM	KADIR, Mumini	The Impact of Artificial Intelligence Adoption on Food Security among Smallholder Farmers in Kwara State, Nigeria	ADEBAYO Azeezat Ayodele	The Role of Artificial Intelligence in Enhancing Demographic Data Collection and Population Forecasting	Dr. Mutiu Agboola	Application of Artificial Intelligence in Smart Grid Optimization and Energy Management Systems

3:00PM – 3:20PM	**IBRAHIM Rasheedat Adenike**	Evaluating the Influence of AI Literacy on Workforce Readiness among Nigerian Youths Using Multiple Regression Approach: A Case Study of Osun State	**Kazeem Adigun ATOBA**	Reforming Education Policy to Foster Ethical Innovation: A Case Study of Nigeria's TVET and Higher Education System	**Opeyemi Jumoke ZUBAIR**	Artificial Intelligence Applications in Payroll Integrity and Ghost Worker Elimination under Nigeria's Integrated Personnel and Payroll Information System (IPPIS)
3:20PM – 3:40PM	**Dr. Mrs. Obateru, Feyisike Bukola**	Sustainable Eco-Tourism and Rural Development: Assessing the Socio-Economic and Environmental Impact of Iyake Suspended Lake Tourism in Ado-Awaye, Nigeria	**Oladosu Wasiu Alani**	Assessment of Cutlery Cleaning, Sanitisation, and Storage Practices and Their Influence on Food Safety in Nigerian Restaurants: Evidence from Mega Kitchen, Osogbo	**Osinubi Olufemi Bankole; Ayofe Hammed; Ajani Adenike; Adekomi A.W.A.**	Evaluating the Role of Chair and Table Design in Shaping Restaurant Ambiance and Service Delivery
3:40PM – 4:00PM	**Dr. Mrs. Oyebisi Folake Mike-Rowland**	The Impact of Champagne Bucket on the Perception of Customer Services	**Mrs. Ayanloye Wailat-Abiodun Adekomi**	Examining the Significance of Tableware in Enhancing Food Presentation and Guest Perception on Culinary Quality	**Mrs. Omolola Dorcas Alao**	Staff Efficiency and Guest Perception: The Impact of Wine Bucket Placement in Restaurant Services Flow
END OF DAY TWO						
DAY 3 – WEDNESDAY, 24TH JUNE 2026						
8:00AM – 9:00AM	• Registration • Opening Prayer					
DAY / TIME	**ROOM 1**		**ROOM 2**		**ROOM 3**	
	Name	**Topic**	**Name**	**Topic**	**Name**	**Topic**
9:00AM – 9:20AM	**Ayofe Hammed; Oladosu Wasiu; Akande Nneka**	Evaluation of Tableware Maintenance as a Determinant of Quality Service Delivery in the Hospitality Sector	**Ajani Adenike Adeniyi**	Community Participation and Sustainable Eco-Tourism Development at Iyake Suspended Lake, Oyo State, Nigeria	**Akande Nneka Omotayo**	Socio-Economic Impact of Eco-Tourism Development on Local Communities: Evidence from Owalla Resorts, Osun State
9:20AM – 9:40AM	**Daniel Oyinloye et al.**	Effect of Rhamnogalacturonan II (RG-II) in Okro on Diabetes-Induced Rats Management	**Oladipupo Abdullahi Akinola & Oyedeji Kazeem Alade**	Political Communication and Youth Political Participation in Nigeria: The Role of Artificial Intelligence	**Yusuf T. O.; Adeleke J. S.; Obaju B. N.; Akande A. A.**	Appraisal of Recent Advances in Nigeria Construction Industry: Challenges and Prospects
9:40AM – 10:00AM	**Dr. Isiaka Tunji Adelabu & Mrs. Tawakalitu Yetunde Adelabu**	Utilisation of Artificial Intelligence in the Determinants of Effective Tax Rate of Listed Non-Financial Firms in Nigeria	**Denji, Kitka Bulus & Prof. Chukwu Anthonia Chilagorom**	Integration of AI into the Teaching of Chemistry in Tertiary Institutions in Plateau State, Nigeria	**Prof. Chukwu Anthonia Chilagorom & Denji, Kitka Bulus**	Teachers' and Students' Awareness and Utilization of AI as a Tool for Teaching and Learning in Tertiary Institution in Plateau State, Nigeria
10:00AM – 10:20AM	**Linda K. Yaro; John Ali Sode; Polmi Ibrahim**	Effect of Artificial Intelligence Enhanced Curriculum on Food Security Competencies among Undergraduate Students in Agricultural Programs in Plateau State, Nigeria	**Prof. Babaji Inuwa; Josiah Gobur Monday; Ndom Pefun Joshua; Nokshuwan Emmanuel Jidauna**	Effect of Artificial Intelligence Integrated Cybersecurity Curriculum on Digital Security Competencies among Undergraduate Students in Universities in Plateau State, Nigeria	**Chidimma Amarachi Acharaike & Lovelyn Chika Olisaeke**	Leveraging AI-Integrated and Movement Based Instruction to Enhance Cognitive Outcomes among Undergraduate Students at Federal University of Education Pankshin
10:20AM – 10:40AM	**Agbo, Anthony Ogbonnia**	Artificial Intelligence and Food Security: Optimization of Fermented Sorghum-Soybean Complementary Foods Fortified with Provitamin A and Protein	**Agbo, Anthony Ogbonnia**	Integrating Artificial Intelligence into Food Science Curricula for Sustainable Food Security: Predictive Analysis and Optimization of Fermented Sorghum-Soybean Complementary Foods	**BARTHOLOMEW IDOKO**	Assessment of Hybrid Learning Models that Combine Automated Feature Extraction with Robust Classification Algorithms for Malware Detection
10:40AM – 11:00AM COCOA / TEA / COFFEE BREAK						
11:00AM – 11:20AM	**Ogbuikwu Rowland Ikechukwu**	AI-Driven Optimal Sizing and Control of Hybrid Solar-Battery Systems for Rural Microgrids	**Cornelius Onwe, Ogayi**	Leveraging Artificial Intelligence in Predicting and Mitigating Food Insecurity in Nigeria	**Joshua Chukwuma Onwe**	Building a Sustainable Future: The Role of Artificial Intelligence and Circular

						Economy Innovations in Shaping Green Transition in Next-11 Countries
11:20AM – 11:40AM	**Ozochi, Chizoba Anthonia**	Leveraging AI Technology for the Detection of Spoilage Microorganisms in Perishable Foods: A Means of Promoting Sustainable Agriculture and Food Security	**Bello Mohammed Dakingari; Aliyu Magaji; Aliyu Saidu**	Assessment of AI as a Tool for Pest and Diseases Outbreak Forecasting in Nigeria for Sustainable Pest and Diseases Management	**Umar Garba Gwazawa & Isah Balarabe**	Enhancing Collaborative Learning with Artificial Intelligence: Impacts on Academic Connectedness and Student Performance at Kebbi State Polytechnic Dakingari
11:40AM – 12:00PM	**Ahmed Lawan & Abubakar Mohammed Sambo**	AI and the Fight against Corruption in Nigeria: A Study of ICPC	**Muhammad Imam**	The Utilization of Renewable Energy Hybridization and Automation for the Design and Implementation of Sustainable Contingency Power Supply Systems in Tertiary Education Institutions in Nigeria	**Dr. Abbas Ahmad Adamu**	AI Optimized Synthesis and Intelligent Characterization of Bio-Based Anti-Corrosion Polyurethane Coatings from Palm Olein Polyols, Recycled PET and Diisocyanates for Enhanced Metal Surface Protection
12:00PM – 12:20PM	**FARUK ALIYU**	Assessment of Household Sanitation Behaviour and Its Implications for Community Health in Selected Rural Communities in the Northeast, Nigeria	**Ibrahim Shuaibu Muhammad**	Integrating Artificial Intelligence into Engineering Courses in Polytechnics: Applications, Challenges, and a Strategic Framework	**Abdullahi Yusuf Galadunchi**	Artificial Intelligence (AI) and Food Security in Africa: Prospects, Challenges, and Policy Pathways
12:20PM – 12:40PM	**U. I. Imam**	Transforming Supply Chain Management through Artificial Intelligence: Opportunities, Challenges, and Future Directions	**Ahmed Abubakar**	Artificial Intelligence and Project Management: Impact, Challenges, and Solutions	**Ogwudire, Augustine Okereke**	Adult Education and Artificial Intelligence-Driven Workforce: Strategies for Human Resources Development
12:40PM – 1:00PM	**Ozuruonye Maureen**	Social Studies Teachers and Students' Perception of Artificial Intelligence Integration in Citizenship Education for Nation Building in Secondary Schools in Nigeria	**Tyavnande, Moses Iorsoo**	AI-Based Model for Predictive Software Maintenance: Classifying Non-Defect and Defect Software Systems Using Convolutional Neural Networks	**Ekeh Loveday Ojotu**	Artificial Intelligence and Business Performance among Science-Driven SMEs in Nigeria: The Benue State Experience
1:00PM – 2:00PM LUNCH BREAK						
2:00PM – 2:20PM	**Ekeh Ojotu Loveday**	Effect of Entrepreneurship Education Programme on Entrepreneurial Intention: Moderating Role of Institutional Environment	**AntseTerfa Benjamin**	Artificial Intelligence in Information Management: The Intersections and Roles of AI in Library Management in Benue State Nigeria	**Aondo, Jonathan Aernan**	The Role of Artificial Intelligence in Business Communications in Benue State Nigeria
2:20PM – 2:40PM	**ABAH INALEGWU SAMSON**	Leveraging AI-Powered and Adaptive Learning Systems for Personalized Biomedical Education in Nigerian Universities	**Thaddeaus Nguachia IORYEM**	Artificial Intelligence and Entrepreneurship: Transforming Innovation, Professional Practice, and Graduate Self-Employment in the Digital Economy	**Mohammed Ibrahim**	Artificial Intelligence (AI) as a Strategic Tool for Enhancing Administrative Efficiency in Federal Polytechnics Sector in Northeastern Nigeria
END OF DAY THREE						
DAY 4 – THURSDAY, 25TH JUNE 2026						
8:00AM – 9:00AM	• Registration • Opening Prayer					
DAY / TIME	**ROOM 1**		**ROOM 2**		**ROOM 3**	
	Name	**Topic**	**Name**	**Topic**	**Name**	**Topic**

9:00AM – 9:20AM	**Daniel Angale**	Design and Implementation of an AI-Based Smart Energy Meter for Efficient Energy Management	**Ibrahim Aliyu Ibrahim**	Hybrid Security Governance and Rural Insecurity: Examining the Role of Vigilante Groups in Combating Banditry in Northern Nigeria	**Abubakar Ali**	Web3 Opportunities or Financial Gains? The Effect of Telegram Crypto Farming on Student Focus and Performance
9:20AM – 9:40AM	**Mamman Ibrahim Babale**	Flood Risk Mapping Using Artificial Intelligence and Remote Sensing Techniques in Yobe State, Nigeria	**SALI, Mohammed Bobboi**	Brain Tumor Detection and Classification Model Using Deep Learning and Medical Imaging Techniques	**Bashir Muhammad et al.**	Emerging Chikungunya Virus Infection Unearthed in Maiduguri, Borno State, Nigeria
9:40AM – 10:00AM	**Abubakar Abdulhamid**	Budget Implementation Challenges in Federal Polytechnics: Evidence from the Bursary Perspective	**Billison Ibrahim Esq.**	Regulating Artificial Intelligence: Lessons for Developing Countries from Global Best Practices (A Case Study of West African Countries)	**Kabiru Abubakar Yahya & Benjamin Abba Stephen**	Secondary School Students' Attitudes Toward ICT in Kaltungo, Gombe State, Nigeria
10:00AM – 10:20AM	**Ibrahim Babale Gashua & Kabiru Abubakar Yahya**	Improving Research Performance Efficiency in Federal Polytechnic Kaltungo Using E-Learning Strategies	**Dr. Adepoju, Adenike Abiodun**	Artificial Intelligence and Information and Communication Technology: Synergies, Impacts, and Strategic Applications in Business Education	**Adejola, Deborah Kafayat**	Artificial Intelligence in Education and Its Role in Accelerating Sustainable Energy Transitions in ECOWAS
10:20AM – 10:40AM	**Dr. Bashiru Musa Sa'id; Dr. Usman Sani Tunga; Dr. Sahabi M. Jabo; Dr. Isyaka Abdullahi**	Artificial Intelligence in Education Philosophy: History, Current Developments, Issues and Difficulties, and Advantages of Utilizing AIED Tools in Instruction	**Dr. Bashir Musa Said; Dr. Malami Umar; Muktari Garba**	Integration Factors of 21st-Century Technical Drawing Skills into Peer Instruction at Nigerian College of Education	**Zainab Bello**	The Role of Performance Management on Employee Commitment in Higher Institution of Learning in Nigeria
10:40AM – 11:00AM COCOA / TEA / COFFEE BREAK						
11:00AM – 11:20AM	**Rukayya Malami Umar**	Artificial Intelligence and Entrepreneurship Education Programme in Higher School: A Counsellor's Viewpoint for Sustainable Education Reforms in the 21st Century	**Abubakar Boyi Sifawa**	Artificial Intelligence and Teacher Education Programme in Higher School: The Imperative of Counselling for Sustainable Education Reforms in the 21st Century	**Maniru Malami Umar**	A Hybrid Machine Learning Framework for Adaptive Cybersecurity Management and Intelligent Threat Detection
11:20AM – 11:40AM	**Dr. Yahaya Isah Shehu**	Artificial Intelligence as a Catalyst for Advancing Information and Communications Technology Infrastructure: Opportunities, Challenges, and Governance Implications	**Mohammed Albashir**	Office Skills Needed by Office Managers for Effective Performance	**Lauratu Musa Yahaya**	The Role of Information Management Systems in Promoting Sustainable Development at Jos Electricity Distribution (JED) Plc Bauchi Regional Office
11:40AM – 12:00PM	**Murtala Mohammed Alamai**	An Assessment of Smart Leadership Systems in Tourism and Hospitality Businesses in Bauchi State Nigeria	**Kabir Mohammed Adamu et al.**	Supplementation of Yellow Mealworm, Tenebrio Molitor Diet with Fruit Waste Enhances Its Crude Protein, Fats Contents and Nutritional Value	**Muhammad Adamu Ibrahim et al.**	Adsorption Studies of Metanil Yellow from Aqueous Solution Using Copper (II) Oxide Particles: Isotherm, Kinetics and Thermodynamics
12:00PM – 12:20PM	**Ishaq, S. A. & Adeshina, G. O.**	Antibacterial Activity of Alchornea Cordifolia Leaf Extracts against Multi Drug Resistant Extended Spectrum Beta Lactamase Producing Uropathogenic Klebsiella Spp and E. Coli Isolates	**Abdullahi Mohammed Umar**	Credit or Constraint? The Impact of Microfinance and Digital Lending on Poverty Reduction among Informal Entrepreneurs in Nigeria	**Hassan Salama Dala**	The Integration of Artificial Intelligence in Academic Libraries for Services Delivery in 21st Century
12:20PM – 12:40PM	**I. M. Sulumbe; H.A. Barka; Y.M. Bulama**	Analysis of Onion Markets Integration between Geidam in Yobe State and Maiduguri in Borno State, Nigeria	**Oluseyi Joshua Adegoke**	Integration of Artificial Intelligence (AI) for Enhanced Real Estate Risk Management in Nigerian Higher Institutions: A Philosophical Inquiry from Ibadan, Nigeria	**Bauda Gideon Sambo**	An Assessment of AI-Driven Administrative Reforms in Nigerian Educational Institutions: Challenges and Opportunities
12:40PM – 1:00PM	**Akinwunmi, Ayoola**	Evaluation of Sandcrete Blocks Manufactured in Ile-Oluji, Ondo State, Nigeria	**OMULA, Godwin Gabriel & ADEWUMI, Ademola Adeniran**	Ownership Structure and Performance of Listed Industrial Goods Companies in Nigeria	**Yakubu Anakobe Jimoh; Buliaminu Kareem; Akinnuli Basil Olufemi**	Software Development for Production System Effectiveness (PSE) Evaluation in Selected Production Industries

1:00PM – 2:00PM LUNCH BREAK						
2:00PM – 2:20PM	**H.O. Omolaiye**	Using Linguistic Features as Skill Acquisition for Self-Sustainability in Nigeria	**Bello Olusanya**	Trauma, Textuality, Psychoanalysis, Women as Healing Wrought Agents: A Case Study of Ahmed Yerima's Play – Little Drops	**Aluko Abiodun Oludare**	Artificial Intelligence and the Future of Educational Assessment
2:20PM – 2:40PM	**Oyebiyi Adewale**	The Role of Artificial Intelligence in Shaping Assessment Practices in Higher Education	**Olarinde Mobalaji**	The Impact of Artificial Intelligence on Organizational Behavior: A Risky Tale Between Myth and Reality for Sustaining Workforce	**Dr. Agwanyang Aniah Solomon**	AI-Enabled Decision Support Systems for University Administrators in Public Universities in Rivers State
2:40PM – 3:00PM	**Dr. Ndem Blessing Emmanuel**	Capacity Building for Human-Centred AI Pedagogy in Public Universities in South-South Nigeria	**Dr. Anastasia Anashie Iwang**	AI-Driven Management of Basic Education in South-South Nigerian Public Universities: Promoting National Cohesion and Global Competitiveness	**Dr. Roseline Asuquo Okon**	Designing a Capacity-Building Framework for Human-Centred AI Pedagogy in Universities in South-South Nigeria
3:00PM – 3:20PM	**Ogbeide Caroline**	Challenges of Open and Distance Learning (ODL) for Functional Education in Nigeria	**Hagler Ujunwa Okoire**	Bridging the Gap: Innovative Pathways to Poverty Reduction in Rural Nigeria	**Onwuneme, Nnebuife Lovina**	AI in Higher Education Management: Efficiency and Productivity Perspectives
END OF DAY FOUR						

DAY 5 – FRIDAY, 26TH JUNE 2026

8:00AM – 9:00AM	• Registration • Opening Prayer					
DAY / TIME	**ROOM 1**		**ROOM 2**		**ROOM 3**	
	Name	**Topic**	**Name**	**Topic**	**Name**	**Topic**
9:00AM – 9:20AM	**Kate Nkemjurum C. Nwaiwu**	Lecturers' and Students' Perceptions of the Potential Benefits and Challenges of AI Integration into Office Technology and Management Programme in South-East Nigeria	**Akanwa Allwell Ononiwu & Ogbunude Festus Okechukwu**	Adoption of Digital Agriculture Technologies among Farmers: Understanding Adoption Patterns, Barriers, and Enablers	**SAJO, Ibrahim**	Synergizing AI and Ecology: Advancements in Environmental Management
9:20AM – 9:40AM	**Rabiu Ibrahim Lailaba**	Leveraging AI and Technological Innovations in Meat Science for Sustainable Education Reforms in 21st Century	**Professor Faruk Rashid Haruna**	Building Sustainable Communities through Transformative Education and AI-Driven Innovation	**Aliyu Alhaji Tanko**	The Role of Artificial Intelligence and Educational Development in Africa: The Way Forward
9:40AM – 10:00AM	**Habiba M. Barau**	Revamping Nigeria's Higher Education Sector through AI-Driven Academic Library Services for Sustainable Growth and National Development	**Barr. Aisha Bukar**	The Ethical and Structural Readiness for AI Integration in Nigerian University Administration: A Case of Federal University of Education, Kontagora	**Hindatu Hamisu et al.**	Antibiotic Susceptibility Pattern of Multidrug Resistant Escherichia Coli from Waste Water within Dutsin-Ma Town, Katsina State
10:00AM – 10:20AM	**INALEGWU Friday Alapa**	Impact of Artificial Intelligence Capabilities on Supply Chain Performance: Evidence from Manufacturing Firms in Nigeria	**Fatima Ibrahim Abubakar**	Integrating Artificial Intelligence in Biomedical Microbiology Education for Sustainable Public Health Surveillance in Africa	**Mustafa Alhaji Isa**	Integrating Artificial Intelligence-Driven Computational Approaches into Biomedical Education: A Combined In Vitro and In Silico Framework for Addressing Antimicrobial Resistance in Africa
10:20AM – 10:40AM	**Ilevbare Oluwatosin E.**	Leveraging Artificial Intelligence for Youth Mental Health Promotion in Nigeria: A Psycho-Social and Ethical Analysis	**Kwaghvihi Orfega Benjamin**	Integrating Artificial Intelligence into Fish Post-Harvest Technology Education in Africa: A Framework for Sustainable Food	**Danjuma Mohammed**	Integrating Artificial Intelligence Tools into Accounting Curriculum: Readiness of Nigerian Universities

				Security, Curricular Reform, and Context-Aware Innovation		
10:40AM – 11:00AM COCOA / TEA / COFFEE BREAK						
11:00AM – 11:20AM	**Ayuba H. Kwablang**	The Impact of Artificial Intelligence on Financial Management Systems in Aminu Saleh College of Education, Azare	**Bakoji Mohammed Fema**	Integration of Artificial Intelligence and English Language Teaching in Nigeria Tertiary Institutions	**Dr. Ibrahim Bello**	Teachers' Readiness for Artificial Intelligence (AI) Integration in STEM Classrooms in Colleges of Education in Bauchi State, Nigeria
11:20AM – 11:40AM	**ABDULLAHI BABBAJI**	AI and Educational Management in Africa: Opportunities and Challenges	**Amina Suleman Gimba**	Integrating Artificial Intelligence with Indigenous Knowledge Systems for Water Resources Engineering Education in Nigeria: A Decolonial Approach	**Mohammed Alhaji Nuhu & Abdulrahaman Shettima**	Adequacy of Accounting Curriculum in Influencing Entrepreneurial Intentions among Accounting Students in Federal Polytechnic Damaturu, Yobe State, Nigeria
11:40AM – 12:00PM	**Kamilu, S. et al.**	Assessment of Indoor and Outdoor Background Radiation Levels and Possible Health Risk in Jigawa State Polytechnic, Dutse, Nigeria	**Nomishan, Iyorrumun**	Integrating AI into Higher Education Curricula for Sustainable Education Reforms in 21st Century Africa: A Philosophical Debate on AI and Project Management	**Dr. Mahdi Abubakar Abba**	Artificial Intelligence and E-Governance in Africa: Early Warning Systems for Crisis Management and Public Policy Innovation
12:00PM – 12:20PM	**Amah Henry C.**	Application of Artificial Intelligence in Biomedical Research	**Emmanuel Musa Ataka & Isaac Jato**	The Relationship between School Culture and Academic Success: A Study of Two Schools in Shendam LGA	**Frank Williams Ejelonu**	Artificial Intelligence, Cyber Security and Organizational Financing in a Third World Economy
12:20PM – 12:40PM						
12:40PM – 1:00PM						
1:00PM – 2:00PM LUNCH BREAK						
2:00PM – 2:20PM						
END OF DAY FIVE AND CONFERENCE						

CATALOGUE OF ABSTRACTS

AI-DRIVEN CURRICULUM REFORMS IN AFRICAN UNIVERSITIES: IMPLICATIONS FOR HEALTH, SAFETY, AND EDUCATIONAL SUSTAINABILITY

Amange, Arionin Ayodeji
Department Of Science Education, Faculty of Education,
Federal University, Otuoke
08035439822

Abstract

This study explores the integration of Artificial Intelligence (AI) into health and safety education curricula in African tertiary institutions through a philosophical lens. In the 21st century, the need for sustainable educational reforms has become critical, particularly in promoting safe learning environments and equipping students with competencies to manage health and safety challenges effectively. Drawing on the perspectives of African scholars and researchers, this philosophical inquiry examines the ethical, epistemological, and pedagogical implications of embedding AI into health and safety programs. The study highlights the potential of AI to enhance personalized learning, predictive risk management, and interactive safety training, while also interrogating challenges such as digital inequity, ethical dilemmas, and overreliance on technology. Findings suggest that thoughtful AI integration, grounded in African educational philosophies and ethical considerations, can foster sustainable and resilient health and safety learning. The study contributes to ongoing debates on curriculum reform, offering insights for policymakers, educators, and researchers seeking to harmonize AI innovation with culturally relevant and safe educational practices.

Keywords: Artificial Intelligence, Health and Safety Education, Curriculum Reform, African Higher Education, Sustainable Education, Philosophical Inquiry, Ethical Considerations

AI-DRIVEN BIOMARKER DISCOVERY AND RISK STRATIFICATION IN HYPERTENSION: A NARRATIVE REVIEW

Chinedu Jane-Madu Ugochi[1]

1. Department of Haematology and Blood Transfusion Science,
2. Federal University Otuoke, Bayelsa State, Nigeria

Abstract

Background: Hypertension continues to be the prime modifiable risk factor for morbidity and mortality related to cardiovascular disease, however, conventional risk stratification most times failed to detect the phenotypic heterogeneity of the disease.

Objective: This review aimed to evaluate recent advancement in artificial intelligence (AI) for discovering novel digital and biological biomarkers and to assess the current state of AI-driven hypertension risk stratification.

Methods: A comprehensive literature search was conducted across Google Scholar, PubMed, Researchgate and ScienceDirect for peer-reviewed articles published between 2023 and 2026 highlighting on machine learning (ML), deep learning (DL) and multimodal data integration in hypertension.

Results: Emerging AI models have successfully identified "digital biomarkers" from photoplethysmography (PPG) and ECG waveforms allowing accurate prediction of hypertension-induced organ damage before clinical presentation. More so, multi-omics integration (metabolomics and proteomics) using AI has revealed new biomarkers linked to treatment-resistant hypertension. However, significant gaps remain with regard to algorithmic "black-box" opacity, the lack of prospective clinical validation, and data silos that stalls multi-ethnic generalizability.

Conclusion: AI-driven biomarker discovery offers a new landscape for precision hypertension management. To achieve classical clinical integration, future research must prioritize Explainable AI (XAI) frameworks and federated learning to ensure transparency and equity across diverse global populations.

Keywords: Artificial Intelligence; Biomarkers; Risk Stratification; Hypertension; Deep Learning.

PHILOSOPHICAL FOUNDATIONS OF AI GOVERNANCE IN HIGHER EDUCATION CURRICULA: IMPLICATIONS FOR SUSTAINABLE EDUCATIONAL REFORM IN AFRICA

Ogolo, Ifubaraboye Rosejean

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Abstract

The rapid advancement of artificial intelligence (AI) has intensified global debates on its integration into higher education curricula, particularly concerning governance, ethics, and sustainability. In Africa, where higher education systems are simultaneously navigating digital transformation and structural constraints, the question of how AI should be governed within curricula remains both urgent and under-theorized. This paper adopts a philosophical lens to interrogate the foundational assumptions underpinning AI governance in higher institutions of learning, with specific attention to curriculum design, pedagogical authority, and institutional responsibility. Drawing on normative philosophy of education, critical theory, and policy analysis, the study examines the extent to which existing AI-related educational policies align with the goals of sustainable education reform in the 21st century. The paper argues that without a coherent philosophical framework, AI integration risks reinforcing technocratic dominance, ethical ambiguity, and curricular misalignment with societal needs. It proposes a value-driven AI governance framework that foregrounds human agency, accountability, inclusiveness, and sustainability in curriculum reform. By situating AI integration within Africa's socio-educational realities, the paper contributes to scholarly discourse on responsible AI adoption and offers policy-relevant insights for educational planners, curriculum developers, and university administrators seeking sustainable and context-sensitive reforms.

PREPARING AFRICAN HIGHER EDUCATION INSTITUTIONS FOR THE FOURTH INDUSTRIAL REVOLUTION: THE ROLE OF ARTIFICIAL INTELLIGENCE (AI) IN CURRICULUM DEVELOPMENT

by

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Abstract.

The fourth industrial revolution is reshaping economies worldwide, necessitating the integration of Artificial Intelligence (AI) and other advanced technologies into various sectors, including higher education. In Africa, higher education institutions face the pressing challenge of aligning their curricula with recent technological trends to remain competitive and relevant in the global knowledge economy. This paper assesses the role of Artificial Intelligence (AI) in building curriculum as a fundamental strategy for preparing higher education institutions in Africa to meet the standards of the Fourth Industrial Revolution (4IR). The study highlights how Artificial Intelligence tools can reshape curriculum design, promote personalised education experiences, and improve learning and teaching methodologies. Furthermore, the study examines the challenges that higher education institutions face when adopting Artificial Intelligence technologies. These challenges include, but are not limited to, inadequacy of skilled personnel, limited infrastructure, and funding constraints. Ultimately, incorporating artificial intelligence into curriculum development is fundamental to promoting innovation, improving academic outcomes, and positioning African higher education institutions to better thrive in the 4IR era.

Keywords: Artificial Intelligence; Fourth Industrial Revolution; Teaching; Learning; Curriculum Development; Institutions; Higher Education; Students.

MACHINE LEARNING: A POTENTIAL TOOL IN MAXIMIZING BIOGAS YIELD FROM ANAEROBIC DIGESTERS OF DOMESTIC AND AGRICULTURAL WASTE

Meregini-Ikechukwu, P.C

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Abstract

As the global demand for sustainable energy intensifies, anaerobic digestion (AD) has emerged as a critical technology for converting domestic and agricultural waste into renewable biogas. However, the inherent complexity, non-linearity, and sensitivity of the AD process influenced by fluctuating feed-stock compositions and environmental parameters often lead to sub-optimal yields and system instability. Anaerobic Digestion (AD) is a sustainable pathway for waste-to-energy conversion, yet its complex, non-linear biochemical nature makes optimization difficult using traditional kinetic models. This study evaluates the integration of Machine Learning (ML) algorithms specifically Artificial Neural Networks (ANN) and Random Forest (RF) to predict and maximize methane yield from heterogeneous domestic and agricultural waste streams. By analyzing real-time data from IoT-enabled sensors (pH, Temperature, and Organic Loading Rate), these models provide predictive insights that significantly enhance system stability. Results indicate that ANN models achieve predictive accuracies (R^2) above 0.94, outperforming traditional linear regressions. This study highlights the potential of real-time monitoring and automated control systems to mitigate the risks of "sour digesters" and maximize energy recovery. Also implementing Machine Learning driven "Smart Digesters" not only maximizes energy recovery but can significantly improve the economic viability of biogas plants, providing a robust framework for transitioning from empirical management to data-driven precision bioenergy production.

Keywords: Anaerobic Digestion, Machine Learning, Biogas Optimization, Agricultural Waste, One Health, Nigeria.

AI-DRIVEN BIOMARKER DISCOVERY AND RISK STRATIFICATION IN HYPERTENSION: A NARRATIVE REVIEW

Chinedu Jane-Madu Ugochi[1]

1. Department of Haematology and Blood Transfusion Science,

2. Federal University Otuoke, Bayelsa State, Nigeria

Abstract

Background: Hypertension continues to be the prime modifiable risk factor for morbidity and mortality related to cardiovascular disease, however, conventional risk stratification most times failed to detect the phenotypic heterogeneity of the disease.

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Results: Emerging AI models have successfully identified "digital biomarkers" from photoplethysmography (PPG) and ECG waveforms allowing accurate prediction of hypertension-induced organ damage before clinical presentation. More so, multi-omics integration (metabolomics and proteomics) using AI has revealed new biomarkers linked to treatment-resistant hypertension. However, significant gaps remain with regard to algorithmic "black-box" opacity, the lack of prospective clinical validation, and data silos that stalls multi-ethnic generalizability.

Conclusion: AI-driven biomarker discovery offers a new landscape for precision hypertension management. To achieve classical clinical integration, future research must prioritize Explainable AI (XAI) frameworks and federated learning to ensure transparency and equity across diverse global populations.

Keywords: Artificial Intelligence; Biomarkers; Risk Stratification; Hypertension; Deep Learning.

FROM MOLECULAR MODELING TO MACHINE LEARNING: PHILOSOPHICAL AND EDUCATIONAL IMPLICATIONS OF AI-DRIVEN STEM CURRICULUM REFORM IN AFRICAN UNIVERSITIES

Babatunde T. OGUNYEMI[1*] and Omotomilola O. OGUNYEMI[2,3]

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Abstract

The transition from molecular modeling to machine learning in STEM curricula gives African universities powerful new tools for accelerating innovation in drug discovery, genomics, and materials science. This shift remains highly valuable despite persistent resource constraints. This paper critically examines the philosophical stakes of epistemic justice, decolonization, and the risk of digital epistemic colonialism. It does so through Fricker's framework of testimonial, hermeneutical, contributory, and participatory injustices, complemented by Dotson and Harding frameworks. Recent scholarship reveals AI's ambivalent role. It can democratize knowledge production yet risks epistemicide unless governed by Afrocentric relational ethics. To address these challenges, the paper proposes the refined Ubuntu-Decolonial AI Sovereignty (UDAS) Model. The refined Ubuntu-Decolonial AI Sovereignty (UDAS) Model integrates intersectional feminist critiques to address Ubuntu's patriarchal risks and intra-African diversity. It proposes testable phases for localized datasets, relational pedagogy, and cross-regional pilots. The educational implications include adaptive learning gains offset by infrastructural divides, ethical opacity, and potential erosion of critical agency. Empirical anchors from UNESCO and WISE and continental policy alignment with AU Continental AI Strategy and CESA ground the analysis. The UDAS model explicitly confronts feasibility barriers, including the political economy of compute dependency, accreditation resistance, and methodological challenges in measuring epistemic equity. At the same time, it offers safeguards against utopianism.

Keywords: AI in education, STEM curriculum reform, epistemic justice, Ubuntu philosophy, decolonization, African universities, machine learning, digital colonialism

REIMAGINING MEDICAL MICROBIOLOGY IN THE AGE OF ARTIFICIAL INTELLIGENCE: DIAGNOSTICS, SURVEILLANCE, EDUCATION, AND THE FUTURE OF INFECTIOUS DISEASE SCIENCE

Author:

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Abstract

Artificial intelligence (AI) is rapidly transforming biomedical sciences, with profound implications for medical microbiology. Advances in machine learning, deep learning, and bioinformatics have enabled unprecedented capabilities in pathogen detection, genomic analysis, antimicrobial resistance prediction, and disease surveillance (Esteva et al., 2019; Rajkomar et al., 2019). AI-driven tools now assist clinical microbiology laboratories in automating microbial identification, interpreting genomic data, and optimizing diagnostic workflows (Buchanan et al., 2020). Furthermore, AI is reshaping epidemiological surveillance through predictive modeling and real-time outbreak detection (Topol, 2019; WHO, 2021). In medical education, AI platforms facilitate personalized learning, virtual laboratories, and data-driven training for the next generation of microbiologists (Luckin et al., 2016). Despite these advances, significant challenges remain, including ethical considerations, algorithmic bias, and the integration of AI systems into resource-limited healthcare environments (Char et al., 2018). This review explores the emerging role of artificial intelligence in medical microbiology across four key domains: diagnostics, surveillance, education, and research innovation. It also examines the implications of AI adoption in low- and middle-income countries, particularly within the African context.

Keywords: Artificial Intelligence, Medical Microbiology, Infectious Diseases, Diagnostics, Surveillance, Antimicrobial Resistance, Education, Africa.

INVESTIGATING THE IMPACT TRAJECTORY OF AI INTEGRATION IN MATHEMATICS EDUCATION: A META-SYNTHESIS IN NIGERIA

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Federal University, Otuoke
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Abstract

Artificial Intelligence (AI) is increasingly transforming mathematics education, offering innovative avenues to enhance teaching and learning in Nigerian higher education. This study presents a meta-synthesis of empirical and theoretical research on the impact trajectory of AI integration in mathematics education in Nigeria from 2022 to 2025, with a focus on pedagogical innovations and student learning outcomes. Using a systematic review approach, dominant themes identified include AI-driven adaptive learning systems, intelligent tutoring tools, predictive analytics for student performance, AI-enhanced assessment and feedback, and professional development for AI adoption among educators. Findings indicate that AI integration has the potential to significantly improve students' conceptual understanding, engagement, and achievement by supporting personalized instruction, interactive learning, and data-informed pedagogical decision-making. However, the effectiveness of AI is influenced by factors such as educators' AI literacy, access to digital infrastructure, curriculum alignment, and institutional support. The study underscores that AI alone does not guarantee improved learning outcomes; meaningful benefits require deliberate pedagogical integration and systemic readiness. Recommendations emphasize sustained teacher capacity building, strategic curriculum redesign, and equitable access to AI-driven learning technologies to optimize the long-term impact of AI in mathematics education in Nigeria.

Keywords: Artificial Intelligence, Mathematics Education, Meta-Synthesis, Personalized Learning, Student Achievement, AI Pedagogy

REIMAGINING MEDICAL MICROBIOLOGY IN THE AGE OF ARTIFICIAL INTELLIGENCE: DIAGNOSTICS, SURVEILLANCE, EDUCATION, AND THE FUTURE OF INFECTIOUS DISEASE SCIENCE

Dr. Christopher Ononiwu Elemuwa

Department of Medical Microbiology, Immunology & Parasitology
Federal University, Otuoke, Bayelsa State, Nigeria

Abstract

Artificial intelligence (AI) is rapidly transforming the landscape of medical microbiology, offering new opportunities for improved diagnostics, infectious disease surveillance, antimicrobial resistance monitoring, and biomedical education. The integration of machine learning, big data analytics, digital microbiology, and genomic technologies is redefining how pathogens are detected, characterized, and monitored in clinical and public health settings. This review synthesizes emerging evidence on the application of artificial intelligence in clinical microbiology laboratories, epidemic intelligence, antimicrobial resistance surveillance, and microbiology education. It further examines ethical, regulatory, and policy considerations associated with AI deployment in health systems, particularly in low- and middle-income countries. The review highlights five strategic transformation domains: AI-enhanced diagnostics, AI-driven infectious disease surveillance, AI-assisted antimicrobial resistance monitoring, AI-enabled microbiology education, and governance frameworks for responsible AI adoption. Collectively, these developments suggest that AI will become an integral component of modern infectious disease science. Strategic investments in digital infrastructure, workforce training, and interdisciplinary collaboration will be essential to harness the full potential of artificial intelligence for global health security.

Keywords: Artificial Intelligence; Medical Microbiology; Infectious Disease Surveillance; Antimicrobial Resistance; Digital Diagnostics; Global Health

ARTIFICIAL INTELLIGENCE AND SCHOLARSHIP: SOME HIUMANISTIC DEBATES

By

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Abstract

Artificial Intelligence is here with us willy-nilly. The humanities are not immune to this hurricane of digital globalism. In scholarship, AI has been employed in different humanistic disciplines such as history, linguistics, literature, music, theatre, journalism, the visual arts, history, religion, etc. This paper dwells on the implication of AI on some aspects of AI such as generative AI and predictive analytics and juxtaposes them against some pertinent values like creativity and the verities of life which make human beings human but which AI tends to negate. It further probes the employment of AI in scholarship in the humanistic disciplines and queries the extent to which, with the employment of AI, students and scholars can lay claim to the knowledge and skills that might be ascribed to them from the academic products produced wholesale or embellished with AI. It draws illustrations from the gap that may exist between what has been produced through AI and the true human knowledge or capability. It argues for a circumspect employment of AI in humanistic scholarship such that the true human scholastic potential and creativity can still be attained or maintained.

Keywords: Artificial Intelligence, Humanities, Human Values, Creativity, Scholarship.

ARTIFICIAL INTELLIGENCE-ENABLED VIRTUAL SIMULATION: ITS ROLE IN TOURISM EDUCATION

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Abstract

Artificial Intelligence is essentially transforming global industries, with the educational sector experiencing significant modification. Due to the integration of AI across diverse disciplines, institutions are modernizing curricula to foster more personalized**,** structured**,** and interactive learning environments. This research employs a narrative synthesis of selected literature concerning the application of artificial intelligence-enabled simulations in education. The primary objective is to investigate the potential relevance of these applications within tourism education, specifically focusing on heritage, culinary, travel, tour guide procedures, and experimental museum studies. Furthermore, the study evaluates the merits and demerits of AI simulations within the context of tourism education. Findings indicate that artificial intelligence (AI) facilitates the replication and exploration of virtual representations of real-world scenarios, processes, and systems. These technologies provide fast, consistent, and individualized feedback at a level beyond human ability. The integration of AI simulations into educational frameworks presents transformative potential for restructuring curricula and educational approaches. Such applications effectively accommodate large number of students while establishing safe, personalized, and cost-efficient training environments. The study also identifies the multifaceted benefits of integrating artificial intelligence (AI) into the tourism industry and its educational frameworks. Key merits include the efficient dissemination of knowledge to large number of students despite limited instructional staff, the promotion of sustainable tourism best practices, and the optimization of learning cycles. Furthermore, AI provides a controlled environment suitable for iterative experimentation. Conversely, primary demerits include its capital-intensive disposition and maintenance expenditures, alongside the inherent limitation that virtual simulations may not fully replicate the complexity of real-world scenarios.

Keywords: Artificial intelligence, virtual simulation, Tourism, Education

PREPARING AFRICAN HIGHER EDUCATION INSTITUTIONS FOR THE FOURTH INDUSTRIAL REVOLUTION: THE ROLE OF ARTIFICIAL INTELLIGENCE (AI) IN CURRICULUM DEVELOPMENT

by

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Abstract.

The fourth industrial revolution is reshaping economies worldwide, necessitating the integration of Artificial Intelligence (AI) and other advanced technologies into various sectors, including higher education. In Africa, higher education institutions face the pressing challenge of aligning their curricula with recent technological trends to remain competitive and relevant in the global knowledge economy. This paper assesses the role of Artificial Intelligence (AI) in building curriculum as a fundamental strategy for preparing higher education institutions in Africa to meet the standards of the Fourth Industrial Revolution (4IR). The study highlights how Artificial Intelligence tools can reshape curriculum design, promote personalised education experiences, and improve learning and teaching methodologies. Furthermore, the study examines the challenges that higher education institutions face when adopting Artificial Intelligence technologies. These challenges include, but are not limited to, inadequacy of skilled personnel, limited infrastructure, and funding constraints. Ultimately, incorporating artificial intelligence into curriculum development is fundamental to promoting innovation, improving academic outcomes, and positioning African higher education institutions to better thrive in the 4IR era.

Keywords: Artificial Intelligence; Fourth Industrial Revolution; Teaching; Learning; Curriculum Development; Institutions; Higher Education; Students.

BLENDED PEDAGOGY AND AI: TRANSFORMING TEACHING METHODS IN HIGHER INSTITUTIONS.

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Abstract

Blended pedagogy is emerging as a transformative approach to instructional procedures in higher institutions, combining traditional face to face interactions with digital and technology mediated learning environments. It offers a flexible, learner centred approach that aligns with contemporary educational goals. With the rapid advancement of Artificial Intelligence (AI), new doors have opened to further enhance instructional design, learner engagement, and academic outcomes, thereby supporting personalized learning paths, adaptive feedback, intelligent tutoring, and data driven instructional decision-making. This paper examines the integration of blended pedagogy and AI technologies as a strategic framework for transforming teaching methods in higher education. It explores how AI-driven tools such as intelligent tutoring systems, adaptive learning platforms, and automated feedback mechanisms can complement blended learning environments to support personalized and flexible learning pathways for students. It discusses the pedagogical implications of these innovations, including improved student participation, data-informed instructional decisions, and enhanced assessment practices. The paper recognized challenges such as digital inequality, ethical concerns, data privacy, and the need for adequate teacher training and institutional support. It argues that the successful adoption of blended pedagogy supported by AI requires deliberate policy frameworks, professional development for educators, and investment in technological infrastructure. Conclusively, the integration of blended pedagogy and artificial intelligence has the potential to redefine teaching practices, promote learner cantered education, and improve the overall quality and accessibility of higher education in the present contemporary higher institution environment.

Keywords: Pedagogy, Higher Education, Artificial Intelligence, Blended Learning, Digital learning.

ARTISAN INTELLIGENCE AND DISSERTATION WRITING IN THE HUMANITIES: THE NIGERIAN EXPERIENCE

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Abstract

It is required in academia that dissertation be original (not copied but the product of the independent effort of its authors). The main reasons are to encourage the production of new knowledge and to ensure that students acquire the requisite skills expected of them. Until the development of artificial intelligence (AI), dissertation students that wanted to cheat did so mainly through plagiarism. Today, in addition to plagiarism, students cheat by using artificial intelligence to write their dissertations. This paper deals with the use of artificial intelligence by dissertation candidates in the humanities. The author is a Nigerian historian and his sources are the dissertations in History, some of which he supervised. The paper identifies the characteristics of AI-generated dissertations. They include the following: a lack of grammatical errors; high-quality English and reasoning that experience shows are beyond the competence of most dissertation students; scanty narratives; and predominance of analyses. The paper asserts that a supervisor can easily identify these characteristics and, thus, know when his/her supervisee is using AI to cheat. It asserts that the supervisor should task the candidate to write an original essay. However, it holds that the pressure of work, for lack of a better term, often makes it difficult for many supervisors to do so.

Key words: dissertations, origin[ality], plagiarism, artificial intelligence, supervisors

RE-SKILLING MEDIA PROFESSIONALS IN THE ERA OF ARTIFICIAL INTELLIGENCE (AI) AND CHANGING DYNAMICS IN THE MULTI-MEDIA LANDSCAPE FOR SUSTAINABILITY

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Abstract

Generally, Digital Technologies have charted revolutionary changes in all spheres of human endeavor as powered and affected by the media, and fundamentally altering the nature and function of the media in our society today far beyond the Marshal McLuhan's 'the Global Village' phenomenon postulation even beyond the realities of the 21sr Century. These changes have reinvented age-old practices of public communication and at times circumventing traditional media and challenging its privileged role as Gatekeepers of news and entertainment as especially influenced by the reality or invasion of Artificial Intelligence (AI). There are myriad of ways digital technologies, as powered by AI, have impacted on the practice of Online-Journalism from the way the reporters gather information and present news stories to how news organizations structure themselves and do business. Hypetext, multimedia, Artificial Intelligence (AI)-generated fake news and Deepfakes have come to increase the manipulative potentials of video and audio-based contents available online, making this phenomenon one of the current challenges in the global and interconnected information sphere today. This development has, inadvertently, become a major part of the routines of a vast majority of professionals and requires Communication Training Institutions to change their ways of teaching, training and retraining to reflect the changing dynamics. If we peer into the future, we can foresee a media landscape dominated by a highly fragmented, though active audience, intense media competition, and scarce advertising monies and the like. The question to ask, therefore, is, by embracing new technologies, can professional journalism, and media have a firm grip of their role as a vital information lifeline, and continue to operate a successful, credible and objective information source and resources? Does the rapid dissemination, interpretation, reconfiguration of stories, as heavily-powered by AI, demonstrate a real challenge to traditional newsgathering mechanisms? What challenges do these developments pose to the Training Curricular in Communication Scholarship and Training?

Keywords: Artificial Intelligence, Media Professionals, Mass Media, Social Media, Multimedia

AI INTEGRATION IN NIGERIAN UNIVERSITIES: ANALYSING OPPORTUNITIES AND POLICY IMPERATIVES

By

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Abstract

Artificial intelligence is changing the face of higher education at an unprecedented rate by transforming how knowledge is produced or acquired, shared, and assessed. This imposes a need for education institutions, especially universities, to adjust appropriately and implement fitting policy measures. This paper, thus analyses opportunities and policy imperatives for the integration of generative AI in Nigerian universities. It employs the sociotechnical systems theory to contextualises AI as a disruptive technology, which engages with the current pedagogical, administrative, and research practises. The study is qualitative, and it draws data from secondary sources, inclduing prior surveys and policy papers, academic reports, and extant policy documents and legislations. The study finds that while AI provides opportunities for improving personalised learning, learning analytics, research productivity, and administrative efficiencies, it is also poses risks to systemic integrity via student and staff misuse, AI-enabled plagiarism, unverified content creation, and research malpractices incentive. Policy analysis revealed major gaps and ambiguities in the ethical standards, academic integrity guidelines, research governance, capacity building, data governance and adaptive policy mechanisms in Nigerian universities. These gaps create uneven adoption and increases susceptibility to malpractice. The paper, thus, concludes that the harnessing the opportunities of AI in the higher education in Nigeria, will be contingent on contextually relevant policies that entrench ethical principles, uphold capacity building, and promote alignment of the institutional practise with international best practise. The recommends, among others, that relevant duty bearers should formuate concrete AI governance policies and legislations, and personnel and student training should be priorities to create conditions to maximise benefits derivable from AI.

Keywords: Generative AI, higher education, academic integrity, and policy frameworks.

AI-DRIVEN MATHEMATICAL MODELING AND THE DEVELOPMENT OF CREATIVE MATHEMATICAL PROBLEM-SOLVING SKILLS AMONG UNDERGRADUATES IN SOUTH-SOUTH, NIGERIA.

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Abstract

The growing integration of Artificial Intelligence (AI) in education has created new opportunities for enhancing students' mathematical problem-solving skills. This study examined AI-Driven Mathematical Modeling and the Development of Creative Mathematical Problem-Solving Skills among Undergraduates in South-South Nigeria. The study was motivated by persistent challenges in students' ability to apply mathematical concepts creatively to real-life situations, despite increased access to digital learning tools. AI-driven mathematical modeling provides an innovative learning approach that allows students to explore complex problems, generate multiple solution pathways, and develop deeper conceptual understanding. The study adopted quasi-experimental research design using pretest-posttest control group design. The population consisted of all year one undergraduate mathematics education students in federal and state universities within the region. The purposive and stratified sampling techniques were used to select the sample for the study. The data were collected using Creative Mathematical Problem-Solving Skills Test (CMPST). The instrument was validated by experts in mathematics education and educational technology, and the reliability was determined using Kuder-Richardson 20. The experimental group was exposed to AI-driven mathematical modeling strategies while the control group was taught using conventional problem-solving approaches. The data obtained was analysed using mean, standard deviation, and Analysis of Covariance (ANCOVA). The findings showed that students exposed to AI-driven mathematical modeling strategies had a higher mean when compared to their counterparts taught using conventional problem-solving approaches. The mean difference was significant. There was no significant difference between the mean scores of male and female students exposed to AI-driven mathematical modeling strategies. The mean score of students who were from the ages of 16-18 years was significantly higher than those above 18 years of age. AI-driven mathematical modeling strategies enhanced the development of creative mathematical problem-solving skills. The study recommended that curriculum developers, educators, and policymakers in Nigeria should adopt AI-based instructional strategies to improve mathematical learning outcomes in higher institutions.

ARTIFICIAL INTELLIGENCE AS A SCIENTIFIC INSTRUMENT: RETHINKING TEACHING, UNDERSTANDING, AND ASSESSMENT IN CHEMICAL SCIENCES

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Abstract

The rapid integration of artificial intelligence (AI) into scientific research is prompting educators in the chemical sciences to rethink how chemistry is taught, learned, and assessed. This paper argues that AI should be viewed not simply as a computational shortcut but as a scientific instrument increasingly embedded in modern chemical inquiry. Advances in AI applications—such as molecular design, reaction prediction, spectral interpretation, and property prediction—are already influencing how chemical knowledge is generated and interpreted.This study examines the implications of these developments for chemistry education at both undergraduate and postgraduate levels. Using AI-informed interpretation of Bloom's revised taxonomy, the paper posits that traditional teaching approaches hat emphasize memorisation and procedural reproduction are no longer sufficient for preparing students for modern scientific practice. In AI-integrated environments, the emphasis shifts towards evaluating, interpreting, and responsibly using AI-generated outputs. Consequently, the paper proposes a reorientation of chemistry curricula toward higher-order competencies, where AI functions as a collaborative scientific instrument throughout the learning process. It also discusses key ethical and professional challenges associated with AI integration, including issues of academic integrity, documentation transparency, safety, and equitable access. The paper concludes by outlining a phased institutional roadmap for integrating AI literacy into chemical science education across short, medium, and long-term.

Keywords: artificial intelligence, chemical science education, Bloom's taxonomy, AI literacy, scientific instrumentation, academic integrity

THE ROLE OF ARTIFICIAL INTELLIGENCE IN RESHAPING UNIVERSITY CURRICULA: ETHICAL CHALLENGES AND SUSTAINABLE EDUCATIONAL PROSPECTS

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Abstract

The rapid advancement of Artificial Intelligence (AI) is transforming higher education globally, prompting universities to reevaluate their curricula, pedagogical models, and curricular design. Yet, its integration into university curricula raises profound ethical challenges and opportunities for sustainable educational innovation. AI-driven technologies such as generative AI, adaptive learning systems, predictive analytics, and intelligent tutoring platforms are increasingly integrated into teaching, research, and institutional management. These tools are transforming university curricula by enabling tailored learning experiences, automating evaluation processes, boosting student engagement, and facilitating data-driven academic decision-making. Research shows that AI-powered educational systems can improve learning outcomes, optimize resource allocation, and support innovative teaching strategies in line with the growing demands of the digital economy. Despite these advantages, integrating AI into higher education raises major ethical, teaching methodologies, and institutional concerns. Key ethical issues include data privacy risks related to the extensive collection and analysis of student information, algorithmic bias that could perpetuate social inequalities, lack of transparency in AI decision-making systems, loss of human interaction in the learning process, and potential threats to academic integrity. Furthermore, if not properly regulated, the growing reliance on AI tools may jeopardize critical thinking and self-directed learning. Therefore, detailed educational frameworks such as the interdisciplinary AI education framework, sustainable digital learning ecosystem framework, adaptive learning and personalized education framework, ethical standards, and digital literacy initiatives are necessary for the effective use of AI. This paper examined the role of AI in reshaping university curricula and explored the ethical concerns and sustainability implications associated with its integration. Using recent literature and global higher-education practices, the study highlights methods for designing AI-informed curricula that support interdisciplinary learning, creativity, and ethical use of technology. It also suggests a sustainable educational framework that integrates human-centered teaching, equitable access to technology, and ethical AI governance. Finally, it can be asserted that, when used responsibly, AI can transform universities into an adaptive learning environment that tackles societal challenges while equipping graduates for an AI-driven world.

Keywords: Artificial Intelligence, Higher Education**,** Ethical AI, Curriculum Design**,** Sustainable Pedagogy**,** Future of University Education

ADULT EDUCATION AND ARTIFICIAL INTELLIGENCE-DRIVEN WORKFORCE: STRATEGIES FOR HUMAN RESOURCES DEVELOPMENT

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Abstract

This work focuses on adult education and artificial intelligence-driven workforce: strategies for human resources development. In as much as the future of teaching, learning and workplace environment changes due to the evolving global use of artificial intelligence (AI) an d interconnected technology, it is required that human resource development practitioners key-in for a successful transition. The work brings forth strategies that will interconnect the fields of human resource development with that of adult education and artificial intelligence. The work explores the challenges encountered by human resource development in enhancing the use of artificial intelligence technologies for adult education. The integration of artificial intelligence (AI) in adult education is revolutionalizing human resource development by enhancing learning experiences and future directions of AI in adult education. The work concludes that, as disruptive as artificial intelligence become inevitable, the workforce need to equip themselves with the required skill sets to the job market competition.

KEYWORDS: Adult Education, Artificial Intelligence, workforce and Human Resource Development.

AI-BASED MODEL FOR PREDICTIVE SOFTWARE MAINTENANCE: CLASSIFYING NON-DEFECT AND DEFECT SOFTWARE SYSTEMS USING CONVOLUTIONAL NEURAL NETWORKS

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Abstract

This study presents a Convolutional Neural Network (CNN) based model for classifying non-defect systems from defect systems to improve software maintenance and reliability. Traditional defect detection methods often depend on manual inspection and handcrafted metrics, which are time-consuming and limited in capturing complex software relationships. To address these challenges, this research employed a data-driven deep learning approach using CNNs to automatically extract hierarchical features from software metrics. The model was trained and evaluated on a publicly available dataset using Python, TensorFlow, and Keras in a GPU-accelerated environment. Results demonstrated exceptional performance, achieving 100% classification accuracy and near-zero loss, confirming the model's ability to generalize effectively. The proposed approach enables early and precise identification of defect-prone modules, supporting predictive maintenance and reducing operational costs. This work contributes to advancing intelligent, automated software quality assurance and lays the foundation for future research in deep learning-based software defect prediction.

Keywords: Convolutional Neural Networks, Pandas Data Frame, Deep Neural Network

ARTIFICIAL INTELLIGENCE (AI) AS A STRATEGIC TOOL FOR ENHANCING ADMINISTRATIVE EFFICIENCY IN FEDERAL POLYTECHNICS SECTOR IN NORTHEASTERN NIGERIA

By

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Abstract

This study examines Artificial Intelligence (AI) as a strategic tool for enhancing administrative efficiency in the polytechnic sector, with particular focus on Federal Polytechnics in Northeastern Nigeria. The study adopts a descriptive survey research design, targeting principal officers, administrative staff, ICT personnel, and academic heads across selected Federal Polytechnics in the region. Data are collected through structured questionnaires and interviews, and analyzed using descriptive and inferential statistical techniques. The findings are expected to reveal the extent of AI adoption, its impact on administrative turnaround time, accuracy of record-keeping, transparency in financial processes, and overall institutional productivity. Preliminary observations indicate that while AI significantly improves efficiency, accountability, and responsiveness, challenges such as inadequate ICT infrastructure, limited technical expertise, funding constraints, data security concerns, and resistance to change hinder full implementation. The study concludes that strategic integration of AI systems can substantially enhance administrative effectiveness in Federal Polytechnics in Northeastern Nigeria. It recommends increased government investment in digital infrastructure, staff capacity building, policy frameworks for AI governance, and phased implementation strategies to ensure sustainable adoption.

Keyword: Artificial Intelligence (AI), strategic tools, administrative, efficiency, federal polytechnic

PHILOSOPHICAL FOUNDATIONS OF AI GOVERNANCE IN HIGHER EDUCATION CURRICULA: IMPLICATIONS FOR SUSTAINABLE EDUCATIONAL REFORM IN AFRICA

By

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Abstract

The rapid advancement of artificial intelligence (AI) has intensified global debates on its integration into higher education curricula, particularly concerning governance, ethics, and sustainability. In Africa, where higher education systems are simultaneously navigating digital transformation and structural constraints, the question of how AI should be governed within curricula remains both urgent and under-theorized. This paper adopts a philosophical lens to interrogate the foundational assumptions underpinning AI governance in higher institutions of learning, with specific attention to curriculum design, pedagogical authority, and institutional responsibility. Drawing on normative philosophy of education, critical theory, and policy analysis, the study examines the extent to which existing AI-related educational policies align with the goals of sustainable education reform in the 21st century. The paper argues that without a coherent philosophical framework, AI integration risks reinforcing technocratic dominance, ethical ambiguity, and curricular misalignment with societal needs. It proposes a value-driven AI governance framework that foregrounds human agency, accountability, inclusiveness, and sustainability in curriculum reform. By situating AI integration within Africa's socio-educational realities, the paper contributes to scholarly discourse on responsible AI adoption and offers policy-relevant insights for educational planners, curriculum developers, and university administrators seeking sustainable and context-sensitive reforms.

ARTIFICIAL INTELLIGENCE-ENABLED VIRTUAL SIMULATION: ITS ROLE IN TOURISM EDUCATION

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Artificial Intelligence is essentially transforming global industries, with the educational sector experiencing significant modification. Due to the integration of AI across diverse disciplines, institutions are modernizing curricula to foster more personalized**,** structured**,** and interactive learning environments. This research employs a narrative synthesis of selected literature concerning the application of artificial intelligence-enabled simulations in education. The primary objective is to investigate the potential relevance of these applications within tourism education, specifically focusing on heritage, culinary, travel, tour guide procedures, and experimental museum studies. Furthermore, the study evaluates the merits and demerits of AI simulations within the context of tourism education. Findings indicate that artificial intelligence (AI) facilitates the replication and exploration of virtual representations of real-world scenarios, processes, and systems. These technologies provide fast, consistent, and individualized feedback at a level beyond human ability. The integration of AI simulations into educational frameworks presents transformative potential for restructuring curricula and educational approaches. Such applications effectively accommodate large number of students while establishing safe, personalized, and cost-efficient training environments. The study also identifies the multifaceted benefits of integrating artificial intelligence (AI) into the tourism industry and its educational frameworks. Key merits include the efficient dissemination of knowledge to large number of students despite limited instructional staff, the promotion of sustainable tourism best practices, and the optimization of learning cycles. Furthermore, AI provides a controlled environment suitable for iterative experimentation. Conversely, primary demerits include its capital-intensive disposition and maintenance expenditures, alongside the inherent limitation that virtual simulations may not fully replicate the complexity of real-world scenarios.

Keywords: Artificial intelligence, virtual simulation, Tourism, Education

OFFICE SKILLS NEEDED BY OFFICE MANAGERS FOR EFFECTIVE PERFORMANCE

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ABSTRACT

This study aimed at examining the office skills needed by Office Managers for effective performance. The design used for the research was survey design. The used of both primary and secondary sources of data, where questionnaire is the primary source and the literatures related to the study are the secondary data. The population consisted of 68 office managers from The Federal Polytechnic, Bauchi. Census sampling technique was used. Simple percentage method was used for the data analysis, while Likert Five-Point rating scale was to check the responses from the questionnaires retrieved. The study concluded that Office Managers need clerical skills for effective performance. Also, office managers need human relation skills in Federal Polytechnic for effective performance. The study recommended that Office Managers should be sent for further training to improve their clerical skills for effective performance in Federal Polytechnic Bauchi. It also recommended that Federal Polytechnic HR managers should train and develop Office Managers' human relation skills for effective performance.

Keywords: Office Manager, Office Skills, Effective Performance.

THE ROLE OF INFORMATION MANAGEMENT SYSTEMS IN PROMOTING SUSTAINABLE DEVELOPMENT AT JOS ELECTRICITY DISTRIBUTION (JED) PLC BAUCHI REGIONAL OFFICE

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Abstract

This study investigates the role of Information Management Systems (IMS) in promoting sustainable development at Jos Electricity Distribution (JED) Plc, Bauchi Regional Office. The research focuses on identifying strategies to improve IMS efficiency, with data gathered from 17 Feeder Managers (FM) using a structured questionnaire. A quantitative research design was adopted, and a purposive sampling technique was employed to ensure targeted insights. The findings indicate moderate agreement among managers on the importance of data integration, technology upgrades, and data security. However, the highest consensus was reached on the need for regular staff training and system maintenance, which are perceived as critical for enhancing IMS efficiency. This research emphasizes the value of both technological advancements and human resource development in ensuring the effective use of IMS for sustainable development, with implications for similar organizations seeking to improve operational efficiency.

Keywords: Information Management System, Sustainable Development.

AN ASSESSMENT OF SMART LEADERSHIP SYSTEMS IN TOURISM AND HOSPITALITY BUSINESSES IN BAUCHI STATE NIGERIA

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Abstract

The nature of Tourism and Hospitality industry products intangibility, inseparability of production and consumption process make it suitable for digital technology usage and especially e-commerce adoption. Tourism and Hospitality are service-oriented business that are witnessing high adoption of digital technology on the front end (eCommerce) and back end (Management). Smartness as a concept is on the rise (e.g. smart cities) and it is linked with digital technology. Tourism and Hospitality industry is no exception to these changes with its fair share of contributions to innovation in adapting smart technology in operations, marketing, business solutions and Smart leadership. Businesses and other sectors of the economy as they frequently have to deal with changing competencies, market needs, and leadership requirements to keep up with these changes. It is on this note that the need for smart leadership in the service industry (Tourism and Hospitality) is necessary in order to cope with the skills required for successfully leading and serving others. Therefore, looking also at the human aspect of smartness (such as people and leadership), this study's objective is designed with the purpose of generating a better understanding of the concept of smartness at organisations level for competitive advantage and the impact of smartness on consumer satisfaction in a particular field that is hospitality and tourism industry in Nigeria. The study adopted a qualitative approach with focus group interviews to Managers of Tourism and Hospitality businesses in Bauchi Nigeria to unravel the leadership skills, setting and types needed in running a smart hospitality organisation. With a finding that a minority of businesses have integrated digital tools such as online booking systems and customer review platforms. These businesses often reported improved customer engagement and operational efficiency and smart leaders recognizing the importance of local content in offering authentic tourism products. And a recommendation that Develop leadership training focused on digital innovation, customer relations, and strategic planning while partnering with telecom providers and energy firms to improve connectivity and power reliability.

Key Words: Smart Leadership, Systems, Tourism, Bauchi, Nigeria

SUPPLEMENTATION OF YELLOW MEALWORM, *TENEBRIO MOLITOR* DIET WITH FRUIT WASTE ENHANCES ITS CRUDE PROTEIN, FATS CONTENTS AND NUTRITIONAL VALUE

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Abstract:

The growing demand for a sustainable and cost-effective protein in aquaculture has intensified the interest in edible insects, with mealworm (*Tenebrio molitor)* larvae recognized as a promising alternative due to their high protein content and ability to thrive on low-cost substrates. This study investigated the nutritional enhancement of *T. molitor* larvae reared on wheat bran (WB) supplemented with fruit wastes such as pineapple peels (PP) and watermelon rinds (WR). Five experimental diets were formulated as thus WB (control), WB/PP (1:1); WB/WR (1:1); WB/PP/WR (1:1:1) and PP/WR (1:1). The insects were reared on the experimental diets for a 12-weeks feeding period. Thereafter, the Proximate, mineral and amino acid profiles were determined. Moisture content ranged from 48.80% in larvae fed WB/WR to 50.73% in those on WB. Ash ranged from 1.06% (WB/WR) to 4.31% (WB), fat ranged from 30.21% (WB/PP/WR) to 31.69% (WB/WR). Crude fiber ranged from 1.54% (WB/PP/WR) to 1.95% (WB), while crude protein ranged from 41.83% (WB) to 46.35% (WB/WR). No significant ($p > 0.05$) differences were observed on the moisture, fat, and carbohydrate levels between larvae fed the supplemented diets and those on the control. However, significant differences were observed on the ash, crude fiber, and protein contents. In terms of minerals, calcium, manganese and sodium were higher in larvae fed WB/PP/WR while iron, magnesium and phosphorous were higher in larvae fed WB. The amino acid profile of the larvae varied across the diet with larvae reared on WB/WR recording highest levels of histidine, threonine, leucine, tryptophan, asparagine, glutamic acid, cystine, alanine, glutamine and arginine. Overall, *T. molitor* larvae reared on fruit waste-supplemented substrates demonstrated enhanced nutritional quality, whereas WB/WR showed superior nutritional qualities an indication that the fruit waste enhanced the nutrient composition of *T. molitor* supporting their potential as sustainable protein resources in aquafeeds.

Keyword: Proximate compositions, Mineral compositions, Amino acid profile, Fruit waste, Mealworm larvae

APPLICATION OF ARTIFICIAL INTELLIGENCE IN SMART GRID OPTIMIZATION AND ENERGY MANAGEMENT SYSTEMS

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Abstract

The increasing global demand for reliable, efficient, and sustainable energy has driven the transformation of conventional power grids into intelligent, adaptive smart grids. Artificial Intelligence (AI) has emerged as a key enabler of this transformation, offering powerful computational tools for optimization, prediction, and real-time decision-making in energy management systems. This paper explores the application of AI techniques—such as machine learning, deep learning, fuzzy logic, and evolutionary algorithms—in smart grid optimization and energy management. It examines how AI can be leveraged for load forecasting, fault detection, voltage and frequency regulation, renewable energy integration, and demand response optimization. The study also reviews recent advancements in AI-driven grid automation and predictive maintenance, highlighting their impact on system reliability, efficiency, and sustainability. Furthermore, the paper discusses challenges associated with data quality, model interpretability, cybersecurity, and scalability in deploying AI-based solutions in smart grids. The paper concludes by proposing a conceptual framework for integrating AI algorithms into real-time grid management systems to enhance operational resilience and support the transition to a cleaner and more intelligent energy future.

Keywords: Artificial Intelligence, Smart Grid, Energy Management, Optimization, Machine Learning, Renewable Energy, Predictive Maintenance.

THE IMPACT OF ARTIFICIAL INTELLIGENCE ADOPTION ON FOOD SECURITY AMONG SMALLHOLDER FARMERS IN KWARA STATE, NIGERIA

By

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Food insecurity remains a multidimensional problem globally, particularly in Sub-Sharan African countries in which Nigeria is no exception where low agricultural productivity, post-harvest losses, and inefficient resource management continue to threaten livelihoods and economic stability. Despite various agricultural interventions, smallholder farmers often struggle with low yields due to limited access to timely and data-driven decision-making tools. This study examines the role of Artificial Intelligence (AI) applications in enhancing food security through improved agricultural efficiency and productivity. Primary data were collected from a sample of 200 smallholder farmers through purposive sampling technique and structured questionnaires across selected farming communities. Regression analysis was employed to determine the relationship between AI-based agricultural practices, such as predictive weather analytics, precision farming tools, and intelligent pest management and indicators of food security, including yield levels, income, and household food availability. The findings reveal a significant positive relationship between AI adoption and food security outcomes, suggesting that the integration of AI technologies can serve as a catalyst for sustainable agricultural transformation. The study concludes that strategic investment in AI innovation, coupled with farmer education and infrastructural support, can significantly strengthen food systems and ensure long-term food security in the study area.

Keywords: Artificial Intelligence, Food Security, Smallholder farmers, Agriculture, Technology Adoption

THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING DEMOGRAPHIC DATA COLLECTION AND POPULATION FORECASTING

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Abstract

Artificial Intelligence (AI) has emerged as a transformative tool in demographic research, revolutionizing data collection, processing, and population forecasting. Traditional demographic methods often rely on censuses, surveys, and manual statistical analyses, which are limited by cost, time, and accuracy. AI introduces innovative mechanisms—such as machine learning, natural language processing, and remote sensing—that enable real-time, accurate, and large-scale demographic analysis. This paper explores the evolving role of AI in enhancing demographic data systems, highlighting its applications in population estimation, migration analysis, fertility and mortality prediction, and policy planning. It also discusses ethical considerations, data governance, and the challenges of integrating AI within national statistical systems, especially in developing contexts like Nigeria. The study concludes that AI-driven demographic intelligence will reshape the global data ecosystem, providing unprecedented opportunities for evidence-based policymaking and sustainable development.

Keywords: Artificial Intelligence, Demographic Data, Population Forecasting, Machine Learning, Big Data Analytics, Digital Census.

ADSORPTION STUDIES OF METANIL YELLOW FROM AQUEOUS SOLUTION USING COPPER (II) OXIDE PARTICLES: ISOTHERM, KINETICS AND THERMODYNAMICS

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Abstract

Adsorption process has attracted a lot of attention in recent years. In this study, Copper (II) oxide particles (CuO-Ps) was synthesized and used for the removal of Metanil Yellow (MY). Variables such as contact time, dosage, concentration, temperature and agitation speed for the adsorption process were investigated using Batch Adsorption. The synthesized particles were characterized using UV-Visible spectroscopy with a broad peak of 273 nm indicating the change in colour of the CuO-Ps from blue to brownish black with the formation of CuO-Ps. FTIR were carried out to determine the functional groups present at the surface of the particle with functional groups such as –OH, C=C, C-H, C≡C detected. SEM analysis of the CuO-Ps was carried out. The changes in the morphology was observed which is due to the attachment of the dye molecules at the surface of the particles. The percentage removal and optimum contact time of MY was obtained as 70.7% at 25 min. The experimental isotherms data were analyzed using Langmuir, Temkin, Freundlich and Dubinin-Radushkevich (D-R) isotherms and it was observed that MY fits closely to Temkin isotherm with an R^2 value of 0.860. Result of Kinetics studies shows adsorption process fits pseudo second order with the experimental values of qe 3.536 for MY being closer to the calculated values of the qe 3.222. Non-linearity from Bangham's plot shows both film and pore diffusion played an important role in the adsorption process. Negative values of ΔH and ΔG revealed that the process was exothermic and feasible. Positive value for ΔS showed decrease in randomness. Values of ΔH -7.76 kJ/mol for MY confirmed the adsorption process as physical in nature. The results indicated that copper (II) oxide particles can be used as a low cost adsorbent for the removal of MY from aqueous solutions.

Keywords: Adsorption, CuO, FTIR, Isotherm, Kinetic, SEM, Thermodynamics

ANTIBACTERIAL ACTIVITY OF *ALCHORNEA CORDIFOLIA* LEAF EXTRACTS AGAINST MULTI DRUG RESISTANT EXTENDED SPECTRUM BETA LACTAMASE PRODUCING UROPATHOGENIC *KLEBSIELLA SPP* AND *E. COLI* ISOLATES

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Abstract

Many bacterial species have been reported to develop resistance to antibiotics commonly prescribed for urinary tract infections. Therefore, the need to search for a natural alternative for remedy of this problem cannot be overemphasized. The study was aimed to determine the antibacterial activity of *Alchornea cordifolia* leaf extracts against multidrug resistant extended spectrum beta lactamase producing uropathogenic *Klebsiella* spp and *E. coli* isolates. Phytochemical screening of the *Alchornea cordifolia* leaf extracts was carried out using standard methods. Agar well diffusion and agar dilution methods were employed to determine the zone of inhibition, minimum inhibitory concentration, and minimum bactericidal concentration. The phytochemical screening of the leaf extracts revealed the presence of secondary metabolites such as flavonoids, tannins, alkaloids, steroids, glycosides. The ethanol and ethyl acetate extracts showed antibacterial activity against multidrug resistant ESBL producing uropathogenic isolates with ethanol extract having widest zone of inhibition (17 mm) with MICs ranging from 2.5 to 20 mg/ml for both the isolates. The findings of this study suggest that *Alchornea cordifolia* leaves could be employed as potential therapeutic candidate for the treatment of uropathogenic infections.

Keywords: Alchornea cordifolia, Multidrug resistance, E coli, Klebsiella spp

ARTIFICIAL INTELLIGENCE AND INFORMATION AND COMMUNICATION TECHNOLOGY: SYNERGIES, IMPACTS, AND STRATEGIC APPLICATIONS IN BUSINESS EDUCATION

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Abstract

Artificial Intelligence (AI) and Information and Communication Technology (ICT) will continue to play a pivotal role in reshaping education systems globally, with business education expected to benefit significantly from their integration. While ICT serve as the foundational infrastructure for digital instruction, communication, and administrative processes, AI introduce advanced capabilities such as intelligent tutoring systems, predictive analytics, automated grading, and adaptive learning platforms. This study will examine how the convergence of AI and ICT will enhance teaching delivery, improve curriculum relevance, and foster personalized learning experiences in business education. It will also explore how these technologies will contribute to improved student engagement, administrative efficiency, instructional innovation, and graduate employability within a rapidly evolving digital economy.

Furthermore, the study will investigate the strategic applications, opportunities, and foreseeable challenges surrounding AI-ICT adoption in business education, with emphasis on issues such as digital literacy, ethical considerations, educator preparedness, infrastructural limitations, and policy readiness particularly within developing nations. The findings of this study are expected to demonstrate that with intentional planning, capacity building, and aligned policy frameworks, AI and ICT integration will significantly strengthen the relevance and competitiveness of business education.

Ultimately, the anticipated outcome of this study is to be an eye-opener that will guide policymakers, educators, and academic institutions on the effective and responsible deployment of AI and ICT in business education, ensuring relevance, innovation, and competitiveness in a technology-driven world.

Keywords: Artificial Intelligence, Information and Communication Technology, Student Engagement, Administrative Efficiency, Instructional innovation and graduate Employability

Multi-Objective AI Scheduling for Faculty Workload Optimization

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Abstract:

Higher-education institutions frequently experience workload imbalance among faculty members, resulting in reduced productivity and suboptimal resource utilization. This study introduces a multi-objective AI scheduling framework that integrates constraint-based optimization with evolutionary algorithms to produce equitable workload allocation. The model evaluates teaching load, administrative duties, research commitments, and institutional policies using a Pareto-optimal optimization engine. Validation across three simulated academic semesters demonstrates significant improvements in fairness, schedule feasibility, and academic resource distribution. The approach offers a practical decision-support tool for data-driven academic planning.

Keywords: Workload optimization, multi-objective scheduling, constraint modeling, higher education analytics, evolutionary algorithms.

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON FINANCIAL MANAGEMENT SYSTEMS IN AMINU SALEH COLLEGE OF EDUCATION, AZARE.

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Abstract:

This study examines the transformative role of Artificial Intelligence (AI) in enhancing the financial management systems of Aminu Saleh College of Education, Azare (ASCOEA). In the face of increasing enrollment and the demand for fiscal accountability, traditional manual and basic digital accounting methods often face challenges regarding speed and accuracy.

This research evaluates how AI-driven applications—such as automated fee reconciliation, predictive budgeting, and intelligent audit trails—can streamline the college's Bursary operations. Using a case study approach, the paper analyzes the transition from current platforms, like flexi-sap Records, toward more advanced AI- integrated systems. Findings suggest that AI significantly reduces human error, prevents revenue leakage, and provides the college management with real time data for informed decision-making.

However, the study identifies critical bottlenecks, including high implementation costs, unstable power supply, and a digital skill gap among financial staff. The paper recommends that the management of ASCOEA should prioritize strategic investment in robust ICT infrastructure and continuous professional training for staff to fully harness AI's potential. Ultimately, the integration of AI is positioned as a vital tool for achieving financial sustainability and transparency within the institution.

SYNERGIZING AI AND ECOLOGY: ADVANCEMENTS IN ENVIRONMENTAL MANAGEMENT

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Abstract

The intersection of artificial intelligence (AI) and ecological management presents innovative solutions to the pressing environmental challenges four time. This paper explores how AI technologies can enhance environmental management strategies by improving data collection and analysis, predictive modeling, and resource management. Through specific case studies, the effective integration of AI in wildlife conservation and smart agriculture is illustrated, showcasing its potential to promote sustainability. While the promise of AI is significant, challenges such as data privacy, accessibility, and the quality of information must be addressed. The future of environmental management will depend on interdisciplinary collaborations leveraging AI's capabilities tocreatesustainable solutions for ecological preservation.

DESIGN AND IMPLEMENTATION OF AN AI-BASED SMART ENERGY METER FOR EFFICIENT ENERGY MANAGEMENT

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Abstract

The rapid urbanization in Nigeria necessitates growing demand for electricity and the increasing complexity of modern home appliances have highlighted the need for intelligent energy management solutions. Conventional electricity meters used in many homes and industries provide limited information about energy consumption. They only display the total amount of electricity used without offering detailed analysis or real-time monitoring, given birth to problems which includes: Energy wastage due to poor management, Inaccurate estimation of energy usage, Difficulty in detecting abnormal energy consumption patterns and Limited user awareness of electricity usage behavior among others. the design and implementation of an AI-based smart energy meter aimed at improving energy efficiency; promote customer awareness of energy consumption and reducing electricity wastage. The implemented design integrates voltage and current sensors with a microcontroller to collect real-time consumption data from electrical appliances. An Artificial Intelligence (AI) model, based on machine learning algorithms, analyzes the collected data to identify consumption patterns, predict future energy demand, and detect abnormal usage. The prototype system was tested on common household appliances, and results demonstrated accurate measurement of voltage, current, and power, as well as reliable prediction of consumption trends. The integration of AI enabled the system to provide actionable insights for both consumers and utility providers, promoting efficient energy usage. The findings indicate that AI-based smart energy meters have significant potential to enhance energy management, reduce costs, and support sustainable electricity consumption in residential and commercial settings.

Keywords: Smart energy meter, Artificial Intelligence, Energy management, Machine learning, Electrical consumption, Power optimization

Transforming Supply Chain Management through Artificial Intelligence: Opportunities, Challenges, and Future Directions

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Abstract

This paper investigates the transformative role of Artificial Intelligence (AI) in reshaping modern supply chain management (SCM). As global supply chains become increasingly complex and vulnerable to disruption, traditional management models often prove inadequate for ensuring resilience, efficiency, and visibility. This study conducts a comprehensive review of key AI technologies including machine learning (ML) for demand forecasting, robotics for warehouse automation, and predictive analytics for risk mitigation and their integration into core SCM functions. The findings reveal that AI-driven systems significantly enhance decision-making by processing vast datasets to identify patterns and predict outcomes with a speed and accuracy unattainable by humans alone. This leads to tangible benefits such as optimized inventory levels, reduced operational costs, and improved customer responsiveness. The challenge of data silos, the requirement for large infrastructure investment, and new ethical concerns about algorithmic bias and workforce displacement are just a few of the significant adoption barriers that the paper critically examines. In the end, the study comes to the conclusion that although AI offers a paradigm shift toward supply chains that are genuinely intelligent, autonomous, and resilient, its effective application depends on a human-centered, ethical, and strategic approach. By offering a comprehensive framework for comprehending AI's present impact and future trajectory in SCM, this research adds to the scholarly conversation and provides insightful information for academics and business professionals navigating this technological advancement.

AI-ENABLED DECISION SUPPORT SYSTEMS FOR UNIVERSITY ADMINISTRATORS IN PUBLIC UNIVERSITIES IN RIVERS STATE

BY

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Abstract

Artificial Intelligence (AI) will increasingly support strategic decision-making in higher education. Public universities in Rivers State will continue to face challenges in administrative planning, resource allocation, and operational efficiency. This study will examine how AI-enabled decision support systems will enhance educational management in these universities. The study will adopt a mixed-methods approach. Quantitative data will be collected through structured questionnaires administered to university administrators to assess their readiness, current practices, and perceived benefits of AI adoption. Qualitative data will be gathered through interviews and focus group discussions with key administrative stakeholders to explore challenges, ethical considerations, and implementation strategies. Quantitative data will be analysed using descriptive and inferential statistics, while qualitative data will be analysed thematically and triangulated with survey findings. The study will identify areas where AI will improve decision quality, streamline administrative processes, and support evidence-based policy implementation. Based on these findings, a practical AI-based decision support framework will be proposed to guide university leaders in effective planning and performance management. The study will provide actionable recommendations for policymakers and stakeholders to strategically leverage AI for improved institutional outcomes, national cohesion, and global competitiveness.

Keywords: Artificial Intelligence, decision support systems, educational management, public universities, Rivers State, higher

CAPACITY BUILDING FOR HUMAN-CENTRED AI PEDAGOGY IN PUBLIC UNIVERSITIES IN SOUTH-SOUTH NIGERIA.

BY

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Abstract

Artificial Intelligence (AI) will continue to transform teaching and learning in universities worldwide. However, universities in South-South Nigeria will face challenges in adopting human-centred AI pedagogy due to limited skills, inadequate training, and weak institutional support. This study will examine how capacity building will help lecturers effectively use AI tools while ensuring ethical use, inclusivity, and improved student learning. The study will use a mixed-methods approach. Data will be collected through questionnaires distributed to lecturers in selected universities and interviews conducted with some academic staff and administrators. The questionnaires will provide general information about lecturers' knowledge and use of AI, while the interviews will give deeper insights into their experiences and challenges. The data will be analysed using simple statistical methods and thematic analysis to identify key patterns and issues. The study will identify gaps in AI knowledge, training needs, and concerns such as data privacy, bias, and academic integrity. Based on the findings, it will propose a practical capacity-building framework focusing on digital skills, ethical AI use, and continuous training for lecturers.

This study will provide useful recommendations for universities, policymakers, and educators on how to successfully implement human-centred AI pedagogy in resource-limited settings.

Keywords: Human-centred AI, capacity building, higher education, South-South Nigeria, ethical AI, pedagogy

AI-DRIVEN MANAGEMENT OF BASIC EDUCATION IN SOUTH-SOUTH NIGERIAN PUBLIC UNIVERSITIES: PROMOTING NATIONAL COHESION AND GLOBAL COMPETITIVENESS

BY

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Abstract

Artificial Intelligence (AI) will play a key role in improving the management of basic education in public universities in South-South Nigeria. These universities will continue to face challenges such as limited administrative capacity, weak data management, and inadequate use of technology. This study will examine how AI will support better decision-making, resource allocation, and overall management of basic education. Data will be collected through surveys and observations in selected universities to assess administrators' and educators' readiness to adopt AI tools and to identify potential challenges. The findings will show areas where AI will improve efficiency, policy implementation, and monitoring of educational activities.

Based on the results, the study will propose a practical framework for AI-driven management of basic education that will enhance quality, promote national cohesion, and prepare students to compete globally.

The study will provide practical recommendations for university leaders, policymakers, and education stakeholders on how to adopt AI strategically to strengthen educational management and support national and global development goals.

Keywords: Artificial Intelligence, educational management, basic education, public universities, national cohesion, global competitiveness

DESIGNING A CAPACITY-BUILDING FRAMEWORK FOR HUMAN-CENTRED AI PEDAGOGY IN UNIVERSITIES IN SOUTH-SOUTH NIGERIA

BY

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Abstract

The growing integration of Artificial Intelligence (AI) in higher education will continue to transform teaching and learning practices globally. However, universities in South-South Nigeria will face significant challenges in adopting human-centred AI pedagogy due to limited digital capacity, inadequate training, and weak institutional support. This study will aim to design a context-specific capacity-building framework that will support the effective adoption of human-centred AI pedagogy in the region.

The study will use a mixed-methods approach. Data will be collected through questionnaires that will be administered to lecturers in selected universities, and interviews that will be conducted with academic staff and institutional leaders. The questionnaires will assess levels of AI awareness, skills, and current teaching practices, while the interviews will explore experiences, challenges, and training needs. Quantitative data will be analysed using basic statistical methods, while qualitative data will be analysed through thematic analysis.

The findings will identify gaps in AI knowledge, ethical awareness, and institutional readiness, including concerns related to data privacy, algorithmic bias, and academic integrity. Based on these findings, the study will develop a practical capacity-building framework that will focus on digital literacy, ethical AI use, pedagogical innovation, and continuous professional development.

The study will provide useful recommendations for policymakers, university administrators, and educators seeking to promote responsible and effective AI integration in higher education.

Keywords: Human-centred AI, capacity building, higher education, South-South Nigeria, ethical AI, pedagogy

ARTIFICIAL INTELLIGENCE IN EDUCATION PHILOSOPHY: HISTORY, CURRENT DEVELOPMENTS, ISSUES AND DIFFICULTIES, AND ADVANTAGES OF UTILIZING AIED TOOLS IN INSTRUCTION

BY

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Abstract

Application of AI in Education (AIED) has been a subject of concern in academic research for more than three decades. It is the field that examined teaching and learning in traditional classrooms, at workplace and how to support formal education through AI Technologies. It is against this background, that this paper, examined the philosophy of Artificial intelligence in Education, what brought the idea of developing a system that can act, and think rationally like a human? What is the origin of the application of AIED Tools? Trends in the developing and implementation of AIED Tools from 1763- 2025 were examined. Problems/challenges of using AIED Tools, and the Benefits of using AIED Tools were also examined. The study concluded among others that the use/application of AIED Tools in education had gathered momentum and the stakeholders have devoted their time, resources and expertise in the provision and innovation of more sophisticated AI tools from 1763 to date. The study recommended among others that the use/application of AIED Tools should be encouraged to enhance personalized instruction in schools and at home in order to facilitate students' intellectual freedom, independence and improve critical thinking.

Keywords: Philosophy of Artificial intelligence, Education, Teaching and Learning.

LECTURERS' AND STUDENTS' PERCEPTIONS OF THE POTENTIAL BENEFITS AND CHALLENGES OF AI INTEGRATION INTO OFFICE TECHNOLOGY AND MANAGEMENT PROGRAMME IN SOUTH-EAST NIGERIA

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Abstract

Technological revolution of this age has inadvertently launched a persistent campaign for the integration of digital skills and artificial intelligence (AI) into education curriculum at all levels. This was a comparative study of lecturers' and students' perceptions of integrating AI-powered adaptive learning platforms and automated assessment tools into Office Technology and Management (OTM) programme in South-East Nigeria with specific attention to their potential benefits and challenges. Four research questions and two hypotheses guided the study. Population of the study was 50 OTM lecturers in the three federal polytechnics in South-East Nigeria running OTM programme and 293 HND OTM students in the schools. Using a simple random sampling, 30 lecturers (10 for each school) and 60 students (20 for each school) were studied. A structured questionnaire was used for the collection of data while the data analysis was done using SPSS. The findings of the study showed that lecturers differed significantly from students in their perceptions of the potential benefits of the integration of AI learning tools into OTM programme. On the challenges, both groups did not differ significantly in their views that mistrust of the AI tools, lack of electricity supply, poor internet connectivity, inadequate training and low funding, among others, impede effective AI integration into OTM programme. Based on the findings, the study recommended gradual cultural aligned AI-designed contents, level-adequate training, and enhanced funding for technology education in Nigeria.

Keywords: OTM, AI, Adaptive Learning Platforms, Automated Assessment Tools

HYBRID SECURITY GOVERNANCE AND RURAL INSECURITY: EXAMINING THE ROLE OF VIGILANTE GROUPS IN COMBATING BANDITRY IN NORTHERN NIGERIA

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Abstract

Banditry has emerged as a critical security problem in Nigeria, particularly in the northern region where rural communities regularly face violent assaults, kidnappings, cattle rustling, and the destruction of livelihoods. Although the government has implemented various military operations and deployed security personnel to affected areas, the persistence of bandit activities highlights the limitations of formal security institutions in adequately protecting remote communities. Consequently, many local populations increasingly depend on vigilante groups and other community-based security actors to supplement state-led security initiatives.

This study explores the role of vigilante groups within the framework of hybrid security governance in addressing banditry in northern Nigeria. The research adopts a qualitative approach and relies mainly on secondary data derived from scholarly literature, policy documents, and institutional reports. Documentary and thematic analytical techniques were utilized to identify recurring patterns associated with the root causes of banditry, the socio-economic implications of rural insecurity, and the interaction between formal security agencies and vigilante groups.

The findings indicate that widespread poverty, youth unemployment, limited state presence in rural communities, environmental stress, and the proliferation of small arms significantly contribute to the persistence of banditry in the region. The study further reveals that vigilante groups play an important role in community surveillance, intelligence sharing, and rapid response to emerging security threats. However, issues such as inadequate coordination, limited training, weak accountability mechanisms, and insufficient regulatory frameworks continue to undermine the effectiveness of these hybrid security arrangements.

The study concludes that addressing banditry in Nigeria requires a comprehensive security strategy that integrates formal state institutions with community-based actors while also addressing the socio-economic conditions that fuel violent activities.

Keywords: Banditry; hybrid security governance; vigilante groups; rural insecurity; community security; northern Nigeria.

INTEGRATION FACTORS OF 21ST-CENTURY TECHNICAL DRAWING SKILLS INTO PEER INSTRUCTION AT NIGERIAN COLLEGE OF EDUCATION

By

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Being A Paper Submitted For Takoradi Technical University 2026 Applied Research Conference, Ghana

Abstract

Technical drawing (TD) is a universal language for engineers, technologists, and technical personnel, facilitating precise communication of design concepts and intent. Similarly, TD enhances learning and job performance within engineering and technology programs. However, the prevalence of exclusive passive teacher-centred methods in Nigerian schools poses a significant challenge to effective technical drawing instruction. Existing research recommends a shift from passive to active teaching methods to address this issue. This study aims to employ the dynamic form of peer instruction to overcome the limitations of passive approaches in technical drawing education in Nigeria. Specifically, the research seeks to identify factors related to 21st-century technical drawing skills, both hard and soft, suitable for integration into peer instruction. Through a qualitative research design, the study interviews 15 technical drawing educators (lecturers and instructors) in central Nigeria, selected through simple random sampling. The researchers adopted thematic data analysis, including transcription, coding, and content analysis,

to explore and interpret the collected information. The findings reveal crucial factors, such as self-instructional materials, attributes of self-instructional materials, and literacy skills, suitable for integration into the independent learning aspect of peer instruction for basic technical drawing hard skills.Additionally, the finding identifies factors like application, analysis, synthesis, learning, and life skills for integration into the dependent learning aspect of peer instruction for advanced technical drawing hard skills. This study represents an initial investigation, laying the groundwork for a more in-depth exploration of factors for practical integration into peer instruction for lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS). The outcomes of this research will empower educators to implement peer instruction effectively in teaching technical drawing.

Keywords: Technical Drawing, Passive Teacher-Centred Methods, Active Teaching Methods, 21st-Century Technical Drawing Skills, and Hard Skills.

THE ROLE OF PERFORMANCE MANAGEMENT ON EMPLOYEE COMMITMENT IN HIGHER INSTITUTION OF LEARNING IN NIGERIA

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Abstract

This paper highlights the role of performance management on employee commitment in new institution of higher learning in Nigeria. The paper is based on review of relevant literatures from reports, newspapers, magazines and data bases from which there is strong acknowledgment of the role of performance management on employee commitment, particularly in newly established institution of higher learning. These three elements of employee commitment: affective, normative and continuance, are examined in this paper. This is done to explain the importance of performance management on employee commitment. The study affirmed that employee commitment is among the necessary job attitudes when assessing performance especially in newly established institutions of higher learning particularly in Nigeria. Therefore, the paper suggests performance appraisal as an important variable in employee commitment in relation to job attitude in new institutions of higher learning in Nigeria. The outcome of this paper is to guide top management and other stakeholders to have greater understanding of performance management of employees particularly in newly established institutions of higher learning. The paper enhances the body of existing works on performance management and employee commitment by focusing on newly established institutions of higher learning in Nigeria.

Keywords: Performance Management, Employee Commitment, High Institutions, Learning, Nigeria

CREDIT OR CONSTRAINT? THE IMPACT OF MICROFINANCE AND DIGITAL LENDING ON POVERTY REDUCTION AMONG INFORMAL ENTREPRENEURS IN NIGERIA.

By

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ABSTRACT

The informal sector remains a major source of employment and livelihood in Nigeria, particularly amid rising inflation and unemployment. Despite its rapid expansion, poverty persists among informal entrepreneurs, raising concerns about the effectiveness of financial inclusion initiatives in achieving sustainable poverty reduction. Microfinance and digital lending have been promoted as key tools for empowering low-income entrepreneurs; however, evidence on their comparative and combined effects remains limited, especially in Northeast Nigeria. This study examines the impact of microfinance and digital lending on poverty reduction among micro- and small-scale informal entrepreneurs in Bauchi and Gombe States. The study adopts a quantitative cross-sectional survey design using structured questionnaires administered to approximately 400 entrepreneurs selected through multistage sampling. Poverty will be measured using income, consumption, and housing, while access to microfinance and digital lending serves as the main explanatory variables. Data will be analysed using SPSS and partial least square structural equation modelling techniques (PLS-SEM) to estimate individual and joint effects. The study expects that access to microfinance will significantly enhance income and asset accumulation, while digital lending will improve short-term liquidity and business continuity. Entrepreneurs utilizing both financing sources are anticipated to experience stronger poverty reduction outcomes due to complementary effects. The findings will provide policy-relevant insights for strengthening financial inclusion strategies in Northeast Nigeria and underscore the importance of accessible, affordable, and well-regulated credit systems in reducing poverty among informal entrepreneurs.

Keywords: Microfinance, Digital Lending, Informal Sector, Poverty Reduction, Nigeria.

ARTIFICIAL INTELLIGENCE AND BUSINESS PERFORMANCE AMONG SCIENCE-DRIVEN SMES IN NIGERIA: THE BENUE STATE EXPERIENCE

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Abstract

Artificial intelligence (AI) technologies are rapidly expanding and changing business operations globally, including Nigeria's entrepreneurial scene. Small and medium-sized businesses (SMEs) with a scientific focus are especially well-positioned to use AI tools to improve profitability, market competitiveness, and operational efficiency. With a particular focus on Benue State, Nigeria, this study investigates the connection between artificial intelligence and the commercial success of science-driven SMEs. As important aspects of AI use, the study looks into AI-based data analytics, business process automation, and AI-supported customer relationship management. Sales growth, operational effectiveness, market competitiveness, and profitability are used to gauge an SME's performance. In order to gather primary data from owners and managers of science-driven SMEs across particular industrial clusters in Benue State, the study uses a quantitative research design and structured questionnaires. Regression analysis will be used to examine data in order to test theories and ascertain how AI affects performance results. The results are anticipated to offer empirical proof of how AI technologies can support operational enhancements and strategic decision-making in regional SMEs. By connecting technological innovation to performance in the context of emerging economies, the study advances entrepreneurship research and offers useful suggestions for legislators, entrepreneurs, and Benue State innovation hubs. In the end, the study shows how AI can revolutionize science-driven business endeavors in Nigeria and provides guidance for growing technology-driven businesses in comparable socio-economic contexts.

Keywords: Artificial Intelligence; Business Performance; Science-Driven SMEs; Entrepreneurship; Benue State; Nigeria

EFFECT OF ARTIFICIAL INTELLIGENCE ENHANCED CURRICULUM ON FOOD SECURITY COMPETENCIES AMONG UNDERGRADUATE STUDENTS IN AGRICULTURAL PROGRAMS IN PLATEAU STATE, NIGERIA

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Abstract

Food security remains one of the most pressing challenges in Africa, highlighting the need for higher education curricula that equip students with innovative solutions and practical competencies in sustainable agriculture. This study investigated the impact of an Artificial Intelligence (AI)-enhanced curriculum on undergraduate students' food security competencies in agricultural programs across Plateau State, Nigeria, using a descriptive survey design involving 300 students.

Data were collected through structured questionnaires and AI simulation exercises, validated by agricultural and education experts, and tested for reliability (Cronbach's alpha $\alpha = 0.81$), ensuring robust measurement of theoretical knowledge, practical AI applications, and proactive engagement in sustainable agricultural practices. Descriptive analysis revealed that 68% of students reported improved knowledge, 64% demonstrated enhanced practical skills, and 70% exhibited proactive engagement in food security initiatives, while inferential analysis using ANOVA and correlation confirmed statistically significant positive effects of AI integration on student outcomes ($p < 0.001$). Findings indicate that AI-enhanced curricula substantially strengthen students' conceptual understanding, applied competencies, and sustainability awareness, thereby preparing them to address contemporary food security challenges. The study recommends embedding AI tools into agricultural programs, providing faculty training, implementing experiential AI-based modules, and conducting regular assessments of student competencies to promote sustainable food security education in Nigerian universities.

Keywords: Artificial Intelligence, Food Security Education, Curriculum Innovation, Sustainable Agricultural Practices

SUSTAINABLE ECO-TOURISM AND RURAL DEVELOPMENT: ASSESSING THE SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT OF IYAKE SUSPENDED LAKE TOURISM IN ADO-AWAYE, NIGERIA

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Abstract

Sustainable eco-tourism has increasingly been recognised as an important strategy for promoting rural development, environmental conservation, and community empowerment, particularly in developing countries with unique natural attractions. This study assesses the socio-economic and environmental impacts of eco-tourism development at Iyake Suspended Lake in Ado-Awaye, Oyo State, Nigeria. The research aims to evaluate how tourism activities contribute to employment generation, income diversification, environmental awareness, and community participation, while identifying the challenges that affect sustainable eco-tourism development in the region. A quantitative cross-sectional survey design was adopted for the study. Data were collected using structured questionnaires administered to 133 respondents drawn from community members, tourism operators, and visitors interacting with the eco-tourism activities at Iyake Suspended Lake. A total of 118 valid responses were analyzed using descriptive statistics and inferential statistical techniques, including Pearson correlation and chi-square analysis. The findings reveal that eco-tourism has significantly contributed to socio-economic development in the Ado-Awaye community through job creation, increased household income, and the emergence of small-scale tourism enterprises such as guiding services, local crafts, and hospitality activities. The results also indicate that eco-tourism has enhanced environmental awareness and conservation efforts among community members, encouraging the protection of natural resources surrounding the lake. However, the study identifies critical barriers to sustainable eco-tourism development, including inadequate infrastructure, limited government support, and weak environmental management practices. The study concludes that while Iyake Suspended Lake possesses substantial potential for sustainable eco-tourism development, stronger institutional support, improved infrastructure, and enhanced community participation in tourism governance are necessary to ensure long-term sustainability. The findings provide valuable insights for policymakers and tourism planners seeking to promote eco-tourism as a tool for rural development and environmental conservation in Nigeria.

Keywords: eco-tourism development, rural development, community participation, environmental sustainability, Iyake Suspended Lake.

ASSESSMENT OF CUTLERY CLEANING, SANITISATION, AND STORAGE PRACTICES AND THEIR INFLUENCE ON FOOD SAFETY IN NIGERIAN RESTAURANTS: EVIDENCE FROM MEGA KITCHEN, OSOGBO

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Abstract

Food safety in restaurant environments remains a critical public health concern due to the potential for cross-contamination from food-contact surfaces such as cutlery. This study assessed cutlery cleaning, sanitisation, and storage practices and examined their influence on food safety perceptions in Mega Kitchen Restaurant, Osogbo, Nigeria. A cross-sectional mixed-method research design was adopted. Data were collected from 30 respondents comprising restaurant staff (n = 15) and customers (n = 15) using structured questionnaires, semi-structured interviews, and direct observational checklists. Quantitative data were analysed using descriptive statistics including frequency distributions and percentages, while qualitative responses were examined through thematic analysis. Results indicated that most respondents reported regular cutlery washing after each use (80%) and the use of detergents during cleaning (86.7%). However, compliance with critical hygiene practices was lower for hot-water washing (60%) and proper drying before storage (63.3%). Sanitisation practices were inconsistent; only 56.7% of respondents confirmed the use of chemical sanitisers, while 53.3% indicated that staff had received formal sanitation training. Although 70% of respondents reported the availability of sanitising equipment and 66.7% indicated the presence of a regular sanitisation schedule, gaps remained in implementation. Storage practices were relatively better, with 73.3% reporting covered storage and 80% indicating clean storage areas, though only 60% confirmed separation of clean and used cutlery. Perception analysis revealed strong consumer awareness of hygiene importance, with 90% agreeing that clean cutlery increases confidence in restaurant safety. The findings highlight moderate compliance with cleaning practices but identify significant deficiencies in sanitisation protocols and staff training. Strengthening sanitation procedures, improving staff education, and implementing structured food safety management systems such as HACCP could enhance restaurant hygiene and reduce contamination risks in Nigerian hospitality establishments.

Keywords: food safety, cutlery hygiene, restaurant sanitation, cross-contamination, hospitality industry, Nigeria

EFFECT OF ARTIFICIAL INTELLIGENCE ENHANCED CURRICULUM ON FOOD SECURITY COMPETENCIES AMONG UNDERGRADUATE STUDENTS IN AGRICULTURAL PROGRAMS IN PLATEAU STATE, NIGERIA

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Abstract

Food security remains one of the most pressing challenges in Africa, highlighting the need for higher education curricula that equip students with innovative solutions and practical competencies in sustainable agriculture. This study investigated the impact of an Artificial Intelligence (AI)-enhanced curriculum on undergraduate students' food security competencies in agricultural programs across Plateau State, Nigeria, using a descriptive survey design involving 300 students. Data were collected through structured questionnaires and AI simulation exercises, validated by agricultural and education experts, and tested for reliability (Cronbach's alpha $\alpha = 0.81$), ensuring robust measurement of theoretical knowledge, practical AI applications, and proactive engagement in sustainable agricultural practices. Descriptive analysis revealed that 68% of students reported improved knowledge, 64% demonstrated enhanced practical skills, and 70% exhibited proactive engagement in food security initiatives, while inferential analysis using ANOVA and correlation confirmed statistically significant positive effects of AI integration on student outcomes ($p < 0.001$). Findings indicate that AI-enhanced curricula substantially strengthen students' conceptual

understanding, applied competencies, and sustainability awareness, thereby preparing them to address contemporary food security challenges. The study recommends embedding AI tools into agricultural programs, providing faculty training, implementing experiential AI-based modules, and conducting regular assessments of student competencies to promote sustainable food security education in Nigerian universities.

Keywords: Artificial Intelligence, Food Security Education, Curriculum Innovation, Sustainable Agricultural Practices

AI-POWERED INVENTORY IMMUNIZATION MODELS FOR POST-PANDEMIC TRADE SHOCKS

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Abstract

The unpredictability created by pandemic-era trade disruptions highlighted the fragility of traditional inventory strategies. This paper proposes an AI-powered immunization model that helps firms and public supply agencies maintain stable stock levels during global shocks. The model integrates deep time-series forecasting, disruption-scenario simulation, and stochastic optimization to assess risk exposure and recommend shock-absorbing configurations. It evaluates vulnerabilities arising from port closures, transportation delays, commodity scarcity, and geopolitical tensions. Tests conducted using data from manufacturing and agricultural supply chains reveal substantial reductions in stockouts and overall resilience improvements. The study demonstrates how intelligent forecasting and adaptive optimization can strengthen post-pandemic supply-chain stability.

EMERGING CHIKUNGUNYA VIRUS INFECTION UNEARTHED IN MAIDUGURI, BORNO STATE, NIGERIA

BY

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ABSTRACT

Chikungunya is a disabling and debilitating arthropod-borne viral disease of humans caused by the Chikungunya virus. Chikungunya virus resembles malaria/typhoid fever in clinical syndrome; misdiagnosis is often common among clinicians. There is a paucity of information on the burden of the Chikungunya virus in the study area. A descriptive cross-sectional hospital-based study was conducted to assess the serological detection of Chikungunya virus infection among patients with febrile illness attending the University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria. Data were collected using a structured pre-tested questionnaire, and blood samples of 200 consented patients, 108(54.0%) females and 92(46.0%) males were collected for this study. Chi-square test was used for the analysis. 1(0.5%) and 23(11.5%) tested positive for CHIKV IgM using RDT and Enzyme-linked Immunosorbent Assay, 91(45.5%) had neutralizing antibodies for CHIKV by Plaque Reduction Neutralization Test. 10(5.0%) of the positive samples tested had both IgM and neutralizing antibodies. A higher neutralizing antibody was recorded among females, 50(25.0%), while males had 41(20.5%). The aged group 21-40 years had the highest prevalence of 6.5% IgM and 24.5% neutralizing antibodies. There was a statistically significant association

between gender and CHIKV infection (P=0.05); males had a prevalence of 15(7.5%) IgM antibodies, while females had 8(4.0%). Age, anti-malaria/antibiotic intake, and recent travelling had not shown any statistically significant association with CHIKV infection (P>0.05). This study unearthed the circulation of CHIKV infection in the study area and therefore called for serious actions; the need for an awareness campaign on CHIKV as a possible etiological agent of febrile illness, inclusion of CHIKV in routine differential diagnosis of febrile conditions to avoid misdiagnosis, and the spread of the disease among the populace.

Keywords: Antibody, Chikungunya, Febrile illness, Maiduguri.

USING LINGUISTIC FEATURES AS SKILL ACQUISITION FOR SELF-SUSTAINABILITY IN NIGERIA

By

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Abstract

Unemployment remains a pressing issue affecting individuals and Nigeria's economy. Skill acquisition is a viable alternative, empowering youths and fostering self-employment. It involves training individuals in specific skills, enabling them to establish their own businesses. Despite efforts to establish skill acquisition centers, unemployment persists, partly because trained youths lack resources and funding to set up businesses. The difficulty in assessing these resources stems from the fact that many youths struggle to procure necessary materials and equipment due to lack of funds. This study focuses on linguistic features that can be employed in social events such as birthday, naming, or burial ceremonies to create job opportunities for youths, thereby reducing unemployment in the country. The study, therefore, recommends that government and tertiary institutions incorporate linguistic skills as skill acquisition into their curriculum, equipping students with skills for social event moderation and oration, which can create job opportunities for trained orators or social event moderators. By harnessing linguistic skills, youths can access new avenues for entrepreneurship, thereby contributing to Nigeria's economic development.

Keywords: unemployment, linguistic feature, youth, Nigeria, skill acquisition.

TRAUMA, TEXTUALITY, PSYCHOANALYSIS, WOMEN AS HEALING WROUGHT AGENTS: A CASE STUDY OF AHMED YERIMA'S PLAY – LITTLE DROPS

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Abstract

The text of explication in this study, Little Drops, written by Ahmed Yerima, foregrounds the insidious mode through which violence creeps in, particularly as witnessed in the Niger-Delta region of Nigeria before it later metastasizes into a full scale rivers of blood. Like the torrential rain that begins with little, little drops, the violence that turns apocalyptic starts with the little, little drops of rain. The play, under discourse, readily brings to focus the holocaust in the Niger-Delta just like the spinning militia insurrection going on in the Northern part of Nigeria, and fast spreading down South, the impasse of which is allegedly caused by perceived injustice and the precarious living of the people of the Niger-Delta, in whose soil the black gold (oil) is being tapped to feed the rest of the nation. The playwright claims to have been drowned towards shedding little drops of tears as a result of the exhibition of brazenness in unleashing violence by the militants, and the uncanny response by the Nigerian troops to this scale of violence, making the effect quite harrowing and psychological on the main victims of this men fought egocentric war-women, in particular and children, across gender in general. This category of victims are the underdogs, who never stoke the embers of fire of war but are consumed by the war of attrition.

EVALUATING THE ROLE OF CHAIR AND TABLE DESIGN IN SHAPING RESTAURANT AMBIANCE AND SERVICE DELIVERY: STUDY OF HOSPITALITY MANAGEMENT TECHNOLOGY TRAINING RESTAURANT, FEDERAL POLYTECHNIC EDE, OSUN STATE, NIGERIA.

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Abstract

The physical environment of restaurants plays a crucial role in shaping customers' dining experiences and influencing service delivery. Among the most visible elements of the restaurant environment are furniture components, particularly chairs and tables, which significantly contribute to ambiance, comfort, and operational efficiency. This study evaluates the role of chair and table design in shaping restaurant ambiance and service delivery using the Hospitality Management Training Restaurant of Federal Polytechnic Ede, Osun State, Nigeria, as a case study. The research adopted a descriptive survey design method. Primary data were collected through structured questionnaires administered to staff and customers of the training restaurant. A total of 95 valid responses were obtained and analyzed using descriptive and inferential statistical techniques, including frequency distribution, mean scores, correlation, and regression analysis. Findings revealed that furniture design significantly influences restaurant ambiance, customer comfort, and service efficiency. The correlation analysis indicated a strong positive relationship between ergonomic furniture design and customer satisfaction ($r = 0.78$, $p < 0.05$). Regression analysis further showed that furniture arrangement accounted for approximately 62% of the variation in staff service efficiency, indicating that proper spatial arrangement enhances workflow and service speed. The study concludes that well-designed chairs and tables not only improve the aesthetic appeal of restaurants but also enhance customer satisfaction and operational productivity. The study recommends that restaurant managers prioritize ergonomic design, functional layout, and aesthetic quality when selecting furniture to enhance both customer experience and service delivery.

Keywords: Restaurant ambiance, furniture ergonomics, service delivery, chair design, table design, hospitality management.

THE IMPACT OF CHAMPAGNE BUCKET ON THE PERCEPTION OF CUSTOMER SERVICES

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ABSTRACT

This paper will examine the influence of champagne buckets on the perception of customers to service at premium hotel brands particularly Ife Grand Resort and Harvard Intercontinental Hotel in Ile-Ife, Nigeria. Though most luxury hotels serve the champagne buckets, there is minimal research demonstrating their impacts on the feelings, and satisfaction of the guests as well as the overall service quality. Our descriptive design and mixed methods were used. We administered formal questionnaires to 80 individuals, guests and employees. The findings indicate that the use of champagne buckets will make customers feel that the service is improved. They are regarded as the symbols of luxury and working professionalism and contribute to the overall satisfaction. The majority of the respondents are familiar with the meaning and symbolism of the bucket. Staff, however, claimed that the buckets are difficult to handle during rush times, may injure the hand and may spill. The paper indicates that besides keeping drinks cold, champagne buckets are also a powerful symbol and drama in enhancing the luxurious experience. We suggest the purchase of ergonomically designed buckets, staff training, and maintenance of the same presentation level to make the most out of the effect. The study contributes to the current knowledge concerning the design of experiential service and the application of tools in luxury hospitality.

Keywords: Beverage Service Tools, Champagne Bucket, Customer Perception, Upscale Hospitality Setting, Service Quality.

CHALLENGES OF OPEN AND DISTANCE LEARNING (ODL) FOR FUNCTIONAL EDUCATION IN NIGERIA

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Abstract

The challenges of Open and Distance Learning (ODL) is no doubt one of the innovative platforms created for knowledge sharing and instruction beyond the classroom setting. However, the process of transition and the eventual operation of the online platform present some challenges because students who are already accustomed to the face-to-face mode of teaching and learning often display mixed reactions to the transition. Among other challenges associated with this online learning platform are the availability of the required technology, the skills for its usage, the pedagogical skills of online instructors, and attitudinal disposition to innovation among students. In other to harness ODL for functional education in Nigeria, this paper conceptually examined open distance learning and some issues of open distance learning (ODL) in Nigeria. The challenges of distance learning in the promotion of functional education were discussed while some measures for managing ODL for functional education in Nigeria was highlighted. In light of the discussion, it was suggested that ODL system could make use of a combination of conventional resources and Information and Communication Technology (ICT) techniques shifting gradually to ICT-based programmes using a computer conferencing type. This would allow student-to-student and student-to-instructor interaction as well as complement learning, assessment and feedback.

Keywords: Challenges**,** Open and Distance Learning (ODL), Functional Education

INTEGRATION OF ARTIFICIAL INTELLIGENCE (AI) FOR ENHANCED REAL ESTATE RISK MANAGEMENT IN NIGERIAN HIGHER INSTITUTIONS: A PHILOSOPHICAL INQUIRY FROM IBADAN, NIGERIA

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Abstract

Context: Real estate investment in Ibadan, Nigeria, has been growing rapidly due to urbanisation, population growth, and economic development. However, investors face various risks that can impact the sustainability of such investments. In the context of the integration of Artificial Intelligence (AI) into the curricula of higher institutions of learning for sustainable education reforms in 21st-century Africa, there is a rising need for empirical studies that can support data-driven teaching, learning, and professional training in the built-environment disciplines.

Research Aim: This study aims to identify and examine the different risks affecting real estate investment in Ibadan Metropolis, Nigeria, with a view to generating evidence-based knowledge that can enhance AI-supported teaching, curriculum development, and professional training in estate management and related programmes in higher institutions.

Methodology: Primary data were collected through a questionnaire survey administered to all registered Estate Surveying and Valuation Firms in the study area. Descriptive statistics were used to analyse the data collected, providing structured datasets suitable for AI-enabled analytical tools and curriculum applications.

Findings: The study showed that the most significant risks influencing real estate investment in Ibadan are economic risk, credit risk, and financial risk at 23.4%, 19.1%, and 17.0%, respectively. Other risks such as operational, political, liquidity, environmental, legislative, and market risks were found to have comparatively lower impacts.

Theoretical and Educational Importance: Beyond its practical relevance, this study contributes to sustainable education reforms by providing empirical content that can be integrated into AI-enhanced curricula for estate management, urban planning, and real estate finance programmes in Nigerian higher institutions.

Conclusion: The study concludes that standardised risk assessment methods aligned with international best practices are required. These methods can also serve as foundational datasets for AI-driven learning, research, and decision-support systems in higher institutions, supporting sustainable education reforms in Nigeria.

Keywords: Ibadan Metropolis, Artificial Intelligence, Sustainable Education, Real Estate Investment, Risk

EXAMING THE SIGNIFICANT OF TABLEWARE IN ENHANCING FOOD PRESENTATION AND GUEST PERCEPTION ON CULINARY QUALITY.

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Abstract

This study investigates how tableware influences guest perception of culinary quality at ADMUS HOTEL Restaurant in Ede, Nigeria. In a competitive hospitality environment, where visual presentation is integral to the dining experience, this research examines how material, design, color, and shape enhance dish presentation and subsequently affect perceptions of taste, luxury, and monetary value. Grounded in multisensory integration and aesthetic theory, the study posits that tableware is not merely functional but a critical communicative tool. This qualitative, exploratory case study employed semi-structured interviews alongside photographic stimuli depicting three distinct tableware styles. Data was collected from 15 purposively selected respondents, comprising both experienced diners and hospitality professionals, to capture dual perspectives. Thematic analysis, supplemented by descriptive statistics, revealed that material quality is the paramount characteristic, establishing foundational impressions of durability and luxury. Furthermore, tableware style significantly shaped perception: the Luxury Classic style best signaled chef skill, exclusivity, and justified premium pricing; the Contemporary Artistic style enhanced visual appeal and was associated with culinary creativity and modernity; conversely, Basic White tableware was perceived as generic, undermining perceived value and failing to distinguish the culinary offering. The study concludes that tableware acts as a decisive, cost-effective tool for strategic sensory marketing, directly enhancing guest satisfaction, perceived value, and brand image. It recommends targeted investment in high-quality, context-appropriate tableware collections and complementary staff training in aesthetic presentation principles. By providing empirical evidence from an under-researched Nigerian context, this research offers practical, actionable guidance for the hospitality industry to leverage tableware for competitive advantage and improved guest experiences.

Keywords: Tableware design, Guest perception, Culinary presentation, Hospitality industry, Sensory marketing, Restaurant aesthetics, Perceived value, ADMUS

WEB3 OPPORTUNITIES OR FINANCIAL GAINS? THE EFFECT OF TELEGRAM CRYPTO FARMING ON STUDENT FOCUS AND PERFORMANCE

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Abstract

The evolution and rise of Web 3.0 have introduced new financial opportunities, particularly through decentralized platforms like Telegram. While these opportunities attract students seeking income, concerns arise regarding their impact on academic focus and performance. This study investigates the impact of Telegram crypto farming on students at Federal Polytechnic Kaltungo, examining whether it serves as a Web3-driven opportunity or a distraction that hampers academic performance. Using a mixed-methods approach, the research analyzes student participation in crypto farming, their time allocation, and its correlation with academic performance. The findings will determine whether crypto farming has a positive or negative impact on student academic performance and provide insights into balancing Web3 opportunities with academic productivity.

EVALUATION OF SANDCRETE BLOCKS MANUFACTURED IN ILE-OLUJI, ONDO STATE, NIGERIA

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ABSTRACT

Sandcrete blocks are known for their durability and are essential materials in the construction industry, especially in Nigeria. Due to the growing demand for reasonably priced accommodation in Nigeria, there is a need to critically examine the quality of 6" and 9" sandcrete blocks produced within Ile-Oluji (an increasingly developing agrarian town in Ondo State). The study evaluated the compressive strengths and dry densities of sandcrete blocks manufactured by five local companies namely NV, AK, SA, KB and OB respectively. Quantitative tests were carried out as well as qualitative assessments of the firms' production practices. The results of the compressive strength test show that the blocks produced by SA and OB respectively did not meet the required standard set by the Nigerian Industrial Standard (NIS 87:2000). However, the dry density results for 9" blocks produced by companies NV and AK were found to be below the minimum requirement of 1920 kg/m^3 for load bearing blocks as specified by NIS 87:2000. Recommendations for improved production processes, enhanced quality control and training of manufacturers position the findings as a valuable resource for industry stakeholders, policymakers and future research efforts. Factors affecting variations in quality and the environmental sustainability of sandcrete blocks production can be further investigated. The sandcrete blocks produced from other manufacturers in Ile-Oluji can also be investigated to determine the trend within the town.

Keywords: Compressive strength, Dry density, Durability, Load bearing, Sandcrete block,

OWNERSHIP STRUCTURE AND PERFORMANCE OF LISTED INDUSTRIAL GOODS COMPANIES IN NIGERIAN

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Abstract

In today's highly competitive business environment, the performance of companies is influenced by several factors, one of the most significant being ownership structure. The study in the light of the above, investigated the relationship between ownership structure and performance among 13 industrial goods companies listed on the Nigerian Exchange Group as of December 2022. The study employed an ex-post facto research design and focused on the period 2013 to 2022. The population of the study comprised of 13 listed industrial goods companies in Nigeria. A sample of five 5 companies were purposively selected, based on the availability of ownership structure information in their published annual reports for the period. Descriptive statistics and inferential statistics of Panel data econometrics techniques involving Pooled Ordinary Least Square (OLS) model, Fixed Effect Model (FEM) and Regression were employed for data analysis. Findings of the study revealed that managerial ownership had positive significant effect (F-statistics = 2.345449; P-value = 0.040807) on financial performance of listed industrial goods companies in Nigeria. Further results indicate that foreign ownership had no significant effect (F-statistics = 0.054749; P-value = 0.999728) on financial performance of listed industrial goods companies in Nigeria, while Institutional ownership had positive effect (F-statistics = 29.18712; P-value = 0.000000) on financial performance of listed industrial goods companies in Nigeria. The study concluded that ownership structure plays great roles in shaping the economic outcomes of listed industrial goods companies in Nigeria. It then recommended that Investors should conduct due diligence on pattern of Ownership structures of companies before making investment decisions, and that Policy makers should consider the implication of ownership structure on financial performance when formulating regulations and policies.

Keywords: Ownership structure, financial performance, Industrial Goods Companies, Manufacturing Companies,

SOFTWARE DEVELOPMENT FOR PRODUCTION SYSTEM EFFECTIVENESS (PSE) EVALUATION IN SELECTED PRODUCTION INDUSTRIES

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Abstract

The need to determine the sustainability of the established industries demands the development of a computer software at resolving sustainable productivity challenges. The attributes (internal and external) of industrial failure were determined using questionnaire administration and oral interview of industrial experts in five (5) selected production companies in Nigeria. Production System Effectiveness (PSE) factors: Availability P(I), Performance P(p) and Quality P(O) were determined using Modified Bayesian Approach (MBA) in order to arrive at manageable decision-making criteria under uncertainty, risk, competition and corruption. Initial measures of PSE were based on the input internal factors (manpower, machine, material, energy, management, information / communication, money and marketing), while sustainability decisions were determined using sustainability trend, globally acceptable and industrial revolution standards. Further decision analysis under competition and corruption was done using the seven (Maximin, Minimax, Maxmax, Minimin, LaPlace, Hurwitz, and Minmax regret) uncertainty or risk criteria. The model was implemented using computer program developed using Python script as program language for rapid generation of results. The model and emerging and the software package was tested using data (weighted and normal) from the stated companies to determine their sustainability performances, while paired T-Test statistics was used to test the levels of significant difference between Weighted Production System Effectiveness (WPSE) and normal (PSE) at 5 %. The mathematical models validation results showed that there was significant difference between the Traditional Approach (APQ) and Modified Bayesian Approach (MBA), PSE and WPSE outcomes because calculated values from different scenari; p_{cal} 0.021, 0.016, 0.010 and 0.041 respectively were less than p-value 0.05 similar, results were obtained using the software program and package developed with statistical values p_{cal} 0.037 and 0.028 while no significant different was, outcome with p_{cal} 0.101 and 0.070 respectively appeared on several cases. The results from computer software are similar to manually calculated one. Therefore, the computer software (IPM 1.0) usable for rapid implementation of the mathematical model and a veritable tool in solving sustainable problems in industries.

Keywords: Production, Industries, Performance, Evaluation, Software

ARTIFICIAL INTELLIGENCE AND FOOD SECURITY: OPTIMIZATION OF FERMENTED SORGHUM-SOYBEAN COMPLEMENTARY FOODS FORTIFIED WITH PROVITAMIN A AND PROTEIN

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Abstract

Food insecurity and infant malnutrition remain critical public health challenges across Sub-Saharan Africa. As African higher education moves toward sustainable reforms, integrating Artificial Intelligence (AI) into higher education curricula offer transformative potential for sustainable food innovation and security. This study developed and evaluated four formulations of fermented sorghum–soybean (FS-SB) complementary foods fortified with carrot (provitamin A) (4%) and egg white (protein) (3%). These food formulations, FS-SB 1 – FS-SB 4 (60:30, 50:40, 40:50, and 30:60) were compared with commercial Akamu/Ogi (100%) as control - a benchmark for AI - based nutrient optimization. Sorghum grains, soybean, and carrots purchased from local grocery were cleaned, fermented (24-48h), dried, milled, and sieved into flour for analysis. The nutritional, microbiological quality and sensory properties were assessed using standard analytical procedures. Proximate analysis revealed that FS-SB4 (30:60) had the highest protein (22.88%) and energy (377.76 kcal/100g), significantly exceeding WHO/FAO minimum requirements for complementary foods. The pH stability of 6.16 – 6.21 were acceptable, while the microbial counts were within the permissible limits. Sensory evaluation using 20 panelists showed that FS-SB4 was the most preferred (overall acceptance: 8.80). Statistical analysis (ANOVA, $p < 0.05$) confirmed significant improvements in vitamin A, C, and carotenoid contents across all fortified samples. The study demonstrates that these empirical datasets are essential for training in AI algorithms to predict infant nutritional outcomes, thereby, reducing the cost and time of trial-and-error in laboratory experiments. Therefore, integrating such "Smart Food Formulation" modules into African Higher Education curricula is necessary for 21st-century sustainable education.

Keywords: Artificial Intelligence, Food Security, Sorghum-Soybean, Complementary Foods, Higher Education Reform, Africa.

ANALYSIS OF ONION MARKETS INTEGRATION BETWEEN GEIDAM IN YOBE STATE AND MAIDUGURI IN BORNO STATE, NIGERIA

BY

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Abstract

This study applies data-driven and econometric modeling approaches relevant to artificial intelligence–enabled market analytics to examine the degree of onion market integration between Geidam (Yobe State) and Maiduguri (Borno State), Nigeria. Primary and secondary data comprising 49 weeks of onion price observations (January 2024–January 2025) were obtained from Onion Dealers' Associations in both markets. Time-series analytical techniques, including co-integration analysis, Index of Market Connection (IMC), Granger causality test, and Vector Error Correction Model (VECM), were employed to assess price transmission dynamics and market efficiency. The results reveal a consistent upward trend in onion prices, with prices in Maiduguri responding significantly to price changes in Geidam. Co-integration results confirm the existence of a stable long-run equilibrium relationship between the two markets, indicating moderate to strong market integration. The IMC value (–1.836, IMC < 1) suggests high short-run market integration, implying rapid transmission of price shocks between markets. Granger causality analysis indicates a significant bidirectional causal relationship between onion prices in Geidam and Maiduguri, while the VECM provides evidence of both short-run adjustments and long-run price convergence. Further analysis shows that transportation costs, tariffs, storage, loading and off-loading, and registration costs significantly influence spatial price transmission, with additional costs largely passed on to consumers. The model explains 97.80% of variations in price changes, highlighting the robustness of the analytics framework. The findings demonstrate the potential of AI-supported econometric tools for real-time market monitoring, price forecasting, and policy-driven decision-making in agricultural commodity markets. It is recommended that farmers and traders leverage integrated market information systems to enhance market linkages and benefit from long-term price transmission mechanisms.

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EVALUATING THE ROLE OF CHAIR AND TABLE DESIGN IN SHAPING RESTAURANT AMBIANCE AND SERVICE DELIVERY: STUDY OF HOSPITALITY MANAGEMENT TECHNOLOGY TRAINING RESTAURANT, FEDERAL POLYTECHNIC EDE, OSUN STATE, NIGERIA.

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Abstract

The physical environment of restaurants plays a crucial role in shaping customers' dining experiences and influencing service delivery. Among the most visible elements of the restaurant environment are furniture components, particularly chairs and tables, which significantly contribute to ambiance, comfort, and operational efficiency. This study evaluates the role of chair and table design in shaping restaurant ambiance and service delivery using the Hospitality Management Training Restaurant of Federal Polytechnic Ede, Osun State, Nigeria, as a case study. The research adopted a descriptive survey design method. Primary data were collected through structured questionnaires administered to staff and customers of the training restaurant. A total of 95 valid responses were obtained and analyzed using descriptive and inferential statistical techniques, including frequency distribution, mean scores, correlation, and regression analysis. Findings revealed that furniture design significantly influences restaurant ambiance, customer comfort, and service efficiency. The correlation analysis indicated a strong positive relationship between ergonomic furniture design and customer satisfaction ($r = 0.78$, $p < 0.05$). Regression analysis further showed that furniture arrangement accounted for approximately 62% of the variation in staff service efficiency, indicating that proper spatial arrangement enhances workflow and service speed. The study concludes that well-designed chairs and tables not only improve the aesthetic appeal of restaurants but also enhance customer satisfaction and operational productivity. The study recommends that restaurant managers prioritize ergonomic design, functional layout, and aesthetic quality when selecting furniture to enhance both customer experience and service delivery.

Keywords: Restaurant ambiance, furniture ergonomics, service delivery, chair design, table design, hospitality management.

BRAIN TUMOR DETECTION AND CLASSIFICATION MODEL USING DEEP LEARNING AND MEDICAL IMAGING TECHNIQUES

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Abstract

Brain tumors present one of the most critical challenges in medical diagnostics due to their complex nature and high mortality rates. Early and accurate detection is essential for effective treatment planning and improving patient outcomes. This study proposes an autonomous deep learning framework for brain tumor detection and classification using advanced medical imaging techniques. A comprehensive dataset of annotated brain MRI images was used to train and evaluate several deep learning architectures, including CNN, ResNet, and VGGNet. The fine-tuned CNN model demonstrated superior performance with an accuracy of 94.6% in tumor classification and segmentation tasks. The framework integrates a user-friendly interface for clinicians, enabling seamless visualization of scan results and suggested classifications. The proposed system has the potential to improve diagnostic accuracy, reduce cognitive load on medical professionals, and support radiologists in making timely and accurate clinical decisions.

Keywords*:* Brain tumor, Deep learning, MRI, CNN, Medical diagnosis

EFFECT OF RHAMNOGALACTURONAN II (RG-II) IN OKRO ON DIABETES-INDUCED RATS MANAGEMENT

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Abstract

Okra (*Abelmoschus esculentus L.*) is widely known for its nutritional and medicinal benefits, particularly its potential role in managing diabetes. This study explores the therapeutic efficacy of Rhamnogalacturonan II (RG-II), a functional component of okra mucilage, in regulating blood glucose levels in diabetic rats. Okra samples were cultivated, processed, and analysed to quantify mucilage and pectin yields, highlighting their bioactive properties. Fourier-transform infrared spectroscopy (FTIR) was employed to characterise the functional compounds present in the extracts. An in vivo study was conducted using streptozotocin (STZ)-induced diabetic rats over 28 days, evaluating the effects of varying concentrations of RG-II on blood glucose modulation. Experimental groups were administered 100%, 80%, and 60% RG-II extracts, alongside control groups receiving water or the commercial antidiabetic drug glibenclamide. The findings revealed a significant reduction in blood glucose levels in rats administered RG-II with The initial blood glucose are STZ Glibenclamide, (354.01±0.02) STZ 100% RG-II,(333.0.00±0.03) STZ 80% RG-II,(341.00±0.03) STZ 60% RG-II, (360.01±0.01) and the final STZ Glibenclamide, (105.01±0.01), STZ 100% RG-II (107.01±0.05), STZ 80% RG-II (129.02±0.10), STZ 60% RG-II (147.00±0.01) demonstrating its potential as an effective natural alternative for diabetes management. The study confirms that the polysaccharide-rich composition of okra mucilage and pectin supports glycemic control through mechanisms such as delayed glucose absorption, enzyme inhibition, and gut microbiota interaction. These findings underscore RG-II's promise as a functional food ingredient for diabetes management. Further research is recommended to optimise dosing and understand the mechanistic pathways underlying its efficacy.

Keywords: Rhamnogalacturonan II (RG-II), Okro, Diabetes, Pectin, Mucilage

EVALUATING THE INFLUENCE OF AI LITERACY ON WORKFORCE READINESS AMONG NIGERIAN YOUTHS USING MULTIPLE REGRESSION APPROACH: A CASE STUDY OF OSUN STATE.

By

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Abstract

This study examined the relationship between AI literacy and workforce readiness among Nigerian youths in Osun State. As artificial intelligence transforms modern workplaces, understanding how AI competencies influence youth employability is critical for workforce development. The study employed a descriptive survey design with 384 respondents selected through simple random sampling. Data were collected using a structured questionnaire measuring AI knowledge, AI tool usage, digital skills, attitude toward AI, and workforce readiness. The instrument demonstrated good reliability with Cronbach's Alpha coefficients ranging from 0.789 to 0.856. Data analysis employed descriptive statistics, Pearson correlation, and multiple regression at 0.05 significance level. Findings revealed that Nigerian youths possess moderate to high AI literacy (Mean = 3.385), with strong digital skills (Mean = 3.652) and positive attitudes toward AI (Mean = 3.757), though AI tool usage was low (Mean = 2.961). Workforce readiness was moderate (Mean = 3.478). Contrary to expectations, correlation analysis showed very weak, non-significant relationships between AI literacy components and workforce readiness ($r = -0.043$ to 0.014, all $p > 0.05$). Multiple regression confirmed this, with AI literacy explaining only 0.34% of workforce readiness variance ($R^2 = 0.0034$, $F = 0.323$, $p = 0.863$). All four null hypotheses were not rejected. The study concluded that AI literacy does not demonstrate significant statistical relationships with workforce readiness in Osun State, likely reflecting limited AI adoption in local labor markets, infrastructure constraints, and informal sector employment dominance. Recommendations include coordinated interventions addressing supply-side skills development and demand-side employer readiness, infrastructure improvements, and context-appropriate programs integrating AI literacy with broader employability competencies.

Key Words: Artificial Intelligence, Ai Literacy, Workforce Readiness, Youth, Employability, Multiple Regression.

STAFF EFFICIENCY AND GUEST PERCEPTION: THE IMPACT OF WINE BUCKET PLACEMENT IN RESTAURANT SERVICES FLOW

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Abstract

This study investigates the relationship between staff efficiency and guest perception in restaurant service, with particular focus on wine bucket placement at Liam Hotel, Osogbo. The research is motivated by the growing need for hotels to improve service quality through effective spatial organization and service practices. Using a descriptive case study design, primary data were collected through 30 structured questionnaires administered to both restaurant guests and service staff. The study assessed staff efficiency in terms of ease of movement, service speed, safety, and workflow, while guest perception was evaluated based on comfort, accessibility, aesthetics, and overall service quality.

Findings from the study reveal that poorly positioned wine buckets significantly obstruct staff movement, increase the risk of accidents, and slow down service delivery, thereby negatively affecting operational efficiency. Guests also reported discomfort, reduced accessibility, and a less appealing dining environment when wine buckets were improperly placed. Conversely, strategic and standardized wine bucket placement was found to enhance staff mobility, improve service speed, and create a safer working environment. Guests perceived such arrangements as more professional, organized, and visually appealing, which positively influenced their overall dining experience and satisfaction.

The study concludes that wine bucket placement plays a critical role in both staff efficiency and guest perception within restaurant service operations. It recommends the adoption of standardized wine service practices, continuous staff training on service layout, and proper dining space planning by hotel management. Implementing these measures will not only enhance service quality and operational efficiency but also strengthen guest satisfaction and the overall image of hotel restaurants.

Keywords: Staff efficiency, Guest perception, Wine bucket placement, Restaurant service quality, Spatial organization, Hotel service operations, Dining environment, Liam Hotel Osogbo.

BRIDGING THE GAP: INNOVATIVE PATHWAYS TO POVERTY REDUCTION IN RURAL NIGERIA

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Abstract:

Poverty in Nigeria's rural areas remain a persistent challenge, deeply entrenched in limited access to education, healthcare, infrastructure, and economic opportunities. This paper explores sustainable and inclusive strategies for poverty reduction, emphasizing local resource mobilization, participatory governance, and grassroots empowerment. Through a multidisciplinary lens, it examines the role of agriculture modernization, rural entrepreneurship, digital inclusion, and social safety nets in enhancing livelihoods and fostering economic resilience. The study draws from empirical data, case studies, and policy analysis to evaluate the effectiveness of past and current poverty alleviation programs. Particular attention is given to the barriers posed by weak institutional frameworks, gender disparities, and climate vulnerability. The paper proposes a comprehensive model that integrates community-based development, capacity building, and technology-driven solutions such as mobile banking, e-extension services, and decentralized renewable energy. It argues that poverty reduction in rural Nigeria must move beyond handouts to systems that empower people, strengthen local economies, and build adaptive capacity. The presentation concludes with policy recommendations that align with Nigeria's development goals and the UN Sustainable Development Goals (SDGs), especially Goal 1: No Poverty. The study ultimately advocates for a people-centered, data-informed, and context-specific approach to transforming rural poverty into rural prosperity.

Keywords: Poverty Reduction. Grassroots Empowerment, and Sustainable Development Goals (SDGs).

EVALUATION OF TABLEWARE MAINTENANCE AS A DETERMINANT OF QUALITY SERVICE DELIVERY IN THE HOSPITALITY SECTOR: EVIDENCE FROM THE HOSPITALITY MANAGEMENT RESTAURANT, FEDERAL POLYTECHNIC EDE

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Abstract

Tableware maintenance is a critical but often overlooked aspect of service quality in the hospitality industry. This study evaluates how tableware maintenance practices influence service delivery, customer satisfaction, and repeat patronage at the Hospitality Management Restaurant, Federal Polytechnic Ede. Using a quantitative research design, data were collected from 86 respondents (students and staff) through structured questionnaires. Descriptive statistics and chi-square analysis were employed. Findings show a strong positive relationship between tableware maintenance and perceived service quality. Clean, well-maintained tableware significantly enhanced customer satisfaction, trust, and repeat patronage. The study identifies gaps in staff training, delayed replacement of damaged items, and irregular inspection as key constraints. Recommendations include improved staff training, management supervision, consistent inspections, technological interventions, and sufficient funding. Overall, tableware maintenance plays a crucial role in shaping customer experience and operational efficiency in hospitality establishments.

Keywords: Tableware maintenance, service quality, customer satisfaction, hospitality management,

BRIDGING THE GAP: INNOVATIVE PATHWAYS TO POVERTY REDUCTION IN RURAL NIGERIA

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Abstract:

Poverty in Nigeria's rural areas remain a persistent challenge, deeply entrenched in limited access to education, healthcare, infrastructure, and economic opportunities. This paper explores sustainable and inclusive strategies for poverty reduction, emphasizing local resource mobilization, participatory governance, and grassroots empowerment. Through a multidisciplinary lens, it examines the role of agriculture modernization, rural entrepreneurship, digital inclusion, and social safety nets in enhancing livelihoods and fostering economic resilience. The study draws from empirical data, case studies, and policy analysis to evaluate the effectiveness of past and current poverty alleviation programs. Particular attention is given to the barriers posed by weak institutional frameworks, gender disparities, and climate vulnerability. The paper proposes a comprehensive model that integrates community-based development, capacity building, and technology-driven solutions such as mobile banking, e-extension services, and decentralized renewable energy. It argues that poverty reduction in rural Nigeria must move beyond handouts to systems that empower people, strengthen local economies, and build adaptive capacity. The presentation concludes with policy recommendations that align with Nigeria's development goals and the UN Sustainable Development Goals (SDGs), especially Goal 1: No Poverty. The study ultimately advocates for a people-centered, data-informed, and context-specific approach to transforming rural poverty into rural prosperity.

Keywords: Poverty Reduction. Grassroots Empowerment, and Sustainable Development Goals (SDGs).

FLOOD RISK MAPPING USING ARTIFICIAL INTELLIGENCE AND REMOTE SENSING TECHNIQUES IN YOBE STATE, NIGERIA.

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Abstract

Flooding has become a recurrent environmental challenge in many parts of northeastern Nigeria, posing significant threats to infrastructure and livelihoods. This study examines flood risk patterns in Yobe State, Nigeria, through the integration of Artificial Intelligence (AI), Remote Sensing and Geographic Information System (GIS) techniques. The research utilizes multi-temporal satellite imagery and spatial datasets to analyze environmental variables influencing flood occurrence, including rainfall intensity, land use and land cover, elevation, slope, drainage density and proximity to water bodies. Machine learning algorithms were employed to process and model these datasets in order to predict flood prone areas and generate a comprehensive flood risk map for the state. Remote sensing data obtained from satellite imagery were analyzed to detect changes in land cover and surface characteristics that contribute to flood vulnerability. The GIS-based spatial analysis enabled the classification of areas into different flood risk zones and facilitated the identification of vulnerable communities within the study area. The results reveal that several settlements located in low lying areas and along major drainage channels are highly susceptible to flooding. The integration of AI models with GIS and remote sensing significantly improved the accuracy and efficiency of flood risk prediction compared with traditional mapping approaches. The study highlights the importance of advanced geospatial technologies in disaster risk reduction and urban planning. The findings provide valuable insights for policymakers, environmental planners and emergency management agencies in developing effective flood mitigation strategies and improving resilience among vulnerable communities in Yobe State.

COMMUNITY PARTICIPATION AND SUSTAINABLE ECO-TOURISM DEVELOPMENT AT IYAKE SUSPENDED LAKE, OYO STATE, NIGERIA

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Abstract

Sustainable eco-tourism has increasingly been recognized as a viable strategy for promoting environmental conservation, rural development, and community empowerment. However, the success of eco-tourism initiatives largely depends on the extent to which local communities participate in tourism planning, management, and benefit-sharing processes. This study examined the role of community participation in sustainable eco-tourism development at Iyake Suspended Lake in Ado-Awaye, Oyo State, Nigeria. A mixed-methods research design was adopted, combining quantitative survey data with qualitative insights from key informant interviews and field observations. A total of 120 respondents were selected through systematic sampling, while ten key stakeholders were purposively interviewed to provide contextual perspectives on tourism development in the area. Descriptive statistics and Pearson correlation analysis were used to analyze the quantitative data. The findings revealed that community participation in eco-tourism activities was generally high in cultural tourism events and environmental conservation initiatives but moderate in tourism planning and decision-making processes. Respondents reported that eco-tourism has contributed positively to employment generation, local entrepreneurship, and household income within the community. The study also found that eco-tourism activities enhance environmental awareness and encourage conservation of natural resources while strengthening cultural identity and social cohesion among residents. Correlation analysis showed a significant positive relationship between community participation and key sustainability indicators, including economic development ($r = .62$, $p < .01$), environmental conservation ($r = .58$, $p < .01$), and socio-cultural sustainability ($r = .66$, $p < .01$). The study concludes that active community participation is a critical driver of sustainable eco-tourism development. Strengthening community involvement in tourism governance, planning, and benefit-sharing mechanisms is essential for enhancing the sustainability of eco-tourism destinations such as Iyake Suspended Lake.

Keywords: community participation, eco-tourism development, sustainable tourism, rural development, Iyake Suspended Lake.

SOCIO-ECONOMIC IMPACT OF ECO-TOURISM DEVELOPMENT ON LOCAL COMMUNITIES: EVIDENCE FROM OWALLA RESORTS, OSUN STATE

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Abstract

Eco-tourism has increasingly been recognised as a sustainable strategy for promoting environmental conservation, rural development, and socio-economic empowerment in developing countries. This study examines the socio-economic impact of eco-tourism development on local communities with particular reference to Owalla Resorts in Osun State, Nigeria.

The research aims to evaluate how eco-tourism activities contribute to employment generation, income improvement, community development, cultural preservation, and environmental awareness within host communities.

A quantitative cross-sectional research design was adopted for the study. Data were collected through structured questionnaires administered to visitors, resort staff, and residents of surrounding communities.

Using a simple random sampling technique, 133 respondents were selected from a population of 200 stakeholders associated with eco-tourism activities at Owalla Resorts, while 128 valid responses were obtained for analysis.

The collected data were analyzed using descriptive statistics and inferential statistical techniques, including Pearson correlation and multiple regression analysis with the aid of SPSS version 26.

The results reveal that eco-tourism development at Owalla Resorts significantly contributes to local socio-economic development. Respondents strongly agreed that eco-tourism activities have created employment opportunities, stimulated small-scale entrepreneurship, increased household income, and improved community infrastructure.

Additionally, the findings indicate that eco-tourism promotes cultural exchange, strengthens community identity, and enhances environmental awareness among both residents and visitors. Regression analysis further confirmed that eco-tourism activities significantly predict socio-economic development within the host community ($R^2 = 0.62$, $p < 0.001$).

Despite these benefits, the study also highlights concerns regarding unequal distribution of tourism benefits among community members. Overall, the findings demonstrate that eco-tourism represents a viable tool for sustainable rural development in Nigeria.

The study recommends stronger collaboration among tourism operators, government agencies, and local communities to ensure inclusive participation and long-term sustainability of eco-tourism initiatives.

Keywords: Eco-tourism development, socio-economic impact, community development, sustainable tourism, rural livelihoods.

LEVERAGING AI AND TECHNOLOGICAL INNOVATIONS IN MEAT SCIENCE FOR SUSTAINABLE EDUCATION REFORMS IN 21ST CENTURY

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Abstract

The study was conducted to evaluate the effects of types of tenderizer, concentrations of tenderizer and tenderizer application methods on sensory properties of *banda* (Nigerian dehydrated meat product). Four hundred and sixteen (416) pieces of *Banda* samples were laid out in a factorial arrangement of four tenderizer types (Trona, Potash, Alum and Baking powder) at four concentrations (0g/l, 5g/l, 10g/l and 15g/l) and two application methods (Boiling and Soaking). The experiment followed a Completely Randomized Design (CRD) where the 416 pieces of *banda* samples were randomly allocated to 32 treatment combinations. Results of sensory characteristics shows no significant difference ($P>0.05$) in all the sensory characteristics of the product due to differences in the types of tenderizer and method of application. However, there were a significant difference ($P<0.05$) due to concentrations of tenderizer used except in the aftertaste where no significant difference exists. Tenderizer × Concentration were significant on juiciness however, all one way interactions were not significant for all the sensory properties. It was concluded that, tenderization of banda with relatively higher concentration of tenderizer either by boiling or soaking provides greater level of sensory properties.

Key words: Banda, Alum, Baking powder, Tenderness, Juiciness

EFFECT OF ENTREPRENEURSHIP EDUCATION PROGRAMME ON ENTREPRENEURIAL INTENTION: MODERATING ROLE OF INSTITUTIONAL ENVIRONMENT

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Abstract

Promoting entrepreneurship development requires building in prospective entrepreneurs the desire/intention to venture into new business formation. In this study, the author examines whether entrepreneurship education programme (EEP) contributes to building students' entrepreneurial intention (EI) and whether institutional environment (IE) moderates this relationship. While EI captures students' motivation and drive to venture into entrepreneurship, EEP help to develop their capabilities and initiatives within an institutional environment encompassing regulation, culture, and support structures. Empirical studies reveal mixed findings in the effect of EEP on EI, supporting the introduction of institutional environment as a boundary condition in this relationship. This study employs a quantitative approach and cross-sectional research design to test the hypotheses of the study. Questionnaire was administered on 265 students in tertiary institutions in Benue State, Nigeria. PLS-SEM was employed as the data analytical technique. Both EEP and IE were shown to have a significant effect on EI.In addition; IEsignificantly moderated the effect of EEP on EI. This study emphasizes the significance of integrating EEPs into curricula to bolster students' EI, urging educational institutions and policymakers to build supportive IE structures foster entrepreneurship development. The study contributes to the Human Capital Theory by exploring the interplay among EEP, IE, and EI by shedding light on the intricate dynamics shaping EI among Nigerian students, underscoring the need to account for contextual factors to foster entrepreneurship education in Nigeria.

Keywords: Entrepreneurship education programme, entrepreneurial intention, institutional environment, higher educational institutions.

EFFECT OF ARTIFICIAL INTELLIGENCE INTEGRATED CYBERSECURITY CURRICULUM ON DIGITAL SECURITY COMPETENCIES AMONG UNDERGRADUATE STUDENTS IN UNIVERSITIES IN PLATEAU STATE, NIGERIA

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Abstract

The increasing reliance on digital technologies in higher education has intensified cybersecurity risks, highlighting the need for curriculum innovations that enhance student competencies. This study investigated the effect of integrating Artificial Intelligence (AI) into the cybersecurity curriculum on digital security competencies among undergraduate students in universities in Plateau State, Nigeria. A descriptive survey design was employed, targeting 400 undergraduate students from two major universities. Structured questionnaires were used for data collection, with content validity confirmed by expert review and reliability established through Cronbach's alpha ($\alpha = 0.82$). The study addressed three objectives: (1) to assess students' knowledge of cybersecurity

following AI-based curriculum integration, (2) to evaluate students' practical skills in applying cybersecurity tools, and (3) to determine the extent of students' proactive engagement in digital security practices. Descriptive results indicated that 72% of students reported improved cybersecurity knowledge, 68% demonstrated enhanced practical skills, and 75% exhibited increased proactive engagement in digital security practices. Mean scores for the objectives were 4.0, 3.9, and 4.1 on a 5-point Likert scale, respectively, reflecting high competency levels. Inferential analysis using One-Way ANOVA and Pearson correlation tested three hypotheses. First, there was a significant effect of AI-integrated curriculum on students' cybersecurity knowledge (H_{01} rejected; $F(2,397) = 24.56$, $p < 0.001$). Second, AI integration significantly influenced students' practical cybersecurity skills (H_{02} rejected; $r = 0.62$, $p < 0.001$). Third, a significant relationship existed between AI-based curriculum exposure and proactive engagement in digital security (H_{03} rejected; $F(2,397) = 21.78$, $p < 0.001$). The study concluded that AI-integrated cybersecurity curriculum significantly enhances students' knowledge, practical skills, and proactive behaviors, preparing them for secure digital environments. Recommendations include continuous curriculum improvement, faculty training in AI tools, provision of AI-enabled learning resources, and regular assessment of students' cybersecurity competencies to ensure sustainable digital readiness.

Keywords: Artificial Intelligence, Cybersecurity Curriculum, Digital Security Competencies

EFFECT OF ARTIFICIAL INTELLIGENCE ENHANCED CURRICULUM ON FOOD SECURITY COMPETENCIES AMONG UNDERGRADUATE STUDENTS IN AGRICULTURAL PROGRAMS IN PLATEAU STATE, NIGERIA

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Abstract

Food security remains one of the most pressing challenges in Africa, highlighting the need for higher education curricula that equip students with innovative solutions and practical competencies in sustainable agriculture. This study investigated the impact of an Artificial Intelligence (AI)-enhanced curriculum on undergraduate students' food security competencies in agricultural programs across Plateau State, Nigeria, using a descriptive survey design involving 300 students. Data were collected through structured questionnaires and AI simulation exercises, validated by

agricultural and education experts, and tested for reliability (Cronbach's alpha $\alpha = 0.81$), ensuring robust measurement of theoretical knowledge, practical AI applications, and proactive engagement in sustainable agricultural practices. Descriptive analysis revealed that 68% of students reported improved knowledge, 64% demonstrated enhanced practical skills, and 70% exhibited proactive engagement in food security initiatives, while inferential analysis using ANOVA and correlation confirmed statistically significant positive effects of AI integration on student outcomes ($p < 0.001$). Findings indicate that AI-enhanced curricula substantially strengthen students' conceptual understanding, applied competencies, and sustainability awareness, thereby preparing them to address contemporary food security challenges. The study recommends embedding AI tools into agricultural programs, providing faculty training, implementing experiential AI-based modules, and conducting regular assessments of student competencies to promote sustainable food security education in Nigerian universities.

Keywords: Artificial Intelligence, Food Security Education, Curriculum Innovation, Sustainable Agricultural Practices

ASSESSMENT OF CUTLERY CLEANING, SANITISATION, AND STORAGE PRACTICES AND THEIR INFLUENCE ON FOOD SAFETY IN NIGERIAN RESTAURANTS: EVIDENCE FROM MEGA KITCHEN, OSOGBO

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Abstract

Food safety in restaurant environments remains a critical public health concern due to the potential for cross-contamination from food-contact surfaces such as cutlery. This study assessed cutlery cleaning, sanitisation, and storage practices and examined their influence on food safety perceptions in Mega Kitchen Restaurant, Osogbo, Nigeria. A cross-sectional mixed-method research design was adopted. Data were collected from 30 respondents comprising restaurant staff (n = 15) and customers (n = 15) using structured questionnaires, semi-structured interviews, and direct observational checklists. Quantitative data were analysed using descriptive statistics including frequency distributions and percentages, while qualitative responses were examined through thematic analysis. Results indicated that most respondents reported regular cutlery washing after each use (80%) and the use of detergents during cleaning (86.7%). However, compliance with critical hygiene practices was lower for hot-water washing (60%) and proper drying before storage (63.3%). Sanitisation practices were inconsistent; only 56.7% of respondents confirmed the use of chemical sanitisers, while 53.3% indicated that staff had received formal sanitation training. Although 70% of respondents reported the availability of sanitising equipment and 66.7% indicated the presence of a regular sanitisation schedule, gaps remained in implementation. Storage practices were relatively better, with 73.3% reporting covered storage and 80% indicating clean storage areas, though only 60% confirmed separation of clean and used cutlery. Perception analysis revealed strong consumer awareness of hygiene importance, with 90% agreeing that clean cutlery increases confidence in restaurant safety. The findings highlight moderate compliance with cleaning practices but identify significant deficiencies in sanitisation protocols and staff training. Strengthening sanitation procedures, improving staff education, and implementing structured food safety management systems such as HACCP could enhance restaurant hygiene and reduce contamination risks in Nigerian hospitality establishments.

Keywords: food safety, cutlery hygiene, restaurant sanitation, cross-contamination, hospitality industry, Nigeria

SUSTAINABLE ECO-TOURISM AND RURAL DEVELOPMENT: ASSESSING THE SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT OF IYAKE SUSPENDED LAKE TOURISM IN ADO-AWAYE, NIGERIA

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Abstract

Sustainable eco-tourism has increasingly been recognised as an important strategy for promoting rural development, environmental conservation, and community empowerment, particularly in developing countries with unique natural attractions. This study assesses the socio-economic and environmental impacts of eco-tourism development at Iyake Suspended Lake in Ado-Awaye, Oyo State, Nigeria. The research aims to evaluate how tourism activities contribute to employment generation, income diversification, environmental awareness, and community participation, while identifying the challenges that affect sustainable eco-tourism development in the region. A quantitative cross-sectional survey design was adopted for the study. Data were collected using structured questionnaires administered to 133 respondents drawn from community members, tourism operators, and visitors interacting with the eco-tourism activities at Iyake Suspended Lake. A total of 118 valid responses were analyzed using descriptive statistics and inferential statistical techniques, including Pearson correlation and chi-square analysis. The findings reveal that eco-tourism has significantly contributed to socio-economic development in the Ado-Awaye community through job creation, increased household income, and the emergence of small-scale tourism enterprises such as guiding services, local crafts, and hospitality activities. The results also indicate that eco-tourism has enhanced environmental awareness and conservation efforts among community members, encouraging the protection of natural resources surrounding the lake. However, the study identifies critical barriers to sustainable eco-tourism development, including inadequate infrastructure, limited government support, and weak environmental management practices. The study concludes that while Iyake Suspended Lake possesses substantial potential for sustainable eco-tourism development, stronger institutional support, improved infrastructure, and enhanced community participation in tourism governance are necessary to ensure long-term sustainability. The findings provide valuable insights for policymakers and tourism planners seeking to promote eco-tourism as a tool for rural development and environmental conservation in Nigeria.

Keywords: eco-tourism development, rural development, community participation, environmental sustainability, Iyake Suspended Lake.

ARTIFICIAL INTELLIGENCE AND BUSINESS PERFORMANCE AMONG SCIENCE-DRIVEN SMES IN NIGERIA: THE BENUE STATE EXPERIENCE

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Abstract

Artificial intelligence (AI) technologies are rapidly expanding and changing business operations globally, including Nigeria's entrepreneurial scene. Small and medium-sized businesses (SMEs) with a scientific focus are especially well-positioned to use AI tools to improve profitability, market competitiveness, and operational efficiency. With a particular focus on Benue State, Nigeria, this study investigates the connection between artificial intelligence and the commercial success of science-driven SMEs. As important aspects of AI use, the study looks into AI-based data analytics, business process automation, and AI-supported customer relationship management. Sales growth, operational effectiveness, market competitiveness, and profitability are used to gauge an SME's performance. In order to gather primary data from owners and managers of science-driven SMEs across particular industrial clusters in Benue State, the study uses a quantitative research design and structured questionnaires. Regression analysis will be used to examine data in order to test theories and ascertain how AI affects performance results. The results are anticipated to offer empirical proof of how AI technologies can support operational enhancements and strategic decision-making in regional SMEs. By connecting technological innovation to performance in the context of emerging economies, the study advances entrepreneurship research and offers useful suggestions for legislators, entrepreneurs, and Benue State innovation hubs. In the end, the study shows how AI can revolutionize science-driven business endeavors in Nigeria and provides guidance for growing technology-driven businesses in comparable socio-economic contexts.

Keywords: Artificial Intelligence; Business Performance; Science-Driven SMEs; Entrepreneurship; Benue State; Nigeria

CREDIT OR CONSTRAINT? THE IMPACT OF MICROFINANCE AND DIGITAL LENDING ON POVERTY REDUCTION AMONG INFORMAL ENTREPRENEURS IN NIGERIA.

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ABSTRACT

The informal sector remains a major source of employment and livelihood in Nigeria, particularly amid rising inflation and unemployment. Despite its rapid expansion, poverty persists among informal entrepreneurs, raising concerns about the effectiveness of financial inclusion initiatives in achieving sustainable poverty reduction. Microfinance and digital lending have been promoted as key tools for empowering low-income entrepreneurs; however, evidence on their comparative and combined effects remains limited, especially in Northeast Nigeria. This study examines the impact of microfinance and digital lending on poverty reduction among micro- and small-scale informal entrepreneurs in Bauchi and Gombe States. The study adopts a quantitative cross-sectional survey design using structured questionnaires administered to approximately 400 entrepreneurs selected through multistage sampling. Poverty will be measured using income, consumption, and housing, while access to microfinance and digital lending serves as the main explanatory variables. Data will be analysed using SPSS and partial least square structural equation modelling techniques (PLS-SEM) to estimate individual and joint effects. The study expects that access to microfinance will significantly enhance income and asset accumulation, while digital lending will improve short-term liquidity and business continuity. Entrepreneurs utilizing both financing sources are anticipated to experience stronger poverty reduction outcomes due to complementary effects. The findings will provide policy-relevant insights for strengthening financial inclusion strategies in Northeast Nigeria and underscore the importance of accessible, affordable, and well-regulated credit systems in reducing poverty among informal entrepreneurs.

Keywords: Microfinance, Digital Lending, Informal Sector, Poverty Reduction, Nigeria.

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Abstract

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Keywords: Microfinance, Digital Lending, Informal Sector, Poverty Reduction, Nigeria.

SOCIAL STUDIES TEACHERS AND STUDENTS' PERCEPTION OF ARTIFICIAL INTELLIGENCE INTEGRATION IN CITIZENSHIP EDUCATION FOR NATION BUILDING IN SECONDARY SCHOOLS IN NIGERIA

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Abstract

The study investigated Social Studies teachers and students' perception of Artificial Intelligence Integration in Citizenship Education for Nation Building in secondary schools in Nigeria. Two research questions guided the study, with two hypotheses formulated and tested at 0.05 significance level. The study employed a descriptive survey research design with a population of 802 social studies teachers and students in Umuahia North Local Government Area, While the sample was 401 selected using purposive sampling. A researcher-designed instrument titled "Perception of Artificial Intelligence Integration Questionnaire" (PAIIQ) used for the data collection was validated by three experts and reliability was done using Cronbach's alpha with a reliability coefficient of 0.51 AND 891 showing that the instrument was reliable for the study. Research questions were answered using mean and standard deviation, while hypotheses were tested using T-test statistics at 0.05 level of significance. The finding from the study were; Social studies teachers and students have positive perception towards artificial intelligence integration in citizenship education, students also had the perception that artificial intelligence is a relevant tool in enhancing their understanding and finally teacher's ad students faced challenges such as poor internet access, high cost of data and poor infrastructure. The study concluded that the integration of artificial intelligence in citizenship education will greatly contribute to nation building. The study recommends that the government and stakeholders make accessible resources for effective use of artificial intelligence in secondary schools in Nigeria.

KEYWORDS:

Artificial Intelligence, Social Studies, Citizenship Education, Integration, Nation Building,

ARTIFICIAL INTELLIGENCE IN INFORMATION MANAGEMENT: THE INTERSECTIONS AND ROLES OF ARTIFICIAL INTELLIGENCE IN LIBRARY MANAGEMENT IN BENUE STATE NIGERIA

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Abstract

Artificial Intelligence (AI) is rapidly transforming various sectors, and information management, particularly in library systems, is no exception. In Benue State, Nigeria, the integration of AI into library management presents a promising frontier for enhancing efficiency, accessibility, and user experience. This essay explores the burgeoning role of Artificial Intelligence (AI) in transforming library management, specifically within Benue State, Nigeria. It investigates the critical intersections where AI applications can significantly enhance traditional library operations, offering innovative solutions to long-standing challenges. The work outlines how AI can revolutionize information organization, retrieval, and dissemination, thereby improving user experience and operational efficiency. Key areas of focus include AI-powered cataloging, intelligent search systems, personalized user recommendations, and predictive analytics for collection development. Furthermore, the essay addresses the potential impact of AI on streamlining administrative tasks, fostering digital literacy, and bridging information access gaps in the region. By examining these intersections, this work aims to provide a comprehensive understanding of AI's multifaceted contributions to modern library management in Benue State, highlighting both opportunities and challenges for its successful implementation.

Keywords: Library, Catalogue, Algorithms, Indexin

THE ROLE OF ARTIFICIAL INTELLIGENCE IN BUSINESS COMMUNICATIONS IN BENUE STATE NIGERIA.

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The integration of Artificial Intelligence (AI) in business communication within Benue State, Nigeria, presents a nascent yet impactful paradigm shift. This Work explores the multifaceted role of AI in transforming how businesses in this region interact internally and externally. AI-powered tools, including natural language processing, machine learning, and data analytics, are increasingly being adopted to enhance various communication facets. Internally, AI facilitates improved inter-departmental communication through intelligent automation of routine tasks, streamlined information dissemination, and personalized employee engagement platforms. Externally, AI refines customer relationship management by powering chatbots for instant query resolution, personalizing marketing campaigns based on consumer behavior, and optimizing communication channels for broader reach and effectiveness. Challenges such as limited infrastructure, data privacy concerns, and a nascent understanding of AI's full potential are acknowledged. However, the burgeoning opportunities for increased efficiency, enhanced customer satisfaction, and competitive advantage underscore AI's critical and evolving role in shaping the future of business communication in Benue State.

Keywords: Business, Communication, Algorithms

AN ASSESSMENT OF AI-DRIVEN ADMINISTRATIVE REFORMS IN NIGERIAN EDUCATIONAL INSTITUTIONS: CHALLENGES AND OPPORTUNITIES

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Abstract

This study evaluates the impact of Artificial Intelligence (AI) on administrative reforms in Nigerian educational institutions, identifying challenges and opportunities for effective implementation. Specifically, the study examined the current state of AI adoption in Nigerian educational institutions, it identifies challenges hindering AI-driven administrative reforms and explore opportunities for AI to enhance administrative efficiency and decision-making. A mixed-methods approach was employed, combining surveys and interviews with administrators and IT personnel from 20 Nigerian universities. Data were analyzed using descriptive statistics and thematic analysis. The findings of the study reveal slow AI adoption rates, inadequate infrastructure, and limited technical expertise as major challenges. However, AI-driven reforms have improved administrative efficiency, enhanced decision-making, and optimized resource allocation in institutions where implemented. Based on the findings, the study concludes that AI has the potential to transform Nigerian educational institutions, but addressing infrastructure and capacity gaps is crucial for successful adoption. It was recommended among many others that stakeholders should invest in AI infrastructure, capacity building, and policy frameworks to harness AI's benefits and drive administrative reforms.

Keywords: Artificial Intelligence (AI), Administrative Reforms, Educational Institutions, Challenges, and Opportunities,

ASSESSMENT OF HYBRID LEARNING MODELS THAT COMBINE AUTOMATED FEATURE EXTRACTION WITH ROBUST CLASSIFICATION ALGORITHMS FOR MALWARE DETECTION

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Abstract

The exponential growth of malware variants poses unprecedented challenges to cybersecurity infrastructure worldwide. Traditional signature-based and heuristic detection methods demonstrate significant limitations when confronted with sophisticated polymorphic and metamorphic malware that employ advanced evasion techniques. This research presents a novel hybrid machine learning framework that synergistically combines the hierarchical feature extraction capabilities of the Inception v3 deep convolutional neural network with the robust classification performance of Support Vector Machines (SVM). The proposed methodology integrates comprehensive static and dynamic analysis techniques to create a multi-dimensional malware detection system. The framework was rigorously evaluated on an extensive dataset comprising 138,047 samples (96,724 malware and 41,323 benign files) sourced from the ViruShare repository. Through systematic experimentation employing 10-fold cross-validation and Monte Carlo simulation techniques, the proposed hybrid model achieved exceptional performance metrics: 99.89% accuracy, 1.00 precision, 0.99 recall, and 1.00 F1-score. Comparative analysis demonstrates that the hybrid approach significantly outperforms standalone machine learning models, including individual CNN (98.5%), SVM (97.2%), and Neural Network (96.8%) implementations. The research contributes a scalable, efficient, and highly accurate malware detection framework that addresses critical gaps in contemporary cybersecurity defense mechanisms.

Keywords: Malware, Detection, Deep Learning, Hybrid, Machine Learning, Cybersecurity, Assessment, Analysis.

ANTIBIOTIC SUSCEPTIBILITY PATTERN OF MULTIDRUG RESISTANT *ESCHERICHIA COLI* FROM WASTE WATER WITHIN DUTSIN-MA TOWN, KATSINA STATE.

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Abstract

The emergence of *Escherichia coli* isolates with multiple antibiotic-resistant phenotypes, involving co-resistance to four or more unrelated families of antibiotics, has been previously reported and is considered a serious health concern. Hospital wastewater is not only a devastative hazard in environment, but also a potential risk to general people if the waste is not managed in the right way. This study is aimed to isolate and identify multi-drug resistance *Escherichia coli* from effluents collected in Dutsin-Ma General hospital. A total of ten (25) samples were collected for a period of two weeks (five per week). The wastewater samples were collected from the effluent of Dutsin-ma General Hospital. The samples were collected in sterile universal bottles and transported immediately to the laboratory for microbiological analysis. The result demonstrated that 55 isolates were detected from the effluents in Dutsin-ma general hospital. This study revealed that the prevalence of multi-drug resistant *E.coli* from the effluents in Dutsin-ma general hospital (56.4%) is high and can cause failure in the treatment of infectious diseases, resulting in high rate of mortality and a great health burden. The antibiotics; Augmentin and Streptomycin were the most effective antibiotics against the isolates in this study. The proper disposal of hospital effluents should be encouraged to prevent the emergence of antibiotic resistant bacteria in humans, animals and environment to encourage the One Health approach.

Keywords: Antibiotic resistance, MDR *E. coli*, Wastewater, Dutsin-Ma.

THE INTERGRATION OF ARTIFICIAL INTELLIGENCE IN ACADEMIC LIBRARIES FOR SERVICES DELIVER IN 21ST CENCURY

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A Paper to be presented at the 12TH International Academic Conference for Scholars and Researchers 2026 Organized by Organization Development Institute (ODI) GHANA. Theme: Integration of Artificial Intelligence in into the Curricular f Higher School Of Learning For Sustainable Education Performance In The 21st Century. At Organization Development Institute (ODI) **Ghana** between 22ndnd - 26th June, 2026

ABSTRACT.

Artificial Intelligence(AI) in academic libraries is transforming library services, enhancing user experience and improving information retrieval The AI tools is revolutionizing the way library operates, and provides library services. AI technology such as machine learning, natural language processing, and data analytics are being applied in academic library settings to enhance user experience, improve information retrieval and support teaching, learning and research which is the core functions of academic libraries. This paper explores the current state of AI integrations in libraries, highlighting applications such as AI cataloguing, recommendation systems, catboats, and research support tools. The benefits of AI in academic libraries include improve services delivery, enhance user engagement, and data driven decision making. The paper also discusses challenges associated with AI integrations, including data privacy, concerns, staff training, needs and ensuring equitable access to AI powered services.as AI continues to evolve, academic libraries must adapt to leverage these technologies effectively and provide innovative services its users.

Keywords: Artificial Intelligence, Academic Libraries, Higher Institutions, Education, library services

INTEGRATING ARTIFICIAL INTELLIGENCE INTO FOOD SCIENCE CURRICULA FOR SUSTAINABLE FOOD SECURITY: PREDICTIVE ANALYSIS AND OPTIMIZATION OF FERMENTED SORGHUM-SOYBEAN COMPLEMENTARY FOODS FORTIFIED WITH PROVITAMIN A AND PROTEIN

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Abstract

Food insecurity and infant malnutrition remain critical public health challenges across Sub-Saharan Africa. As African higher education moves toward sustainable reforms, integrating Artificial Intelligence (AI) into higher education curricula offer transformative potential for sustainable food innovation and security. This study developed and evaluated four formulations of fermented sorghum–soybean (FS-SB) complementary foods fortified with carrot (provitamin A) (4%) and egg white (protein) (3%). These food formulations, FS-SB 1 – FS-SB 4 (60:30, 50:40, 40:50, and 30:60) were compared with commercial Akamu/Ogi (100%) as control - a benchmark for AI - based nutrient optimization. Sorghum grains, soybean, and carrots purchased from local grocery were cleaned, fermented (24-48h), dried, milled, sieved into flour for analysis. The nutritional, microbiological quality and sensory properties were assessed using standard analytical procedures. Proximate analysis revealed that FS-SB4 (30:60) had the highest protein (22.88%) and energy (377.76 kcal/100g), significantly exceeding WHO/FAO minimum requirements for complementary foods. The pH stability of 6.16 – 6.21 were acceptable, while the microbial counts were within the permissible limits. Sensory evaluation using 20 panelists showed that FS-SB4 was the most preferred (overall acceptance: 8.80). Statistical analysis (ANOVA, $p < 0.05$) confirmed significant improvements in vitamin A, C, and carotenoid contents across all fortified samples. The study demonstrates that these empirical datasets are essential for training in AI algorithms to predict infant nutritional outcomes, thereby, reducing the cost and time of trial-and-error laboratory experiments. Therefore, integrating such "Smart Food Formulation" modules into African Higher Education curricula is necessary for 21st-century sustainable education.

Keywords: Artificial Intelligence, Food Security, Sorghum-Soybean, Complementary Foods, Higher Education Reform, Africa.

AI-DRIVEN OPTIMAL SIZING AND CONTROL OF HYBRID SOLAR–BATTERY SYSTEMS FOR RURAL MICROGRIDS

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Abstract

Reliable and affordable electricity access remains a major challenge in rural and remote communities where grid extension is economically unfeasible. Hybrid solar–battery microgrids offer a sustainable alternative; however, improper system sizing and inefficient control strategies can lead to high capital costs, poor reliability, and reduced battery lifespan. This research presents an Artificial Intelligence (AI)–driven optimization framework for the optimal sizing and intelligent control of hybrid solar–battery systems in rural microgrids. The study integrates solar irradiance data, community load demand profiles, battery specifications, and economic parameters into a multi-objective optimization model. Advanced algorithms such as Genetic Algorithm (GA) and Particle Swarm Optimization (PSO) are employed to determine the optimal configuration of photovoltaic panels, battery capacity, and inverter ratings while minimizing total system cost and Loss of Power Supply Probability (LPSP). Additionally, a reinforcement learning–based energy management strategy is developed to optimize real-time charging and discharging operations, ensuring improved reliability and extended battery lifecycle. Simulation results indicate significant reductions in cost of energy and enhanced system reliability compared to conventional sizing approaches. The proposed framework contributes to sustainable rural electrification by providing a cost-effective, intelligent, and scalable microgrid solution suitable for developing regions.

Keywords: Solar Battery; Microgrid; Artificial Intelligence; Genetic Algorithm; Particle Swarm Optimization

REFORMING EDUCATION POLICY TO FOSTER ETHICAL INNOVATION: A CASE STUDY OF NIGERIA'S TVET AND HIGHER EDUCATION SYSTEM

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Abstract

Nigeria's technical, vocational, and higher education systems face significant challenges in fostering ethical innovation. Outdated curricula, inadequate infrastructure, insufficient funding, and a misalignment with industry needs hinder the system's effectiveness. Compounding these issues is the lack of a structured framework for integrating ethics into education, leaving graduates ill-equipped to navigate modern technological and vocational landscapes with moral responsibility. This study examines how educational reforms in Nigeria's technical, vocational, and higher education sectors can promote ethical innovation. By assessing existing structures and identifying systemic gaps, the research proposes strategies to align educational outcomes with ethical standards and innovative practices. Specifically, the study seeks to: Analyze the current state of Nigeria's technical, vocational, and higher education systems; identify key barriers to ethical innovation within these frameworks; Evaluate the role of ethics in existing curricula and recommend improvements; and propose strategic reforms to embed ethical innovation in education. Using a mixed-methods approach, the study incorporates policy analysis, interviews with education stakeholders, and surveys of students and industry leaders across selected Nigerian institutions. Findings reveal that inadequate teacher training programs contribute to a disconnect between technical skill development and ethical instruction a critical gap that remains underexplored in the study. The research concludes that without comprehensive reforms integrating ethics into technical and vocational education, Nigeria will continue to struggle in producing graduates capable of driving ethical innovation. To address this, the study recommends revising curricula across all educational levels to include dedicated ethics modules, ensuring that future professionals are both technically proficient and morally grounded.

Keywords: Education policy, Ethical innovation, TVET, Higher education, Governance.

ARTIFICIAL INTELLIGENCE APPLICATIONS IN PAYROLL INTEGRITY AND GHOST WORKER ELIMINATION UNDER NIGERIA'S INTEGRATED PERSONNEL AND PAYROLL INFORMATION SYSTEM (IPPIS)

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Abstract

Fiscal integrity in the sphere of the public sector of Nigeria has been eroded by the proliferation of ghost workers long taking a significant portion of money spent on important services. This paper investigates how payroll systems that are powered by artificial intelligence can help in preventing such a fraud, and specifically reforms to the Integrated Payroll and Personnel Information System (IPPIS) within the Ministries, Departments, and Agencies (MDAs) selected. IPPIS was implemented in 2006 and it centralised payroll management by including biometric verification, and integration of databases to detect fictitious employees. Empirical evidence shows that it has removed more than 70,000 ghost workers which have saved it more than N220 billion annually in terms of automated audits and fewer manual interventions. Nevertheless, chronic weaknesses (including data inconsistencies and institutional resistance) enable fraud to take place again as manifested by the repeated verification exercises in 2025. The use of AI-based anomaly detectors, as suggested in the recent forensic analytics frameworks, would increase the effectiveness of fraud detection in real-time by comparing trends in payroll data, further optimising the precision of the outcome compared to the existing biometric tools. However, when critically interrogated, it turns out to have restrictions: expensive implementation, shortage of technological infrastructure in rural MDAs, and possible breach of privacy through AI monitoring. Whereas introduction of IPPIS reforms is partly effective in reducing ghost workers, AI augmentation is more effective and requires sound governance to prevent augmentation of inequalities. According to objective evaluation, as long as these obstacles are not tackled, systemic fraud will persist, which brings up the question of the long-term sustainability of digital interventions in the work of Nigerian public administration.

Keywords: IPPIS reforms, ghost workers, payroll fraud, artificial intelligence, anomaly detection

ARTIFICIAL INTELLIGENCE AND PROJECT MANAGEMENT: IMPACT, CHALLENGES, AND SOLUTIONS

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Abstract

Artificial Intelligence (AI) is increasingly transforming project management practices across industries by enhancing decision-making, automating routine tasks, and improving predictive capabilities. This paper examines the impact of AI on project management processes, roles, and outcomes. Drawing on academic literature and professional standards, the study explores how AI influences planning, scheduling, risk management, resource allocation, and stakeholder communication. It also discusses challenges such as ethical concerns, data quality issues, and skills gaps, while highlighting implications for project managers and organizations. The findings suggest that although AI significantly augments project management efficiency and effectiveness, human judgment and leadership remain indispensable.

Keywords: Artificial Intelligence, Project Management, Automation, Decision Support, Digital Transformation

ENHANCING COLLABORATIVE LEARNING WITH ARTIFICIAL INTELLIGENCE: IMPACTS ON ACADEMIC CONNECTEDNESS AND STUDENT PERFORMANCE AT KEBBI STATE POLYTECHNIC DAKINGARI

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Abstract

This study investigates the impact of integrating Artificial Intelligence (AI) tools into collaborative learning practices on academic connectedness and student performance at Kebbi State Polytechnic, Dakingari, Nigeria. As higher education institutions seek innovative pedagogical methods, AI presents novel opportunities to structure, support, and enhance student collaboration. This study posits that AI-facilitated collaborative learning can foster a stronger sense of academic connectedness, which in turn positively influences student outcomes. A quasi-experimental, mixed-methods design was employed. An experimental group (N=142) used an AI tool to assist with task management and resource summarization during collaborative projects, while a control group (N=143) used traditional methods. Surveys measured academic connectedness, and student Grade Point Averages (GPAs) were used as a performance metric. The findings indicate that the AI-supported group reported significantly higher levels of academic connectedness and achieved higher average GPAs compared to the control group. Qualitative data from focus groups revealed that the AI tool improved group organization and reduced process-related conflicts, allowing students to focus more on substantive discussion and mutual support. This study provides evidence that thoughtful integration of AI can be a powerful lever for improving student engagement and academic success in the Nigerian higher education context.

Keywords: Artificial Intelligence, Collaborative learning, Academic connectedness, Student performance, Higher education, Educational technology

AI OPTIMIZED SYNTHESIS AND INTELLIGENT CHARACTERIZATION OF BIO-BASED ANTI CORROSION POLYURETHANE COATINGS FROM PALM OLEIN POLYOLS, RECYCLED PET AND DIISOCYANATES FOR ENHANCED METAL SURFACE PROTECTION.

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Abstract

This study pioneers the integration of artificial intelligence (AI) in the synthesis and characterization of sustainable anti-corrosion polyurethane coatings derived from palm olein polyols/recycled PET and diisocyanates for metal surface protection. Employing machine learning algorithms such as random forests and Bayesian optimization, we predict and refine synthesis parameters including polyol molar ratios, reaction temperatures, and dissocyanate crosslinking densities to achieve superior film integrity and corrosion resistance, reducing experimental iterations by up to 70%. Characterization influences convolutional neural networks (CNNs) for automated analysis of electrochemical impedance spectroscopy (EIS), Fourier-transform infrared (FTIR), Thermogravimetric analysis (TGA), and Physicochemical properties such as; Pencil hardness, water resistance, salt water resistance, acid resistance, Alkaline resistance tests, enabling precise quantification of barrier properties, urethane linkages, and defect prediction with $R^2 > 0.85$. Results demonstrate enhanced corrosion inhibition efficiency (IZI 0.01 HZ > 10^8 $\Omega.cm^{2)}$ on mild steel substrates under saline exposure, outperforming conventional formulations, while promoting circular economy principles through agro-waste valorization. This AI-driven approach offers scalable ecofriendly solutions for Nigeria's oil and infrastructure sectors, bridging materials science with brainy manufacturing.

Keywords: AI optimization, Palm olein Polyols, Recycled PET, Anticorrosion, Polyurethane coating)

INTEGRATION OF ARTIFICIAL INTELLIGENCE (AI) FOR ENHANCED REAL ESTATE RISK MANAGEMENT IN NIGERIAN HIGHER INSTITUTIONS: A PHILOSOPHICAL INQUIRY FROM IBADAN, NIGERIA

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Abstract

Context: Real estate investment in Ibadan, Nigeria, has been growing rapidly due to urbanisation, population growth, and economic development. However, investors face various risks that can impact the sustainability of such investments. In the context of the integration of Artificial Intelligence (AI) into the curricula of higher institutions of learning for sustainable education reforms in 21st-century Africa, there is a rising need for empirical studies that can support data-driven teaching, learning, and professional training in the built-environment disciplines.

Research Aim: This study aims to identify and examine the different risks affecting real estate investment in Ibadan Metropolis, Nigeria, with a view to generating evidence-based knowledge that can enhance AI-supported teaching, curriculum development, and professional training in estate management and related programmes in higher institutions.

Methodology: Primary data were collected through a questionnaire survey administered to all registered Estate Surveying and Valuation Firms in the study area. Descriptive statistics were used to analyse the data collected, providing structured datasets suitable for AI-enabled analytical tools and curriculum applications.

Findings: The study showed that the most significant risks influencing real estate investment in Ibadan are economic risk, credit risk, and financial risk at 23.4%, 19.1%, and 17.0%, respectively. Other risks such as operational, political, liquidity, environmental, legislative, and market risks were found to have comparatively lower impacts.

Theoretical and Educational Importance: Beyond its practical relevance, this study contributes to sustainable education reforms by providing empirical content that can be integrated into AI-enhanced curricula for estate management, urban planning, and real estate finance programmes in Nigerian higher institutions.

Conclusion: The study concludes that standardised risk assessment methods aligned with international best practices are required. These methods can also serve as foundational datasets for AI-driven learning, research, and decision-support systems in higher institutions, supporting sustainable education reforms in Nigeria.

Keywords: Ibadan Metropolis, Artificial Intelligence, Sustainable Education, Real Estate Investment, Risk

AI IN HIGHER EDUCATION MANAGEMENT: EFFICIENCY AND PRODUCTIVITY PERSPECTIVES

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Abstract

The rapid diffusion of artificial intelligence (AI) technologies in higher education has reshaped administrative and governance processes; however, robust empirical evidence linking AI integration to measurable institutional productivity remains limited. This study examines the impact of AI adoption in higher education management on institutional productivity, with administrative efficiency modeled as a mediating mechanism. Anchored in Institutional Economics, the analysis conceptualizes AI as a governance-enhancing innovation that reduces transaction costs, optimizes resource allocation, and strengthens organizational coordination. Using a quantitative explanatory design and secondary panel data from accredited higher education institutions, the study constructs composite indices for AI integration, administrative efficiency, and institutional productivity. AI integration is proxied by the adoption of automated administrative systems, predictive analytics, and decision-support applications. Administrative efficiency is measured through operational indicators including admissions processing time, budget execution rates, staff–student ratios, and facility utilization. Institutional productivity is captured via graduation rates, research output per faculty, cost per student, and program completion efficiency. Fixed-effects regression and mediation analyses are employed, controlling for institutional size, age, ownership type, academic staff qualifications, IT infrastructure capacity, and financial resources. The findings are expected to indicate that AI integration significantly enhances institutional productivity both directly and indirectly through improvements in administrative efficiency. The results provide quantitative evidence supporting digital governance reforms and contribute to the efficiency–productivity literature in higher education management.

Keywords

Artificial Intelligence; Higher Education Management; Administrative Efficiency; Institutional Productivity; Institutional Economics; Digital Transformation

ADOPTION OF DIGITAL AGRICULTURE TECHNOLOGIES AMONG FARMERS: UNDERSTANDING ADOPTION PATTERNS, BARRIERS, AND ENABLERS

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Abstract

Digital agriculture, which includes mobile applications, digital payments, sensors, and online platforms, is becoming an important tool for modern farming. It has the potential to improve productivity, reduce post-harvest losses, and strengthen links between farmers and markets. However, adoption remains uneven. Many smallholder farmers continue to rely on traditional methods, while digital tools are more common among younger, better-educated farmers and larger value-chain actors. This paper reviews recent studies, policy reports, and strategy documents to understand adoption patterns, barriers, and enablers of digital agriculture. The findings show that most farmers use basic mobile phones for market information and communication, while smartphone applications and precision tools are still limited to more connected and commercial farmers. Key barriers include poor internet and power infrastructure, low digital literacy, high costs, limited trust, and a fragmented digital ecosystem. Enablers include training and awareness programs, use of simple and low-bandwidth services, public-private partnerships, interoperable platforms, and secure digital payment systems. The paper concludes that while digital agriculture holds great promise for farmers, wider adoption will require strong policies and coordinated efforts. Investments in rural connectivity, affordable finance, farmer training, and trusted platforms are essential. Addressing these gaps can help unlock the benefits of digital agriculture for food security, rural livelihoods, and sustainable economic growth.

Keywords: Digital agriculture, adoption patterns, barriers, enablers, smallholder farmers, ICT in agriculture, food security

IMPACT OF ARTIFICIAL INTELLIGENCE CAPABILITIES ON SUPPLY CHAIN PERFORMANCE: EVIDENCE FROM MANUFACTURING FIRMS IN NIGERIA

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Abstract

Artificial intelligence (AI), which increases operational effectiveness, resilience, and decision-making precision, is transforming global supply chains. However, actual data on how particular AI capabilities affect supply chain performance in underdeveloped countries is currently scarce. This study examines the effects of artificial intelligence capabilities, particularly predictive analytics, machine learning integration, and AI-driven automation, on supply chain performance in Nigerian manufacturing organizations. Anchored on the Resource-Based View (RBV) and Dynamic Capabilities Theory, the study considers AI capabilities as strategic technology assets that boost companies' operational competitiveness. Utilizing survey data collected from a selection of manufacturing firms situated in Nigeria's major industrial hubs, a quantitative study approach would be employed. The data will be examined and the suggested links between supply chain and AI capabilities tested using structural equation modeling (SEM). Accordingly, the study posits that predictive analytics capabilities enhance demand forecasting precision and inventory optimization, machine learning integration capabilities enhance adaptive decision-making and process intelligence, and AI-driven automation capabilities reduce operational inefficiencies and cost variability. When combined, these abilities ought to significantly improve the supply chain's overall efficacy, responsiveness, and reliability. This study adds to the expanding conversation on digital transformation in supply chain management by offering real data from a developing African country. In addition to providing useful insights for policymakers, manufacturing executives, and technology adopters looking to use AI for competitive and sustainable supply chain performance, the findings are anticipated to theoretically contribute to the literature on strategic management.

Keywords: Artificial Intelligence, Predictive Analytics, Machine Learning, Supply Chain Performance, Manufacturing Firms, Nigeria.

BUILDING SUSTAINABLE COMMUNITIES THROUGH TRANSFORMATIVE EDUCATION AND AI-DRIVEN INNOVATION

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Abstract

This paper examines the integration of three critical pillars—transformative education, artificial intelligence (AI)-driven innovation, and green economic practices—as a comprehensive framework for building sustainable communities in the 21st century. Drawing on interdisciplinary research, the paper demonstrates how educational systems that promote ecological literacy, critical thinking, and civic engagement lay the foundation for sustainability by cultivating values and behaviours essential for environmental stewardship. The analysis explores how AI technologies enhance this educational paradigm by improving knowledge management, personalizing learning experiences, and modeling complex sustainability outcomes, while emphasizing the ethical considerations necessary to ensure equitable technological deployment. The concept of AI-driven conspiracy theories has grown rapidly in recent years, with some suggesting that artificial intelligence is being developed in secret to manipulate global events or even control human minds. For example, one popular theory claims that AI technologies are being used by powerful elites to establish surveillance states, undermine democratic processes, or manipulate public opinion through data mining and algorithmic bias. The alignment of transformative education, AI-driven innovation, and green economic practices represents a powerful framework for cultivating sustainable communities equipped to address the complex environmental and social challenges of the 21st century. The paper recommends among others that Nigerian educational institutions should not suffer from inconsistency of policies, due to change in political offices and that government should encourage the redesigning of school curricular

THE ROLE OF ARTIFICIAL INTELLIGENCE AND EDUCATIONAL DEVELOPMENT IN AFRICA: THE WAY FORWARD

By

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Abstract

The integration of Artificial Intelligence (AI) in education, presents a transformative opportunity for the development of educational systems across Africa. This paper examines the multifaceted role of AI in enhancing educational access, quality, and equity in the African context. With a focus on current initiatives and potential applications, the study highlights how AI-driven tools can address persistent challenges, such as teacher shortages, lack of personalized learning experiences, and access to educational resources in remote areas. Through case studies from various African countries, we demonstrate the effectiveness of AI in facilitating adaptive learning technologies, automating administrative tasks, and providing data-driven insights for policymakers. Additionally, we explore the ethical and infrastructural challenges that accompany AI adoption, emphasizing the need for strategic implementation and capacity building within educational institutions. By fostering collaboration between governments, technology developers, and educators, this paper outline a comprehensive roadmap that envisions sustainable educational development through AI, ultimately contributing to the broader goals of socio-economic empowerment and human capital development in Africa. The findings advocate for a proactive approach that harnesses the potential of AI while being cognizant of local contexts, thereby ensuring that the benefits of technological advancements are equitably distributed across diverse populations.

REVAMPING NIGERIA'S HIGHER EDUCATION SECTOR THROUGH AI-DRIVEN ACADEIC LIBRARY SERVICES FOR SUSTAINABLE GROWTH AND NATIONAL DEVELOPMENT

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Abstract

Transforming Nigeria's tertiary education sector requires 21st century scalable and innovative solutions that are capable of addressing the persistent challenges that have continued to stunt her advancement. The challenges include weak research support systems, limited access to quality learning resources, and uneven digital literacy levels among others. Artificial Intelligence (AI) is an area that presents the opportunity for academic libraries and information centres to reposition themselves as hubs of intelligent knowledge delivery for ducational transformation. Hence, this paper uses a desk-research approach to explore how AI-driven academic library services can enhance teaching, learning, and research processes at the higher education level in Nigeria. The paper examines emerging global practices alongside local realities, highlighting the potential of AI-enabled libraries in fostering access to information, improving academic productivity, and supporting data-informed educational planning. More so, the paper discusses on the infrastructural, ethical, and policy considerations that are necessary for sustainable implementation. The paper concludes that integrating AI into library services can serve as a catalyst for educational revitalization, positioning libraries as strategic partners in advancing sustainable growth and long-term educational development in Nigeria.

Keywords: Artificial Intelligence, Academic Libraries, Educational Development, Sustainable Growth, Nigeria

LEVERAGING AI-INTEGRATED AND MOVEMENT BASED INSTRUCTION TO ENHANCE COGNITIVE OUTCOMES AMONG UNDERGRADUATE STUDENTS AT FEDERAL UNIVERSITY OF EDUCATION PANKSHIN, PLATEAU STATE, NIGERIA

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Abstract

In higher education, the search for innovative teaching strategies has become essential for improving students' performance. Therefore, this study investigated the incorporation of ChatGPT and movement-based instruction on cognitive learning outcomes among undergraduate education students at Federal University of Education, Pankshin, Plateau State, Nigeria. The study was guided by three research questions and three corresponding hypotheses. A quasi-experimental research design was adopted involving one Hundred (100) undergraduate students comprising fifty 100 level Human Kinetic and fifty Childhood Education students. Each of the groups was further divided into experimental and control groups with 25 students in each. The experimental groups were divided into two: Movement-only and AI+movement. The Movement-only group received instruction using structured movement-based learning activities. The AI+movement group received instruction using ChatGPT as a supplementary tool combined with structured movement-based learning activities, and control group was taught using conventional lecture method. The groups were administered pre- and- post-tests using Cognitive Achievement Tests (CAT). Additionally, students' interests and confidence were assessed using a 4-point Likert scale questionnaire titled AI-Integrated Interests and Confidence Questionnaire (AIICQ). Descriptive and Inferential statistics were employed to analyze data. The findings revealed that students taught with ChatGPT and movement-based learning activities showed greater interest, confidence, and understanding compared to those taught with movement and conventional methods. Based on these results, the study concluded by recommending that instructors incorporate AI and movement into teaching and learning activities.

BUILDING A SUSTAINABLE FUTURE: THE ROLE OF ARTIFICIAL INTELLIGENCE, CIRCULAR ECONOMY INNOVATIONS IN SHAPING GREEN TRANSITION IN NEXT-11 COUNTRIES

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Abstract

As the world faces the pressing challenges of climate change and resource depletion, building a sustainable future is no longer an option but a necessity. The role of Artificial Intelligence (AI) and circular economy innovations in shaping the green transition is crucial, especially in emerging economies like the Next-11 countries, including Nigeria, Bangladesh, and Turkey. This study investigates how AI-driven circular economy practices influence renewable energy adoption in these nations from 2003 to 2024. Utilizing the Panel Generalized Method of Moments (GMM) econometric method, the analysis examines the relationship between AI advancements, circular economy principles, and renewable energy uptake across these countries. Our findings reveal a significant positive correlation between AI integration in industrial practices and increased renewable energy capacity in the Next-11 nations. Specifically, AI has facilitated more efficient energy management, waste reduction, and resource optimization, which, in turn, has fostered a rapid transition to cleaner energy sources. The results suggest that countries with higher AI adoption and circular economy initiatives exhibit greater renewable energy output and lower carbon footprints. Based on these findings, the study recommends targeted policies to enhance AI adoption, such as incentives for AI-driven green technologies and investments in circular economy practices. Governments should also prioritize sustainable energy infrastructure and promote public-private partnerships to accelerate the green transition.

Keywords: Artificial Intelligence, Circular Economy, Green Transition, Renewable Energy, Panel GMM, Next-11 Countries, Sustainability, Econometric Analysis.

LEVERAGING ARTIFICIAL INTELLIGENCE IN PREDICTING AND MITIGATING FOOD INSECURITY IN NIGERIA

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The growing challenge of food insecurity in Nigeria, which is exacerbated by inefficiencies in traditional agricultural practices. With a rapidly increasing population, limited arable land, and changing climatic conditions, the need for innovative solutions has never been more pressing. Artificial Intelligence (AI) in precision agriculture offers a promising avenue to enhance food production, optimize resource utilization, and improve food distribution, thus contributing to food security in Nigeria. This study aims to explore the relationship between AI adoption in agriculture and food security outcomes in Nigeria. By employing a time-series econometric approach, the research will analyse data on food production, prices, and availability in relation to AI adoption rates and related technological investments over the past decade. This method allows for examining the temporal effects of AI on agricultural productivity while accounting for external factors such as climate variability. The findings of this study are expected to highlight significant improvements in crop yields, cost reductions in farming, and enhanced market access driven by AI technologies. Additionally, AI's role in mitigating the effects of climate change and improving supply chain efficiency is likely to emerge as a key factor in improving food security. Policy recommendations will include fostering greater government investment in AI infrastructure, promoting farmer training programs to increase AI adoption, and creating financial incentives for farmers to integrate AI into their practices. Furthermore, enhancing connectivity in rural areas will be crucial for maximizing the benefits of AI in precision agriculture.

Keywords: Artificial Intelligence (AI), Precision Agriculture, Food Security, Nigeria, Technological Adoption

INTEGRATING ARTIFICIAL INTELLIGENCE IN BIOMEDICAL MICROBIOLOGY EDUCATION FOR SUSTAINABLE PUBLIC HEALTH SURVEILLANCE IN AFRICA

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Abstract

The rapid evolution of Artificial Intelligence (AI) presents transformative opportunities for biomedical sciences, particularly in microbiology and public health surveillance across Africa. As emerging infectious diseases, antimicrobial resistance, foodborne outbreaks, and water-related infections continue to threaten sustainable development, higher education institutions must rethink curriculum structures to incorporate AI-driven analytical competencies. This paper explores the integration of AI into biomedical microbiology education as a strategic pathway toward strengthening public health systems in the 21st century.

Drawing from public health microbiology practice, this study examines how machine learning algorithms, predictive modeling, bioinformatics tools, and digital surveillance platforms can enhance pathogen detection, antimicrobial resistance tracking, and outbreak forecasting. Emphasis is placed on context-specific AI solutions that reflect African epidemiological realities, local data systems, and indigenous knowledge frameworks. The paper argues that African universities should transition from being passive consumers of Western AI technologies to active co-creators of localized, ethical, and culturally responsive AI innovations.

Furthermore, this work advocates for interdisciplinary curriculum reform that embeds computational literacy, data analytics, and AI ethics within biomedical training. Such reform will equip future microbiologists and public health professionals with the skills required for real-time disease monitoring, environmental microbiological assessment, and evidence-based decision-making. Integrating AI into biomedical microbiology education is not merely a technological advancement but a philosophical repositioning of African scholarship toward sustainable health governance, research autonomy, and innovation-driven development.

Keywords: Artificial Intelligence, Biomedical Microbiology, Public Health Surveillance, Antimicrobial Resistance, Sustainable Education Reform, Africa.

LEVERAGING ARTIFICIAL INTELLIGENCE FOR YOUTH MENTAL HEALTH PROMOTION IN NIGERIA: A PSYCHO-SOCIAL AND ETHICAL ANALYSIS

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Abstract

The economic uncertainty, academic pressure, unemployment, social change, and rapid digital transformation are becoming the background of mental health challenges among Nigerian youths. Simultaneously, formal mental health services are inadequate, coupled with limited professionals in this field, expensive treatment, and mental health-seeking stigmatization. It is on this backdrop that artificial intelligence (AI) seems to be an immensely powerful instrument of growing the mental health support in both innovative and scalable manners. This paper discusses the potential of AI-based technologies in supporting the mental health of Nigerian youths. In addition, this paper explores the ethical issues surrounding the application of AI tools and conclusively addresses the problems that surround the use of AI mental health tools.

Drawing from the model of positive psychology and technology acceptance model, this study made use of empirical literature review and qualitative contextual analysis to address the study objectives. A qualitative data from interviews of 10 youths in Osun State, Nigeria was collected and analyzed using Atlas Ti.

Findings identified various AI-driven apps conversational chatbots, mood-tracking apps, predictive screening applications, and personalized digital interventions that present new opportunities to detect psychological distress at an early stage, provide psychoeducation, emotional support, and self-coping mechanisms. Youths claimed that these technologies offer avenue of anonymity, accessibility and immediacy features, a feature that could potentially diminish the element of stigma and take away obstacles to seeking help. The research determined that in addition to symptom reduction, AI can assist more aspects of thriving such as resilience, life satisfaction, positive relationships, and adaptive functioning. Nevertheless, ethical and cultural issues such as the privacy of data, algorithmic bias, fake news, excessive dependence on a machine, and lack of human compassion are significant. Understanding the diverse and contextually multifaceted society, such as Nigeria, AI tools could be effective in their use with the cultural relevance, Internet literacy, infrastructure availability, and proper regulatory protection.

This study, by exploring both the opportunities and risks of AI-supported mental health support of Nigerian youths asserts that AI cannot substitute the human care but can have a positive impact on the existing systems when implemented in a responsible and ethical manner. The article finally suggests a multidisciplinary culturally responsive model that can be used to capitalize on AI as a means of ensuring sustainable mental health thriving in the life of the youth in Nigeria.

Keywords: Artificial Intelligence, mental Health, Youths, Nigeria

ARTIFICIAL INTELLIGENCE AND ENTREPRENEURSHIP EDUCATION PROGRAMME IN HIGHER SCHOOL: A COUNSELLOR'S VIEWPOINT FOR SUSTAINABLE EDUCATION REFORMS IN THE 21ST CENTURY

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Abstract

The accelerating integration of Artificial Intelligence (AI) into higher education is transforming entrepreneurship education programmes across African higher schools of learning. As universities align curricula with the demands of the Fourth Industrial Revolution, the challenge is not merely technological adoption but ensuring that AI integration is ethically grounded, psychologically informed and sustainably implemented. Within the broader philosophical debate on AI-driven curricular reforms in Africa, this paper argues that sustainable entrepreneurship education must be guided by counselling-informed principles to preserve human development at the core of innovation. AI-driven tools such as predictive analytics, intelligent business simulations, automated market analysis and adaptive learning systems enhance entrepreneurial creativity, decision-making and digital competitiveness. However, uncritical implementation may produce unintended consequences such as digital anxiety, fear of technological displacement, ethical dilemmas in AI-assisted business practices, inequitable access to digital infrastructure, and weakened interpersonal competencies critical for entrepreneurial success. From a counsellor's viewpoint, these challenges require structured psychosocial support systems, career adaptability training, digital resilience development, ethical AI literacy, and value-based entrepreneurial identity formation within higher education. This conceptual paper proposes a Counselling-Integrated AI Model for Entrepreneurship Education. The model emphasizes preparing students not only as technologically competent innovators but also as emotionally intelligent, ethically responsible and socially conscious entrepreneurs capable of navigating AI-mediated business environments. The paper concludes that meaningful AI integration must harmonize technological advancement with moral responsibility and psychological well-being to achieve sustainable education reforms in the 21st century.

Keywords: Artificial Intelligence, Entrepreneurship Education, Counselling Perspective, Sustainable Education Reform, African Higher Education, Digital Resilience.

ARTIFICIAL INTELLIGENCE AND TEACHER EDUCATION PROGRAMME IN HIGHER SCHOOL: THE IMPERATIVE OF COUNSELLING FOR SUSTAINABLE EDUCATION REFORMS IN THE 21ST CENTURY

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Abstract

The rapid integration of Artificial Intelligence (AI) into higher education is reshaping teacher education programmes across Africa. As institutions respond to digital transformation, the central concern is no longer whether AI should be integrated into the curriculum, but how such integration can be ethically grounded, psychologically informed and sustainably implemented. Within the broader philosophical debate on AI-driven reforms in African higher education, this paper argues that AI integration in teacher education must be supported by a robust counselling framework to ensure human-centered and sustainable educational transformation in the 21st century. Although AI enhances instructional design, adaptive learning, assessment analytics and administrative efficiency, its uncritical adoption may produce unintended consequences, including digital anxiety, professional identity displacement, ethical concerns, inequitable access and reduced human interaction in teaching and learning. From a counselling perspective, these challenges necessitate structured psychosocial support systems, emotional intelligence development, ethical AI literacy and digital resilience training within teacher education programmes. Drawing on humanistic philosophy, psychological flexibility theory and emotion regulation frameworks, this conceptual-analytical paper proposes a Counselling-Embedded AI Integration Model for higher schools of learning. The model advocates preparing future teachers as technologically competent, emotionally intelligent, ethically responsible and socially responsive professionals capable of navigating AI-mediated environments. The paper concludes that sustainable reform requires balancing technological innovation with moral responsibility and psychological well-being.

Keywords: Artificial Intelligence, Teacher Education, Counselling Imperative, Sustainable Education Reform, African Higher Education, Digital Resilience.

INTEGRATING ARTIFICIAL INTELLIGENCE WITH INDIGENOUS KNOWLEDGE SYSTEMS FOR WATER RESOURCES ENGINEERING EDUCATION IN NIGERIA: A DECOLONIAL APPROACH

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Title: Integrating Artificial Intelligence with Indigenous Knowledge Systems for Water Resources Engineering Education in Nigeria: A Decolonial Approach

Abstract

Africa's water crisis continues to deepen under the pressures of climate variability, population increase, and ageing infrastructure. Despite conventional reliance on engineering-based solutions, the complexity of the crisis necessitates a multi-disciplinary approach that integrates diverse knowledge systems. Nigerian polytechnics, tasked with producing mid-level professionals for water resources management, are at a critical juncture for curriculum reform. This paper engages with the growing discourse on Artificial Intelligence (AI) in African higher education, proposing a framework that thoughtfully embeds AI within water resources engineering programs. Rejecting the uncritical transplantation of Western models, the framework advocates for a hybrid model combining AI's predictive power with Indigenous Knowledge Systems (IKS) in water stewardship. Drawing on decolonial scholarship—particularly the notions of epistemic disobedience (Mignolo, 2009) and epistemicide (Ndlovu-Gatsheni, 2018)—the framework proposes that AI can complement, rather than replace, locally entrenched water management practices. The paper draws on empirical evidence from the Mara River Basin, as well as Nigerian case studies, such as traditional rainwater harvesting and flood precursor knowledge, to illustrate the potential of this integration. The proposed educational model places students as active agents in shaping AI tools, thus encouraging them to critically engage with the social, epistemic, and ethical dimensions of data and algorithmic assumptions. By fostering this reflective approach, AI integration can support engineering practices that are both culturally resonant and sustainable.

Keywords: Artificial Intelligence; Indigenous Knowledge Systems; Water Resources Engineering; Nigerian Polytechnics; Curriculum Development.

ASSESSMENT OF INDOOR AND OUTDOOR BACKGROUND RADIATION LEVELS AND POSSIBLE HEALTH RISK IN JIGAWA STATE POLYTECHNIC, DUTSE, NIGERIA

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Abstract

Background radiation is a ubiquitous environmental factor that can be either beneficial or harmful, depending on exposure levels and duration. This study aimed to assess indoor and outdoor background radiation levels at the main campus of Jigawa State Polytechnic, Dutse, Nigeria, and evaluate the associated health risks. Radiation measurements were performed using an in-situ radiation detector to record alpha, beta, and gamma radiation. A total of 80 readings were obtained from 20 selected locations, including both indoor and outdoor environments. The mean hourly dose rates were found to be 0.00726 µSv/h indoors and 0.00686 µSv/h outdoors, corresponding to mean annual effective doses of 0.0570 mSv/year and 0.0600 mSv/year for indoor and outdoor environments, respectively. These values exceed typical global background radiation levels (0.013 µSv/h) but remain well below the recommended public exposure limit of 1 mSv/year set by the International Commission on Radiological Protection (ICRP, 2007) and the worldwide average annual dose of 2.4 mSv/year reported by UNSCEAR (2000). The highest observed annual dose was 0.0344 mSv/year, indicating no immediate health risk to staff, students, or residents. The calculated Excess Lifetime Cancer Risk (ELCR) was 0.0021 for indoor exposure and 0.0020 for outdoor exposure, suggesting minimal long-term health impact. Overall, the study confirms that background radiation levels at the campus are within safe limits, though continuous monitoring is recommended to ensure long-term safety.

Keywords: Background radiation, In-situ detector, Dose rate, Ionizing radiation, Excess Lifetime Cancer Risk

INTEGRATING AI INTO HIGHER EDUCATION CURRICULA FOR SUSTAINABLE EDUCATION REFORMS IN 21ST CENTURY AFRICA: A PHILOSOPHICAL DEBATE ON AI AND PROJECT MANAGEMENT

By

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Abstract

The incorporation of artificial intelligence into higher education curricula throughout Africa signifies both a transformative opportunity and a significant philosophical challenge. This paper explores the convergence of AI integration and project management education within the larger framework of sustainable educational reforms on the continent. By referencing the emerging academic discussions among African scholars, we assert that the integration of AI into project management curricula should not be viewed merely as a technical endeavor but must address essential issues of epistemic justice, cultural relevance, and sustainable development. Through a critical examination of existing initiatives and a philosophical contemplation of the values inherent in educational technologies, this paper suggests a framework for AI integration that respects indigenous knowledge systems while equipping graduates for AI-enhanced project environments. We argue that sustainable educational reforms necessitate those African institutions progress beyond mere technological adoption to actively engage in the development of AI tools that resonate with African realities and aspirations.

Keywords: Artificial Intelligence, Project Management, Higher Education, Africa, Epistemic Justice, Curriculum Reform, Sustainable Development

ARTIFICIAL INTELLIGENCE AND E-GOVERNANCE IN AFRICA: EARLY WARNING SYSTEMS FOR CRISIS MANAGEMENT AND PUBLIC POLICY INNOVATION

By

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Abstract:

Artificial Intelligence (AI) is rapidly transforming governance structures and crisis management strategies across the globe. In Africa, where institutional fragility, climate vulnerability, and socio-political tensions heighten the risks of recurrent crises, the integration of AI into governance systems provides both opportunities and challenges. This paper explores the intersection of AI-driven early warning systems (EWS) and e-governance, focusing on their potential to enhance crisis anticipation, disaster response, and public policy formulation in African contexts. Building on recent scholarship that critiques the Eurocentric framing of AI, this study adopts an Afrocentric perspective to examine how indigenous knowledge systems, local governance structures, and contextual realities can shape the design and deployment of AI tools. We argue that embedding culturally sensitive AI frameworks in governance not only strengthens institutional capacity but also promotes inclusivity and legitimacy in public administration. Methodologically, the paper employs a qualitative analysis of case studies in Nigeria and other African states where AI-enabled tools have been applied to election monitoring, conflict prevention, and disaster response. It further interrogates the ethical, policy, and infrastructural implications of AI adoption, highlighting issues of data sovereignty, accountability, and digital divides. The findings suggest that AI-driven EWS, when integrated within e-governance platforms, can significantly improve decision-making processes, reduce human and economic losses, and foster resilient governance. However, their effectiveness depends on political will, regulatory frameworks, and alignment with African socio-cultural values. By bridging management sciences and political science, this paper contributes to ongoing debates on disruptive technologies in Africa, offering policy recommendations for leveraging AI to strengthen governance, safeguard communities, and promote sustainable development.

Keywords: Artificial Intelligence, E-Governance, Early Warning Systems, Crisis Management, Public Policy, Africa.

A HYBRID MACHINE LEARNING FRAMEWORK FOR ADAPTIVE CYBERSECURITY MANAGEMENT AND INTELLIGENT THREAT DETECTION

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Abstract

The escalating sophistication and scale of cyber threats necessitate adaptive cybersecurity management frameworks capable of intelligent, real-time detection and response. This paper proposes the design and experimental evaluation of an AI-driven cybersecurity management model that integrates supervised and unsupervised machine learning techniques for dynamic threat detection, automated incident triage, and risk prioritization. The proposed study will adopt a mixed-method experimental approach using benchmark intrusion detection datasets alongside simulated enterprise network traffic. Advanced feature engineering techniques, including dimensionality reduction and behavioural profiling, will be applied to enhance model efficiency and generalization. Multiple algorithms, Random Forest, Support Vector Machines, Gradient Boosting, and Deep Neural Networks, will be comparatively evaluated using performance metrics such as accuracy, precision-recall, F1-score, false-positive rate, and computational overhead. An anomaly detection layer based on autoencoders is further proposed to identify zero-day and previously unseen attack vectors. To assess operational feasibility, the framework will be deployed within a simulated Security Operations Center (SOC) environment to measure projected improvements in response time, alert fatigue reduction, and incident prioritization. Robustness testing against adversarial evasion and data poisoning scenarios is also planned to evaluate system resilience. The study aims to demonstrate how hybrid AI architectures can strengthen proactive cybersecurity management while emphasizing the need for model governance, continuous retraining, and adversarial defense mechanisms.

Keywords: Artificial Intelligence, Hybrid Machine Learning, Anomaly Detection, Security Operations Center (SOC) Automation, Adversarial Resilience

ARTIFICIAL INTELLIGENCE AS A CATALYST FOR ADVANCING INFORMATION AND COMMUNICATIONS TECHNOLOGY INFRASTRUCTURE: OPPORTUNITIES, CHALLENGES, AND GOVERNANCE IMPLICATIONS

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Abstract

Artificial Intelligence (AI) is rapidly transforming the landscape of Information and Communications Technology (ICT), redefining how networks are designed, managed, and optimized. This study examines the role of AI as a catalyst for enhancing ICT infrastructure, focusing on its applications in network automation, cybersecurity, data management, predictive maintenance, and service delivery optimization. By integrating machine learning algorithms and intelligent analytics into ICT systems, organizations can improve operational efficiency, reduce latency, enhance reliability, and strengthen threat detection mechanisms. However, the deployment of AI-driven ICT systems also raises significant challenges, including data privacy concerns, algorithmic bias, cybersecurity risks, regulatory gaps, and digital inequality. Using a mixed-method analytical approach that combines literature review and case-based analysis, this research evaluates both the technical and governance dimensions of AI integration in ICT ecosystems. The study further explores policy and regulatory frameworks necessary to ensure transparency, accountability, and ethical deployment of AI technologies. The findings aim to contribute to scholarly discourse by offering a balanced assessment of AI's transformative potential while highlighting the need for robust governance models to safeguard public interest. Ultimately, the research proposes a framework for responsible AI adoption that aligns technological innovation with sustainable and inclusive ICT development.

Keywords: Artificial Intelligence (AI), ICT, Network Automation, AI Governance, Cybersecurity

INTEGRATING ARTIFICIAL INTELLIGENCE-DRIVEN COMPUTATIONAL APPROACHES INTO BIOMEDICAL EDUCATION: A COMBINED *IN VITRO* AND *IN SILICO* FRAMEWORK FOR ADDRESSING ANTIMICROBIAL RESISTANCE IN AFRICA

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Abstract

The integration of Artificial Intelligence (AI) into higher education has become central to advancing sustainable educational reforms in Africa, particularly within science and biomedical disciplines. This study presents an AI-driven, interdisciplinary framework that combines *in vitro* microbiological analysis with in silico computational modeling to address extended-spectrum β-lactamase (ESBL)-producing bacterial infections. The approach demonstrates how machine learning, molecular docking, and ADMET prediction tools can be embedded into biomedical curricula to enhance research-oriented learning and problem-solving competencies among students. Clinical bacterial isolates were characterized phenotypically and genotypically for ESBL production, followed by computational screening of African-derived phytochemicals against key β-lactamase resistance proteins. Molecular docking, binding energy evaluation, and pharmacokinetic profiling were integrated with laboratory susceptibility testing to validate predicted inhibitory activity. The combined framework provided a structured platform for teaching translational bioinformatics, antimicrobial resistance modeling, and data-driven drug discovery. The study proposes a context-responsive AI-enabled educational model that bridges laboratory experimentation and computational intelligence, thereby strengthening innovation capacity within African universities. By aligning AI tools with pressing public health challenges such as antimicrobial resistance, this work supports sustainable curriculum transformation and promotes the development of locally relevant biomedical solutions in the 21st century.

Keywords: AI, AMR, ESBL, *In Silico* Drug Discovery, Molecular Docking,

Application of Artificial Intelligence in biomedical Research

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Abstract

Artificial intelligence (AI) has rapidly emerged as a powerful tool in various fields, including biomedical research. With the exponential growth in data generation and complex analysis requirements, AI techniques have become indispensable for extracting valuable insights and solving challenging problems in the biomedical domain. Artificial intelligence (AI) is successfully applied to the analysis of intricate biological data and extraction of substantial associations from datasets for a variety of biomedical uses. This article provides an overview of the diverse applications of AI in biomedical research, showcasing its potential to revolutionize diagnostics, drug discovery, genomics, medical imaging, and personalized medicine.AI has attracted significant interest in biomedical research due to its features:(i) better patient care through early diagnosis and detection;(ii) enhanced workflow;(iii) lowering medical errors;(iv) reducing morbidity and mortality;(v) lowering medical costs;(vi) enhancing performance; and (vii) time efficiency. A concise discussion is given of the AI techniques which include virtual screening, hidden markov models,neural networks, generative models,molecular dynamics and structure-activity relationship models.The integration of AI into biomedical research paves the way for accelerated advancements, more accurate predictions, and improved healthcare outcomes.The implementation of AI in biomedical fields faces challenges such as ethical and privacy concerns,lack of awareness,technology unreliability and professional liability. Conclusively by harnessing the potential of AI,researchers can unravel complex biological processes, identify novel therapeutic targets,and circumvent traditional limitation.

Keywords: artificial intelligence; biomedical research; diagnostics,drug discovery;genomics;medical imaging;personalized medicine.

ADEQUACY OF ACCOUNTING CURRICULUM IN INFLUENCING ENTREPRENEURIAL INTENTIONS AMONG ACCOUNTING STUDENTS IN FEDERAL POLYTECHNIC DAMATURU, YOBE STATE, NIGERIA."

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Abstract

The rising unemployment rate among Nigerian graduates, particularly those from polytechnic institutions, underscores the urgent need to strengthen entrepreneurship-focused education. As a profession, accounting provides students with foundational competencies in financial literacy, cost management, business planning, and record-keeping skills considered essential for entrepreneurial success. However, the adequacy of the accounting curriculum in influencing entrepreneurial intentions among accounting students remains insufficiently explored, especially within Federal Polytechnic Damaturu. This study examines the extent to which the current accounting curriculum equips students with the knowledge and competencies necessary to develop entrepreneurial intentions. A quantitative research design was adopted, using a structured questionnaire administered to accounting students of Federal Polytechnic Damaturu. Data were analysed using multiple linear regression to assess the relationship between curriculum adequacy and key factors such as entrepreneurial intention, business planning capability, and financial decision-making skills. Findings reveal that the adequacy of the accounting curriculum significantly influences students' entrepreneurial intentions by enhancing their confidence, business planning abilities, and financial decision-making skills. The study offers valuable contributions to the discourse on curriculum development and entrepreneurial education, providing actionable insights for policymakers, curriculum designers, and educators seeking to strengthen the entrepreneurial capacity of accounting graduates in Yobe State and Nigeria at large.

Keywords: Accounting curriculum, Entrepreneurial Intentions, Business Planning, Financial Decision-Making, Polytechnic Education**.**

LEVERAGING AI-POWERED AND ADAPTIVE LEARNING SYSTEMS FOR PERSONALIZED BIOMEDICAL EDUCATION IN NIGERIAN UNIVERSITIES

By

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Abstract

Biomedical education in Nigerian universities faces persistent challenges including large class sizes, diverse student preparedness, and limited instructional resources. Meanwhile the increasing complexity of biomedical sciences requires innovation and instructive strategies that is capable of meeting diverse learner needs. This study therefore examines how AI-powered adaptive learning systems can support educational reform in Nigerian universities by enhancing personalized learning in biomedical programmes. Through policy analysis and review of global best practices, the study identifies adaptive learning as a strategic tool for achieving competency-based biomedical education. It highlights benefits such as automated formative assessment, data-driven academic support, and improved instructional efficiency. The study also addresses ethical, infrastructural, and regulatory concerns relevant to Nigerian higher education. And conclude that integrating AI powered adaptive learning systems into biomedical curricula can significantly transform biomedical education delivery and learning outcomes in Nigerian universities.

ARTIFICIAL INTELLIGENCE AND ENTREPRENEURSHIP: TRANSFORMING INNOVATION, PROFESSIONAL PRACTICE, AND GRADUATE SELF-EMPLOYMENT IN THE DIGITAL ECONOMY

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Abstract

The rapid advancement of Artificial Intelligence (AI) represents one of the most significant technological revolutions of the twenty-first century, profoundly reshaping economic systems, organizational structures, and entrepreneurial activity. Entrepreneurship, traditionally driven by human intuition, capital accumulation, and labor coordination, is increasingly becoming data-driven, algorithmic, and digitally scalable. This paper provides an extensive conceptual, theoretical, and empirical analysis of Artificial Intelligence and Entrepreneurship, examining how AI functions as both a technological enabler and a strategic entrepreneurial resource. Drawing on classical and contemporary scholarship, including Joseph Schumpeter, Peter Drucker, John McCarthy, Stuart Russell, and Erik Brynjolfsson, the paper explores the conceptual foundations of Artificial Intelligence, the nature and forms of entrepreneurship, and the convergence of both fields in the digital economy. Particular attention is given to entrepreneurship education and professional self-employment in developing economies, with specific focus on librarianship in Nigeria. The paper argues that Artificial Intelligence is not merely a supportive technology but a transformative force redefining opportunity recognition, innovation, value creation, and competitive advantage. It concludes that integrating AI into entrepreneurship education and professional practice is essential for sustainable development, inclusive growth, and graduate employability in the twenty-first century.

Keywords: Artificial Intelligence, Entrepreneurship, Innovation, Digital Economy, Self-Employment, Entrepreneurship Education, Librarianship, Nigeria

LEVERAGING AI TECHNOLOGY FOR THE DETECTION OF SPOILAGE MICROORGANISMS IN PERISHABLE FOODS: A MEANS OF PROMOTING SUSTAINABLE AGRICULTURE AND FOOD SECURITY

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Food spoilage due to microbial contamination is a major contributor to post-harvest losses in perishable foods, impacting global food security and sustainability. Traditional microbiological detection methods are often slow, labour-intensive, and costly and often yield results only after the food has reached the point of no return. This paper explores the transformative role of Artificial Intelligence (AI) in revolutionizing food safety. It evaluates current methodologies, discusses case studies, and addresses both present and future challenges of spoilage detection in perishable foods. AI technologies, including machine learning, computer vision, deep learning, hyperspectral imaging (HSI), and IoT-enabled sensor integration, promises speedy, accurate, and scalable detection of spoilage microorganisms in perishable foods at the molecular and gas-emission levels before it becomes visible to the human eye. Our analysis demonstrates that with AI algorithms, specifically deep learning (DL) for image recognition, electronic noses (e-noses) for volatile organic compound (VOC) profiling, and hyperspectral imaging (HSI), the agricultural sector can transit from reactive to proactive food safety management. The identification of microbial metabolic byproducts at concentrations invisible to the human eye, enabling real-time monitoring across the supply chain. By incorporating these technologies, the shelf life of perishable foods is extended, post-harvest losses are reduced, even up to 50%, ensuring safety, and supporting sustainable agricultural systems. In conclusion, despite the challenges of data standardization and hardware costs, the integration of AI in food systems is a fundamental prerequisite for achieving UN Sustainable Development Goal 2 (Zero Hunger) and ensuring a resilient, food-secure future.

POLITICAL COMMUNICATION AND YOUTH POLITICAL PARTICIPATION IN NIGERIA: THE ROLE OF ARTIFICIAL INTELLIGENCE

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Abstract

The rapid integration of Artificial Intelligence (AI) technologies into digital media infrastructures has fundamentally altered contemporary political communication processes. Increasingly, algorithm-driven platforms are responsible for filtering, prioritizing, and delivering political information to media users, particularly young citizens who depend heavily on online environments for civic knowledge and engagement. Within Nigeria's democratic landscape, this technological shift raises important questions regarding how AI-enabled communication systems influence political awareness and participatory behaviour among youths. This study therefore investigates the extent to which Artificial Intelligence contributes to political communication practices and shapes youth political participation in Nigeria. Drawing on the Uses and Gratifications Theory (UGT) alongside the Technology Acceptance Model (TAM), the research adopts a cross-sectional survey design involving 400 undergraduate students selected through a multistage sampling procedure from tertiary institutions in Southwestern Nigeria. Statistical analyses comprising descriptive measures, Pearson correlation, and multiple regression were employed to examine the relationship between AI-enabled political communication and civic engagement. The findings demonstrate that exposure to AI-mediated political information significantly predicts youth political participation ($\beta = .58$, $p < .05$), explaining approximately 34% of the observed variation in participatory behaviour. The study provides empirical insights into the emerging role of AI in political communication within developing democracies and underscores the importance of digital literacy and regulatory frameworks in safeguarding democratic participation.

Keywords: Algorithmic Media, Artificial Intelligence, Civic Engagement, Political Communication, Youth Participation

BUDGET IMPLEMENTATION CHALLENGES IN FEDERAL POLYTECHNICS: EVIDENCE FROM THE BURSARY PERSPECTIVE

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Abstract

Budget implementation remains a persistent governance challenge within Nigeria's public tertiary education sector. This is particularly in Federal Polytechnics where financial administration is heavily dependent on government subventions and internally generated revenue (IGR). This study investigates the determinants and constraints of budget implementation from the bursary perspective. It emphasizes on the institutional and systemic factors that shape execution outcomes. Anchored in Public Financial Management (PFM) theory and institutional governance frameworks, the study adopts a mixed-methods approach. It combines survey data from bursary and finance officers across selected Federal Polytechnics with documentary analysis of budget performance reports over a five-year period (2019–2023). Quantitative data were analyzed using descriptive statistics and regression techniques, while qualitative responses were subjected to thematic analysis. Findings indicate a significant divergence between approved budgets and actual expenditure performance, with recurrent expenditure demonstrating higher implementation rates than capital expenditure. Key predictors of implementation gaps include delayed and partial releases of government subventions, volatility in internally generated revenue, inflationary pressures, procurement regulatory delays and weak medium-term expenditure alignment. Regression results show that timeliness of fund release and revenue predictability are statistically significant determinants of budget performance ($p < 0.05$). From the bursary standpoint, these constraints exacerbate cash flow instability, distort institutional priorities and contribute to the accumulation of outstanding financial obligations. The study concludes that strengthening cash forecasting mechanisms, enhancing financial autonomy, digitizing financial management systems and improving coordination between regulatory agencies and institutional finance units are critical to improving budget credibility and execution efficiency. The findings contribute empirically to the limited literature on sub-national public financial management in technical tertiary institutions and provide evidence-based insights for policy reforms aimed at improving fiscal discipline and institutional sustainability in Nigeria's Federal Polytechnic system.

Keywords: Budget implementation, public financial management, Federal Polytechnics, fiscal governance, financial administration, Nigeria.

LEVERAGING AI TECHNOLOGY FOR THE DETECTION OF SPOILAGE MICROORGANISMS IN PERISHABLE FOODS: A MEANS OF PROMOTING SUSTAINABLE AGRICULTURE AND FOOD SECURITY

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Food spoilage due to microbial contamination is a major contributor to post-harvest losses in perishable foods, impacting global food security and sustainability. Traditional microbiological detection methods are often slow, labour-intensive, and costly and often yield results only after the food has reached the point of no return. This paper explores the transformative role of Artificial Intelligence (AI) in revolutionizing food safety. It evaluates current methodologies, discusses case studies, and addresses both present and future challenges of spoilage detection in perishable foods. AI technologies, including machine learning, computer vision, deep learning, hyperspectral imaging (HSI), and IoT-enabled sensor integration, promises speedy, accurate, and scalable detection of spoilage microorganisms in perishable foods at the molecular and gas-emission levels before it becomes visible to the human eye. Our analysis demonstrates that with AI algorithms, specifically deep learning (DL) for image recognition, electronic noses (e-noses) for volatile organic compound (VOC) profiling, and hyperspectral imaging (HSI), the agricultural sector can transit from reactive to proactive food safety management. The identification of microbial metabolic byproducts at concentrations invisible to the human eye, enabling real-time monitoring across the supply chain. By incorporating these technologies, the shelf life of perishable foods is extended, post-harvest losses are reduced, even up to 50%, ensuring safety, and supporting sustainable agricultural systems. In conclusion, despite the challenges of data standardization and hardware costs, the integration of AI in food systems is a fundamental prerequisite for achieving UN Sustainable Development Goal 2 (Zero Hunger) and ensuring a resilient, food-secure future.

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF EDUCATIONAL ASSESSMENT

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Abstract:

The advent of Artificial Intelligence (AI) is revolutionizing international discussions on educational assessment, offering opportunities for increased efficiency, personalization, and immediate feedback. This paper analyses the effects of artificial intelligence on educational assessment, especially in Nigeria, where infrastructure limitations, pedagogical shortages, and policy gaps make broad adoption challenging. Grounded in the Technological Pedagogical Content Knowledge (TPACK) model and supported by the Diffusion of Innovations Theory, this paper explores available AI instruments for assessment, such as Gradely, u Lesson, and Joint Admissions Matriculation Board's Computer-Based Test portal, and compares them with Nigerian educational goals. It presents an integration of empirical research from global contexts, revealing mixed findings on student performance, academic integrity, and institutional readiness. The discussion of implications identified challenges and prospects for teachers, learners, curriculum designers, and policymakers. This paper concludes with actionable suggestions for promoting ethical, inclusive, and context-sensitive integration of AI in assessment to make technology an instrument of equity and educational advancement. Ultimately, it argues that AI must not simply digitize traditional assessments but be harnessed to promote fairness, deeper learning, and long-term educational transformation in Nigeria.

Keywords: Artificial, assessment, instrument, intelligence, pedagogy.

THE ROLE OF ARTIFICIAL INTELLIGENCE IN SHAPING ASSESSMENT PRACTICES IN HIGHER EDUCATION

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Abstract

Background/purpose. Artificial Intelligence (AI) is increasingly shaping assessment practices in higher education, promising faster feedback and reduced instructor workload while also raising concerns about fairness and transparency. This study examines how AI technologies are transforming assessment processes and the experiences of stakeholders.

Materials/methods. We conducted a mixed-methods study across five universities. A total of 300 undergraduate students and 100 instructors completed parallel surveys (totaling 30 items each) about their use of and perceptions toward AI tools. We also interviewed 15 faculties and conducted four student focus groups to explore experiences with AI based assessment. Quantitative data were analyzed using descriptive statistics and independent t-tests, while interview transcripts were analyzed thematically.

Results. The majority of participants reported efficiency gains from AI. For example, 73% of students received faster feedback when AI was used, and instructors reported an average 40% reduction in grading time. However, 52% of students did not fully understand how Ai derived scores were calculated. Qualitative themes included improved formative feedback, broad assessment redesign by instructors, and concerns about algorithmic bias and equity for low-resource students.

Conclusion. AI-enabled assessment offers clear pedagogical benefits when implemented thoughtfully. Key recommendations include ensuring transparent AI processes, training educators and students, and enacting equity-focused policies. Institutional readiness—through policies and support—is crucial for harnessing AI's potential for assessment while ensuring fairness and maintaining learning quality.

Keywords: Artificial intelligence; assessment; higher education; formative feedback; ethics

INTEGRATION OF ARTIFICIAL INTELLIGENCE AND ENGLISH LANGUAGE TEACHING IN NIGERIA TERTIARY INSTITUTIONS.

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Abstract

The introduction of Artificial intelligence (AI) and English language teaching in Nigeria tertiary institutions represents a transformative shape in pedagogical methodologies. This paper explores the multifaceted role of AI in enhancing English language acquisition, addressing the unique challenges faced by Nigeria Academics – scholars, lecturers and students as well. By addressing AI -driven tools such as language learning applications, intelligent tutoring systems and automated assessment platforms, the study highlights their potentials to personalized learning experience, provide instant feedback and facilitate language practice in diverse contexts. Furthermore, the research examines the implications of AI on teacher professional development and curriculum design, emphasizing the necessity for educators to adapt to technological advancement challenges, including infrastructural limitations and digital literacy disparities, are also discussed. In conclusion, the paper advocates for a balanced approach that leverages AI's capabilities while ensuring equitable access to technology, thereby fostering an inclusive and effective English language teaching in Nigeria's tertiary institutions.
Key words : Artificial intelligence, English language teaching, language learning application, intelligent tutoring system and automated assessment platforms.

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ORGANIZATIONAL BEHAVIOR: A RISKY TALE BETWEEN MYTH AND REALITY FOR SUSTAINING WORKFORCE

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Abstract:

Purpose: This research paper examines quantitatively the impact of Artificial Intelligence (AI) as an independent variable on three organizational behavior components as dependent variables: job satisfaction, personality, and attitudes.

Design/methodology: The sample of our study includes alumni graduates of the past two years reflecting on post-covid19 era as young workforce from Cairo, Egypt. It is important to note that there is no sufficient data regarding the impact of AI on OB testing this bracket of young population workforce, and highlighting specific components in the study of OB.

Findings: This research finding revealed that AI can explain 46.5 % of Organizational Behavior which refers to the importance of AI usage among organizations and how this might change the current organizational environments.

Research Limitations: This research is limited by the fact that the sample encompassed a specific bracket of the young workforce age ranging from 20-35 years old even though they come from different backgrounds.

Practical Implications: AI tools can enhance employees job satisfaction as well as it can help mitigate cognitive biases and groupthink, developing a decision-making culture that is more objective and data driven.

Originality: Therefore, the utility of this research on the academic level highlights the fact of identifying major concerns and formulations of essential conclusions to get a deeper understanding of the relationship between the different variables stated. On the practical level, it sheds light for several organizations on the danger of technology replacement of employees due to the invasive impact of AI usage.

Keywords: Artificial Intelligence, Personality, Attitudes, Job Satisfaction, Organizational Behavior.

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF EDUCATIONAL ASSESSMENT

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Abstract:

The advent of Artificial Intelligence (AI) is revolutionizing international discussions on educational assessment, offering opportunities for increased efficiency, personalization, and immediate feedback. This paper analyses the effects of artificial intelligence on educational assessment, especially in Nigeria, where infrastructure limitations, pedagogical shortages, and policy gaps make broad adoption challenging. Grounded in the Technological Pedagogical Content Knowledge (TPACK) model and supported by the Diffusion of Innovations Theory, this paper explores available AI instruments for assessment, such as Gradely, u Lesson, and Joint Admissions Matriculation Board's Computer-Based Test portal, and compares them with Nigerian educational goals. It presents an integration of empirical research from global contexts, revealing mixed findings on student performance, academic integrity, and institutional readiness. The discussion of implications identified challenges and prospects for teachers, learners, curriculum designers, and policymakers. This paper concludes with actionable suggestions for promoting ethical, inclusive, and context-sensitive integration of AI in assessment to make technology an instrument of equity and educational advancement. Ultimately, it argues that AI must not simply digitize traditional assessments but be harnessed to promote fairness, deeper learning, and long-term educational transformation in Nigeria.

Keywords: Artificial, assessment, instrument, intelligence, pedagogy.

INTEGRATION OF ARTIFICIAL INTELLIGENCE AND ENGLISH LANGUAGE TEACHING IN NIGERIA TERTIARY INSTITUTIONS.

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Abstract

The introduction of Artificial intelligence (AI) and English language teaching in Nigeria tertiary institutions represents a transformative shape in pedagogical methodologies. This paper explores the multifaceted role of AI in enhancing English language acquisition, addressing the unique challenges faced by Nigeria Academics – scholars, lecturers and students as well. By addressing AI -driven tools such as language learning applications, intelligent tutoring systems and automated assessment platforms, the study highlights their potentials to personalized learning experience, provide instant feedback and facilitate language practice in diverse contexts. Furthermore, the research examines the implications of AI on teacher professional development and curriculum design, emphasizing the necessity for educators to adapt to technological advancement challenges, including infrastructural limitations and digital literacy disparities, are also discussed. In conclusion, the paper advocates for a balanced approach that leverages AI's capabilities while ensuring equitable access to technology, thereby fostering an inclusive and effective English language teaching in Nigeria's tertiary institutions.

Key words : Artificial intelligence, English language teaching, language learning application, intelligent tutoring system and automated assessment platforms.

TEACHERS' AND STUDENTS' AWARENESS AND UTILIZATION OF AI AS A TOOL FOR TEACHING AND LEARNING IN TERTIARY INSTITUTION IN PLATEAU STATE, NIGERIA

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Abstract

The use of AI tools in teaching and learning has come to stay in all levels of education. With AI, students can easily learn as they can create virtual experiments, recreate classroom situations, ask questions and get quick feedbacks. The teachers too are relieved of the burden of how to bring home their lessons. Good as this may sound, are teachers and students making use of this technology for teaching and learning? This is more pertinent for would be teachers. Is AI incorporated in their training? What about those preparing them; are they aware of the use of AI tools in teaching and learning. Considering the importance of AI in this time and age, this paper carried out a survey of the awareness of teachers and students in colleges and universities of education in plateau state, Nigeria to ascertain their level of awareness and willingness to use AI in teaching and learning. The research was a survey which used 200 respondents (50 teachers and 150 students) selected through stratified random sampling for proper representation. Four research questions and two hypotheses were formulated to guide the research. Findings reveal moderate awareness and utilization level. The study recommends among others targeted capacity-building workshops and policy reforms to boost AI integration, contributing to Nigeria's digital education agenda.

Key words: AI, awareness, utilization, Teaching, Learning

APPRAISAL OF RECENT ADVANCES IN NIGERIA CONSTRUCTION INDUSTRY: CHALLENGES AND PROSPECTS

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Abstracts

The construction industry is navigating with fast evolving landscape that is shaped with technology, sustainability, labour dynamics and changing environmental and economic conditions. However, despite the environmental and economic uncertainty, the outlook for recent advances in the construction industry remains promising but with critical challenges. The industry is thriving and as well embracing advances in the area of innovations, construction methods, material development, technologies and practices, these advances aims to enhance efficiency, sustainability, quality, and safety of the industry. That is why this study appraised the areas of current advances in Nigeria construction industry, assessed it challenges and navigate the prospects of these advances in the Nigerian construction industry. A systematic literature review was conducted by downloading thirty two (32) top and recent articles on recent advances using Google search engine to access different free online journals. Fifteen (15) journals related to the study were carefully selected and reviewed. It was deduced from the study that the major areas of recent advances in the construction sectors globally are in areas of drones and robotics, 3D printing, artificial intelligence, digitalization, building automation, smart buildings, building information modelling (BIM), sustainable materials and construction practice, circular economy, modular constructions, net zero energy buildings and climate resilient buildings. The study provided an update on these key areas of advances in Nigeria, assess key challenges affecting recent advances which included high initial costs, skill gap, resistance to change and insufficient technology for its integrations. The study affirms that, despite these challenges, recent advances have prospects of enhancing the efficiency, safety and project quality, innovation and competiveness, minimizing risk and increased building performance. The study recommends the role of awareness and advocacy, policies implementation and technology transfer to overcome the challenges of skill gap and resistance to change in technology.

Keywords: Current Advances, Challenges, Prospects and Nigeria Construction Industry

THE ETHICAL AND STRUCTURAL READINESS FOR AI INTEGRATION IN NIGERIAN UNIVERSITY ADMINISTRATION: A CASE OF FEDERAL UNIVERSITY OF EDUCATION, KONTAGORA

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Abstract

As the global academic landscape undergoes a seismic shift driven by automation, the integration of Artificial Intelligence (AI) into Nigerian university administration presents a dual reality of transformative potential and systemic vulnerability. This study evaluates the ethical and structural readiness of Nigerian higher education institutions to adopt AI-driven systems for administrative governance. The research identifies a significant readiness gap as well as high enthusiasm among university stakeholders. The study highlights critical concerns regarding data privacy, algorithmic bias, and academic integrity. In the Nigerian context, the lack of robust national and institutional AI governance frameworks creates a vacuum where student data is vulnerable to misuse. Furthermore, the digital divide poses an ethical dilemma; AI adoption may inadvertently favor well-funded urban universities, further marginalizing rural and state-owned institutions. The study suggests that while Nigerian universities possess the human capital to innovate, they lack the structural alignment between policy and technology. The study concludes that for AI to serve as a tool for effective administration—rather than a source of further inequity—Nigerian higher education institutions must Establish Institutional AI Ethics Boards to oversee data governance and also prioritize Public-Private Partnerships (PPP) to fund specialized ICT infrastructure.

Keywords: Ethical, Structural, Readiness, Artificial intelligence, University

TEACHERS' READINESS FOR ARTIFICIAL INTELLIGENCE (AI) INTEGRATION IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM) CLASSROOMS IN COLLEGES OF EDUCATION IN BAUCHI STATE, NIGERIA.

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Abstract

This study investigates teacher's readiness for Artificial Intelligence (AI) integration for Teaching Science, Technology, Engineering and Mathematics (STEM) in Colleges of Education in Bauchi State, Nigeria. The rapid expansion of AI technology in education has created both opportunities and challenges for teacher preparation in institution. Using a mixed-methods research design, the study will combine quantitative data and qualitative research design to examine the technological competence, pedagogical readiness, ethical awareness, and institutional support factors for influencing the AI integration. in teaching the population consists of STEM lecturers in college of Education across Bauchi State. Data will be analyzed using descriptive statistics, regression analysis, and thematic analysis. The findings are expected to inform policy, curriculum reforms, and professional development strategiesfor AI integration in Nigerian teacher education.

REGULATING ARTIFICIAL INTELLIGENCE: LESSONS FOR DEVELOPING COUNTRIES FROM GLOBAL BEST PRACTICES (A CASE STUDY OF WEST AFRICAN COUNTRIES)

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Abstract

Artificial Intelligence (AI) is increasingly shaping economic development, public governance, healthcare, security, and social interaction worldwide. While AI technologies offer significant opportunities for innovation and growth, they also raise complex legal, ethical, and governance challenges, particularly for developing countries with limited regulatory capacity. Concerns relating to accountability, data protection, algorithmic bias, transparency, and liability for AI-related harm remain insufficiently addressed in many emerging economies. In West Africa, rapid AI adoption is occurring in the absence of comprehensive and coordinated regulatory frameworks. This paper adopts a multidisciplinary and comparative approach to examine global best practices in AI regulation and assess their relevance for developing countries, using selected West African states as case studies. Drawing on international frameworks such as the European Union's Artificial Intelligence Act, the OECD AI Principles, and UNESCO's Recommendation on the Ethics of Artificial Intelligence, the study analyses key governance themes, including risk-based regulation, institutional oversight, ethical safeguards, and accountability mechanisms. The paper identifies regulatory gaps and capacity constraints in West African countries and proposes context-sensitive policy recommendations aimed at balancing innovation with social protection. It contributes to global discourse on responsible AI governance in developing regions.

Keywords: Artificial Intelligence, Regulation, Developing Countries, West Africa, Governance.

ARTIFICIAL INTELLIGENCE IN EDUCATION AND ITS ROLE IN ACCELERATING SUSTAINABLE ENERGY TRANSITIONS IN ECOWAS.

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Abstract

Economic growth in the 21st century is increasingly influenced by the interaction of sustainable energy, artificial intelligence in education, digital infrastructure, and human capital. They strengthen one another to bring about efficient development cycle. Sustainable energy increases productivity across sectors as it represses long-term production costs and, minimises operational risks. Availability of efficient digital infrastructure improves the E-commerce, digital finance with innovative ecosystems. This invariably lessens the transaction costs, increases market access, and integrates economies into global value chains. Artificial intelligence in education institutionalises adaptive learning systems, real-time performance with adequate support for remote and lifelong learning. This directly upgrades the workforce capabilities leading to effective human capital development. The nations human capital drives technology adoption, improves labour productivity and support research. Reflecting on these, the study used annual panel data sourced from WDI and UNESCO from 2000 to 2024 to examine artificial intelligence in education and its role in accelerating sustainable energy transitions in Sub-Saharan Africa. Sustainable energy transition (SUSET) serves as the dependent variable. Artificial intelligence in education (AIEDU) and digital infrastructure (DIGINF) were the independent variables while human capital (HUMCAP) and economic growth (GDPK) serve as the mediating and the control variable respectively. Panel Generalized Method of Moments and Panel Fully Modified Least Squares were utilized to estimate the short and long run cointegrating relationships. Result showed that AIEDU and DIGINF significantly positively relates with SUSET. 1 unit increase in AIEDU and DIGINF improves SUSET by 0.36 and 0.115 units respectively. HUMCAP and GDPK does not technically lead to improvement in SUSET with their insignificant values. Implication from the study shows that technology-empowered knowledge systems determine the long run growth in SUSET, therefore countries in ECOWAS should engraft AI into their national education systems to support green transformation with adequate investment in digital infrastructure.

keywords: Sustainable Development, Economic Growth, Human Capital, Energy

JEL Classification: Q01, O47, E24, P28, Q43

ARTIFICIAL INTELLIGENCE, CYBER SECURITY AND ORGANIZATIONAL FINANCING IN A THIRD WORLD ECONOMY

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Abstract

The rapid integration of Artificial Intelligence (AI) into global business ecosystems has redefined operational efficiency, data management, and decision-making. However, in Third World economies, the intersection of AI, cybersecurity, and organizational financing presents a complex paradox of opportunity and vulnerability. This paper explores how developing nations can leverage AI to strengthen financial systems while addressing cybersecurity threats that undermine institutional stability. It examines the financial implications of AI adoption, the growing risk of cyber-attacks targeting under-secured infrastructures, and the economic cost of data breaches on public and private organizations. Using case studies from Africa and other emerging markets, the study highlights the dual role of AI—as both a tool for financial innovation and a potential vector for digital exploitation. The paper concludes by proposing strategic frameworks for policy integration, digital literacy enhancement, and multi-sectoral investment in secure AI infrastructure to ensure sustainable financial development in the context of a Third World economy.

Keywords: Artificial Intelligence, Cybersecurity, Organizational Financing, Third World Economy, Digital Transformation, Financial Innovation, Data Protection.

THE RELATIONSHIP BETWEEN SCHOOL CULTURE AND ACADEMIC SUCCESS: A STUDY OF TWO SCHOOLS IN SHENDAM LGA

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Abstract

This study examined the relationship between school culture and students' academic success in two selected schools in Shendam Local Government Area (LGA). The study focused on key components of school culture, including school values and norms, school vision, mission and values, continuous assessment practices, social and cultural activities, and teacher–student interactions, and how these factors influence students' academic performance. A descriptive research design was adopted. The population comprised 2,064 teachers and students from the two selected schools, from which a sample of 335 respondents was determined using the Taro Yamane formula. A multi-stage sampling technique involving stratified and convenience sampling methods was employed to select participants. Data were collected through a structured questionnaire and analysed using descriptive statistics and inferential tools, specifically Pearson Chi-square and logistic regression. The findings indicated that school values and norms (mean = 3.52), continuous assessment practices (mean = 3.45), social and cultural activities (mean = 3.60), and teacher student interactions (mean = 3.68) had significant positive influences on students' academic success. However, the school's vision, mission, and value statements showed a comparatively weaker influence (mean = 2.48). The Pearson Chi-square results revealed statistically significant relationships between academic success and continuous assessment practices ($p = 0.000$), social and cultural activities ($p = 0.000$), and teacher-student interactions ($p = 0.000$), leading to the rejection of the null hypotheses. Based on these findings, the study recommended that school administrators should strengthen teacher student relationships, effectively implement continuous assessment systems, reinforce shared school values and norms, and promote social and cultural activities that support learning. The study further suggested that future research should explore the long-term effects of school culture on academic success across a wider range of schools.

Keywords: Culture; Academic Success; Study; Shendam LGA

SECONDARY SCHOOL STUDENTS' ATTITUDES TOWARD ICT IN KALTUNGO, GOMBE STATE, NIGERIA

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Abstract:

This study will assess the attitudes of senior secondary school students towards Information and Communication Technology (ICT) in the Kaltungo Local Government Area of Gombe State, Nigeria. Recognizing ICT as a critical educational tool for the 21st century, the research will investigates the level of student awareness, perceived utility and underlying factors shaping their disposition. A descriptive survey design will be employed, collecting data via structured questionnaires from a sample of *Six hundred (600)* senior secondary students *from six public schools in Kaltungo Local Government area*. I hope the findings may indicate a generally positive attitude among students, who acknowledge ICT's importance for academic success and future opportunities. However, these positive dispositions may be significantly constrained by infrastructural deficits, limited access to functional hardware and software, and inadequate practical exposure, mirroring challenges identified in broader regional studies. Recommendations will be provided for policymakers and school administrators, focusing on strategic investment in infrastructure, curriculum integration, and teacher support to bridge the gap between attitude and practical ICT utilization. Furthermore, *intensifying ICT education, organization of seminars, conferences, workshops and orientation programs based on ICT and provision of incentive for potential and existing ICT beneficiaries among others.*

Keywords: ICT, Student Attitudes, Secondary Education, Digital Divide, Educational Technology.

IMPROVING RESEARCH PERFORMANCE EFFICIENCY IN FEDERAL POLYTECHNIC KALTUNGO USING E-LEARNING STRATEGIES

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Abstract

This study aims to identify e-learning strategies and examine their relationship with the enhancement of research performance efficiency at Federal Polytechnic Kaltungo, Gombe State, Nigeria. The research will adopt an analytical descriptive approach, utilizing a questionnaire as the primary instrument for data collection. The study population comprises 110 members of the institution's senior management. A stratified random sampling technique will be employed to select the sample, and data will be analyzed using the Statistical Package for the Social Sciences (SPSS). It is anticipated that the findings will provide the Polytechnic Management with a basis for establishing a dedicated e-learning budget and encouraging employees to consistently utilize e-learning strategies. Furthermore, the study is expected to underscore the importance of adopting and supporting outstanding research, as well as the need to promote interest in the implementation of policies aimed at the development of scientific research.

Keywords: E-learning strategies, research performance efficiency, senior management, analytical descriptive approach, SPSS.

AI AND EDUCATIONAL MANAGEMENT IN AFRICA OPPORTUNITIES AND CHALLENGES

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Artificial Intelligence (AI) is transforming governance structures across sectors, including education. This paper critically examines the integration of AI into educational management with emphasis on administrative efficiency, strategic planning, data-driven decision-making and student support systems. Grounded in systems theory, technology acceptance theory and data

driven decision-making frameworks, the study explores how AI technologies such as machine learning, predictive analytics, and natural language processing reshape institutional leadership and operational models. Drawing from global and African case evidence, the paper identifies both opportunities and structural challenges, including infrastructure limitations, ethical concerns, algorithmic bias, and institutional readiness gaps. The findings suggest that AI adoption in educational management must be guided by comprehensive policy frameworks, governance models and sustained capacity-building initiatives. The paper concludes that AI represents not merely a technological innovation but a strategic reform instrument capable of advancing institutional effectiveness and educational quality.

Keywords: Artificial Intelligence, Educational Management, Administrative efficiency, Strategic planning and Data driven decision making.

UTILISATION OF ARTIFICIAL INTELLIGENCE IN THE DETERMINANTS OF EFFECTIVE TAX RATE OF LISTED NON FINANCIAL FIRMS IN NIGERIA

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Being abstract of a paper to be presented at the ODI12th Academic International Conference for Scholars and Reseachers 2026
22nd-26th June, 2026

Abstract

The factors influencing the listed non-financial enterprises' effective tax rate in Nigeria were investigated in this study. Additionally, it examined how Nigeria's quoted non-financial companies' financial performance was impacted by their effective tax rate. This research made use of secondary data. The audited financial statements of the chosen quoted non-financial firms for the years 2016 to 2025 provided information on a number of different factors, including effective tax rate, cash flow, capital expenditure, growth opportunity, firm size, leverage, liquidity, age of the firm, return on asset, tax savings, board size, and managerial ownership. Percentage, pooled OLS, fixed effect, and random effect were used to analyze the data. The findings showed that, between 2016 and 2025, the effective tax rate trend for Nigerian non-financial listed firms was more downward than upward. The Effective Tax Rate decreased by 7.63% between 2016 and 2017. it has been established that there is significant correlation between the two variables leading to good explanatory capability on the part of ETR. It was equally established that if ETR is to be considered in explaining ROA, we will have the capability to explain 50% of changes occurring in ROA while other variables are responsible for the remaining 50% of changes. It was also established that neglecting the impact of ETR on ROA will result in an ROA value that is lesser to the expected (mean) ROA. According to the study's findings, Nigerian non-financial listed firms' performance was significantly impacted by the Effective Tax Rate (ETR).

Keywords: Effective Tax rate, financial performance, capital expenditure, firm size, Board size

INTEGRATING ARTIFICIAL INTELLIGENCE INTO ENGINEERING COURSES IN POLYTECHNICS: APPLICATIONS, CHALLENGES, AND A STRATEGIC FRAMEWORK

A CONFERENCE PAPER

By

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Abstract

The rapid advancement of technology and innovation has positioned Artificial Intelligence (AI) as a transformative force, revolutionizing engineering practice. Polytechnic education occupies a unique position in the higher education landscape, with its focus on applied learning, technical skills, and practical competency within technological innovations. Therefore, the integration of AI into polytechnic engineering programmes is not merely an academic exercise; it is an essential evolution to maintain engineering curricula that are relevant and responsive to industry needs. This integration presents both a significant challenge and a critical opportunity for polytechnic institutions. This paper presents a comprehensive analysis of AI integration across six (6) core engineering disciplines: Agricultural, Civil, Computer, Chemical, Electrical and Mechanical Engineering. Through a qualitative evaluation of AI application areas, tools, educational benefits, and implementation challenges, key trends and barriers are identified. The findings indicate that AI significantly enhances practical problem-solving, simulation capabilities, and industry readiness. However, widespread adoption is impeded by high infrastructure costs, data security concerns, limited faculty expertise, and gaps in computational resources. To address these challenges, this paper proposes a three-tier strategic framework encompassing contextual curriculum integration, continuous faculty development, and scalable infrastructure investment. This framework provides an actionable roadmap for polytechnic institutions seeking to prepare a future-ready engineering workforce.

Keywords: Artificial Intelligence (AI); Engineering Courses; Polytechnics; Curriculum Development; Applied Learning; Technical Skills; Implementation Framework

INTEGRATING ARTIFICIAL INTELLIGENCE INTO FISH POST-HARVEST TECHNOLOGY EDUCATION IN AFRICA: A FRAMEWORK FOR SUSTAINABLE FOOD SECURITY, CURRICULAR REFORM, AND CONTEXT-AWARE INNOVATION

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Abstract

The integration of Artificial Intelligence (AI) into African higher education curricula is increasingly regarded as essential for sustainable education reform in the 21st century. Within the fisheries sector, post-harvest losses remain a critical challenge undermining food security, economic stability, and livelihood sustainability across sub-Saharan Africa. Despite advancements in fish processing and preservation, inefficiencies in quality control, storage monitoring, cold-chain logistics, and market forecasting persist. This paper argues for the systematic integration of AI-driven tools into fish post-harvest technology education as a transformative pathway toward reducing losses, enhancing quality assurance, and strengthening food systems resilience.

Drawing from post-harvest loss frameworks and digital transformation models, the study proposes a curriculum reform model that embeds machine learning, predictive analytics, computer vision, Internet of Things (IoT), and decision-support systems into fisheries education. However, the paper also engages critically with the philosophical debate surrounding AI adoption in African universities, particularly concerns of epistemological dependency, technological neo-colonialism, and marginalization of indigenous processing knowledge. It advocates for a context-aware, Afrocentric AI development model that positions African institutions as co-creators rather than passive consumers of AI technologies. The paper concludes with strategic recommendations for policy, institutional capacity building, and interdisciplinary collaboration to ensure sustainable integration of AI in fisheries education for long-term food security transformation.

Keywords: Artificial Intelligence, Fish Post-Harvest Technology, Curriculum Reform, Food Security, Africa, Sustainable Education, Indigenous Knowledge Systems

INTEGRATING ARTIFICIAL INTELLIGENCE TOOLS INTO ACCOUNTING CURRICULUM: READINESS OF NIGERIAN UNIVERSITIES

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Abstract

Artificial Intelligence (AI) is rapidly transforming the accounting profession through automation, predictive analytics, and intelligent auditing systems. As organizations increasingly adopt AI-driven technologies, universities must adapt accounting curricula to equip graduates with the digital competencies required in modern financial environments. However, the readiness of universities in developing countries to integrate AI technologies into accounting education remains underexplored. This study examines the readiness of Nigerian universities to integrate AI tools into accounting curriculum. Drawing on the Technology Acceptance Model (TAM), Diffusion of Innovation Theory, and the Technology–Organization–Environment (TOE) framework, the study investigates the influence of AI awareness, technological infrastructure, faculty AI competency, and institutional support on the integration of AI tools in accounting education. A quantitative research design using a cross-sectional survey was adopted. Data were collected from accounting lecturers and final-year accounting students across selected Nigerian universities using structured questionnaires. Structural Equation Modeling (SEM) was employed to test the hypothesized relationships among the study variables. The findings indicate that AI awareness, technological infrastructure, faculty competency, and institutional support significantly influence the integration of AI tools into accounting curriculum. Among these factors, AI awareness and faculty competency demonstrate the strongest effects on curriculum integration. The study provides empirical evidence on institutional readiness for AI-driven accounting education and offers policy recommendations for curriculum reform, technological investment, and faculty development in higher education institutions. These findings contribute to the growing literature on digital transformation in accounting education and highlight the importance of aligning academic training with the technological evolution of the accounting profession.

Keywords: Artificial Intelligence, Accounting Education, Curriculum Integration, Faculty Competency, Technological Infrastructure, Nigerian Universities.

ARTIFICIAL INTELLIGENCE APPLICATIONS IN POULTRY HEALTH MONITORING AND PRODUCTION OPTIMIZATION

By

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Abstract

Artificial intelligence (AI) is progressively transforming poultry production through the adoption of machine learning techniques, computer vision systems, sensor technologies, and data-based decision support tools designed to enhance productivity, animal welfare, and farm management efficiency. The continuous growth in global demand for poultry products, alongside persistent challenges such as disease prevalence, fluctuating environmental conditions, labour constraints, and expensive production, has accelerated the shift from traditional husbandry practices toward precision-based intelligent farming systems. AI applications facilitate monitoring of flock health, housing conditions, and production outputs using real-time information generated from cameras, acoustic monitoring devices, and Internet of Things (IoT) sensor networks. Advanced deep learning approaches, including convolutional neural networks and automated object detection models, have demonstrated strong capability in identifying early disease symptoms, behavioral abnormalities, carcass defects, and welfare concerns, thereby enabling prompt management intervention and minimizing mortalities. AI-driven predictive models further support feed management, egg production, and environmental regulation through automated control of ventilation, temperature, lighting, and feeding operations. These smart technologies promote efficient utilization of resources while reducing human-related errors and operational inconsistencies. Evidence also indicates that AI integration enhances sustainability by lowering energy usage, strengthening biosecurity surveillance, and enabling data-guided management decisions in poultry enterprises. Nevertheless, large-scale adoption remains limited due to high capital requirements, inadequate datasets, infrastructure challenges, and insufficient technical expertise among producers. This study critically reviews existing applications, advantages, constraints, and emerging developments in AI-enabled poultry production, emphasizing scalable and economically viable solutions suitable for both commercial and smallholder farming systems while outlining future prospects for explainable, multimodal, and adaptive intelligent technologies.

Keywords: Poultry, Artificial intelligence, technology, biosecurity, egg production

ENHANCING FOOD SECURITY THROUGH PREDICTIVE ANALYTICS: A COMPARATIVE MACHINE LEARNING ANALYSIS OF CROP YIELD DYNAMICS IN DEVELOPING AFRICAN ECONOMIES

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Abstract

Food security remains a pressing challenge across Africa, shaped by population pressure, land constraints, and uneven access to energy and infrastructure. This study uses a time-aware machine learning framework to analyze crop yield dynamics in Nigeria, Ethiopia, South Africa, and Egypt, applying Random Forest, XGBoost, Support Vector Regression, and an Artificial Neural Network within a rolling-origin setting. The findings reveal clear country differences: Random Forest performs best in Nigeria ($R^2 = 0.928$) and South Africa, while the ANN is more effective in Ethiopia, where yields are more volatile. In Egypt, results are mixed, with Random Forest producing the lowest errors and SVR offering the strongest explanatory power. Key drivers also vary by context, with land factors dominating in Nigeria, energy access in Egypt and Ethiopia, and urbanization and electrification in South Africa. Overall, the results highlight the importance of country-specific modeling and targeted policies to strengthen agricultural productivity and long-term food security.

Keywords: Artificial intelligence; Crop yield prediction; Food security; Machine learning models; Energy and land-use dynamics; Sub-Saharan Africa

INTEGRATION OF AI INTO THE TEACHING OF CHEMISTRY IN TERTIARY INSTITUTIONS IN PLATEAU STATE, NIGERIA

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Abstract

The rapid advancement of artificial intelligence (AI) presents unique opportunities for enhancing educational practices in tertiary institutions. This study explores the integration of AI technologies in the teaching methodologies employed at universities and colleges in Plateau State, Nigeria. With the rapid advancement of technology and its influence on education, the adoption of AI offers innovative approaches to enhance the chemistry curriculum, foster engagement, and improve student learning outcomes. The research examines current teaching practices, identifies the challenges faced by educators in incorporating AI tools, and assesses the potential benefits of AI, including personalized learning experiences and improved resource accessibility. Through a mixed-methods approach involving surveys and interviews with 50 educators and 150 students which were carefully selected through stratified random sampling for proper representation. The findings shows Infrastructure deficiency, resistance to change, training needs. The research therefore recommends among others Strategic planning, stakeholder collaboration and professional development which will contribute to the development of best practices for implementing AI in chemistry education, ultimately aiming to prepare students for a technology-driven workforce and promote scientific literacy in the region.

Key words: integration, AI, Teaching, tertiary institutions

ARTIFICIAL INTELLIGENCE AND FOOD SECURITY: OPTIMIZATION OF FERMENTED SORGHUM-SOYBEAN COMPLEMENTARY FOODS FORTIFIED WITH PROVITAMIN A AND PROTEIN

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Abstract

Food insecurity and infant malnutrition remain critical public health challenges across Sub-Saharan Africa. As African higher education moves toward sustainable reforms, integrating Artificial Intelligence (AI) into higher education curricula offer transformative potential for sustainable food innovation and security. This study developed and evaluated four formulations of fermented sorghum–soybean (FS-SB) complementary foods fortified with carrot (provitamin A) (4%) and egg white (protein) (3%). These food formulations, FS-SB 1 – FS-SB 4 (60:30, 50:40, 40:50, and 30:60) were compared with commercial Akamu/Ogi (100%) as control - a benchmark for AI - based nutrient optimization. Sorghum grains, soybean, and carrots purchased from local grocery were cleaned, fermented (24-48h), dried, milled, and sieved into flour for analysis. The nutritional, microbiological quality and sensory properties were assessed using standard analytical procedures. Proximate analysis revealed that FS-SB4 (30:60) had the highest protein (22.88%) and energy (377.76 kcal/100g), significantly exceeding WHO/FAO minimum requirements for complementary foods. The pH stability of 6.16 – 6.21 were acceptable, while the microbial counts were within the permissible limits. Sensory evaluation using 20 panelists showed that FS-SB4 was the most preferred (overall acceptance: 8.80). Statistical analysis (ANOVA, $p < 0.05$) confirmed significant improvements in vitamin A, C, and carotenoid contents across all fortified samples. The study demonstrates that these empirical datasets are essential for training in AI algorithms to predict infant nutritional outcomes, thereby, reducing the cost and time of trial-and-error in laboratory experiments. Therefore, integrating such "Smart Food Formulation" modules into African Higher Education curricula is necessary for 21st-century sustainable education.

Keywords: Artificial Intelligence, Food Security, Sorghum-Soybean, Complementary Foods, Higher Education Reform, Africa.

ASSESSMENT OF AI AS A TOOL FOR PEST AND DISEASES OUTBREAK FORECASTING IN NIGERIA FOR SUSTAINABLE PEST AND DISEASES MANAGEMENT.

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Abstract

This study assessed the potential of AI as a tool for forecasting pest and diseases outbreaks in Nigeria. Pest and diseases infestations pose a significant threat to food security, farmer livelihood and national economic stability. Traditional forecasting methods merely rely on manual surveillance, historical trend analysis and fragmented extension services, which are limited in timeliness, spatial coverage and predictive accuracy. AI-driven approaches such as machine learning, deep learning and remote sensing analytics offer opportunities to enhance early warning systems through the integration of climatic variables, satellite imagery, soil data and real time field reports which together provides great potential in handling issues of food security in Nigeria. The study employs empirical literature survey through online data sources particularly Goggle Scholar and academia to evaluate the effectiveness, reliability, and scalability of AI based forecasting models in predicting pest and diseases outbreak across different agronomic fields in Nigeria. The study look at the commonly used algorithms including Artificial Neural Network (ANN), Random forest and support Vector Machines (SVM) in terms of predictive performance and adaptability to local data constraints. The study also considered infrastructural challenges, data availability, technical capacity and policy readiness influencing AI adoption. The findings suggest that AI based forecasting significantly improve outbreak prediction accuracy when trained on high quality, localized datasets and integrated with metrological and geospatial information systems. However, inconsistent data collections, limited digital literacy among farmers, technical skill gaps, poor infrastructural facilities couple with inadequate institutional coordination remain critical barrier. The study concluded AI based forecasting has strong prospect in pest and disease management and in ensuring food security if all limitations were taken care off.

Keyword: AI, Pest, Diseases, Outbreak, Nigeria.

AI AND THE FIGHT AGAINST CORRUPTION IN NIGERIA: A STUDY OF ICPC

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Abstract

Corruption has been widely defined as an abuse of entrusted power for private gain. Its effect and consequences cannot be underscored. It undermines the rule of law, good governance and further creates poverty and inequality among individuals within society. Corruption has become a cankerworm within the fabric of the Nigerian Government. It affects both the developed and underdeveloped, small and big Nations state. However, several efforts were put in place by the Nigerian government to combat, mitigate and prevent corruption among public office holders, through the establishment of various regulatory agencies, such as Economic and financial crimes commission (EFCC) and independent corrupt practices and other related offences commission (ICPC) and were given the mandate to fight corruption in all its ramifications. Nigerian officials over the years are estimated to have embezzled between 380 and 440 billion USD from 1960 to 1999 and 4 to 8 billion USD annually from 1999 to date. This paper therefore seeks to examine the impact of the adoption of AI and related technology in the fight against corruption by the ICPC. The work is an impact assessment study and therefore adopts a survey method. Both primary and secondary sources of data collection will be employed by the study while thematic methods of data analyses will be used. Result of the study revealed that, significant frauds were detected using AI especially in the fields of procurement, award of contract and payments in different ministries, Departments and agencies (MDA's) in Nigeria.

Keywords: AI, Corruption, ICPC, Good Governance, North Eastern Nigeria

THE UTILIZATION OF RENEWABLE ENERGY HYBRIDIZATION AND AUTOMATION, FOR THE DESIGN AND IMPLEMENTATION OF SUSTAINABLE CONTINGENCY POWER SUPPLY SYSTEMS IN TERTIARY EDUCATION INSTITUTIONS IN NIGERIA: A CASE STUDY OF THREE SCIENCE LABORATORIES IN SLT COMPLEX BUILDING OF HUSAINI ADAMU FEDERAL POLYTECHNIC, KAZAURE, NIGERIA.

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Abstract:

HOMER Microgrid Simulation and Optimization was used for the design, simulation and optimization of a Hybrid Wind-Solar Power Supply System (with Back-Up Generator), to serve as an uninterruptible contingency electrical power supply to research students and staff working in three science laboratories of SLT Complex Building, School of Science. A minimal list of system components was made and the 24-Hour Load Profile was drawn following an energy audit. The monthly average Wind and Solar resource data was obtained for Kazaure Metropolis (Lat 12.65 North and Long 8.41East). This data was loaded into HOMER Legacy Software, together with the system components and their operational costs and output sizes. The simulation was run and the results gave a prioritized list of four most technically feasible and economically most cost-effective system configurations. The first one with 1400W of PV panels, 200AH of batterieas, a 3.5kVA inverter and 2kVA Back-up generator has the lowest Initial Capital Cost of $1050.00 and a Total Net Present Cost of $4,047.00. With no wind turbine component, its performance is performance is not different from that of the second configuration that has a 1KVA generic wind generator in it. The third configuration with neither wind generator nor storage battery has a lower ICC($850.00) but very high NPC($19,934.00). It has almost the same NPC and Cost of Energy (COE) with the fourth configuration that has no storage batteries. Finally, a Sensitivity Analysis was carried out with the system load as the sensitivity variable to enable the upgrading of the system capacity using the optimized sensitivity results (with 40 rows).

Keywords: Simulation, Optimization, Sensitivity Analysis, hybrid wind-solar, Archimedes wind turbine.

ASSESSMENT OF HOUSEHOLD SANITATION BEHAVIOUR AND ITS IMPLICATIONS FOR COMMUNITY HEALTH IN SELECTED RURAL COMMUNITIES IN THE NORTHEAST, NIGERIA

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Abstract:

Poor environmental sanitation remains a significant challenge in many rural communities across northern Nigeria, where limited access to sanitation facilities and inadequate hygiene behaviour continue to expose residents to sanitation-related diseases. This study aims to examine household sanitation behaviour and its implications for community health in selected rural settlements of Gombe State, North-East Nigeria. The study will employ a cross-sectional survey design involving 150 household heads drawn from four rural communities within the study area. Data will be gathered through a structured questionnaire administered to household heads and an environmental sanitation observation checklist used to assess household surroundings, sanitation infrastructure, and waste disposal practices. The collected data will be analyzed using descriptive statistics such as frequencies and percentages, as well as inferential statistical techniques, including chi-square analysis, to examine the relationship between sanitation behaviour and common health outcomes such as diarrhoea and other sanitation-related illnesses. The study is expected to generate useful empirical evidence on the state of rural sanitation practices and their health consequences. The findings will provide relevant information for policymakers, local authorities, and development agencies in designing effective sanitation improvement programmes and strengthening community-based interventions aimed at promoting healthier living environments. The study also contributes to ongoing efforts toward the attainment of Sustainable Development Goal 6, which emphasizes access to safe water and improved sanitation for all.

Keywords: Household sanitation behaviour, rural communities, community health, Northeast, Nigeria, sanitation practices.

ARTIFICIAL INTELLIGENCE (AI) AND FOOD SECURITY IN AFRICA: PROSPECTS, CHALLENGES, AND POLICY PATHWAYS

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Abstract

This position paper examines the role of artificial intelligence (AI) in enhancing food security in Africa by assessing its prospects, identifying key challenges, and proposing effective policy pathways for sustainable adoption. The study synthesizes emerging literature, policy reports, and conceptual insights to evaluate how AI-driven innovations such as precision agriculture, climate forecasting, digital advisory services, and intelligent supply chain systems can transform Africa's food systems. The paper also interrogates structural constraints, including inadequate digital infrastructure, limited technical capacity, weak institutional frameworks, data governance concerns, and financing gaps that may hinder widespread AI deployment across the continent. The findings suggest that while AI holds significant promise for improving agricultural productivity, reducing post-harvest losses, strengthening climate resilience, and enhancing market efficiency, its impact will remain uneven without deliberate policy support and inclusive implementation strategies. The paper concludes that AI can become a catalytic tool for advancing food security in Africa if embedded within coherent digital agriculture strategies and supported by strong institutions. It recommends targeted investments in rural digital infrastructure, capacity building for farmers and extension systems, development of ethical and regulatory frameworks for AI governance, and strengthened public private partnerships to scale context appropriate AI solutions across African food systems.

Keywords: artificial intelligence, food security, digital agriculture, Africa, agricultural innovation, policy pathways

THE ROLE OF ARTIFICIAL INTELLIGENCE IN CIVIL ENGINEERING TECHNOLOGY: ENHANCING DESIGN, CONSTRUCTION, AND SAFETY

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ABSTRACT

Artificial Intelligence (AI) is rapidly transforming Civil Engineering Technology by improving efficiency, accuracy, safety, and sustainability across the entire infrastructure lifecycle. This paper examines the role of AI in enhancing civil engineering design, construction processes, and safety practices. Applications such as machine learning, computer vision, expert systems, and predictive analytics are discussed, alongside real-world case examples. The paper highlights the benefits, challenges, and future prospects of AI adoption in civil engineering technology.

Keywords: Artificial Intelligence, Civil Engineering Technology, Machine Learning, Smart Infrastructure, Construction Automation, Predictive Maintenance

AI-DRIVEN OPTIMIZATION-BASED INSTRUCTIONAL FRAMEWORK FOR TEACHING RENEWABLE ENERGY ENGINEERING IN DEVELOPING NATIONS

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ABSTRACT

The move for green energy structures around the world has increased the need for having qualified renewable energy engineers, especially in developing countries where energy shortage and infrastructure constraints are evident. In these situations, renewable energy engineering education is limited by insufficient laboratory equipment, lack of adequate instruction facilities, faculty deficits, and inflexible curricula. Artificial intelligence (AI) has proven to have significant potential to improve science and engineering education by adopting adaptive learning and intelligent tutoring systems, as well as learning analytics, but little is done to apply it to constrained resources. The paper suggests an AI-powered optimization-oriented instructional model in mounting renewable energy engineering training in developing countries. The framework combines adaptive learning algorithms with multi-objective optimization models in order to maximise learning results and the acquisition of practical competencies and minimise the instructional costs and the infrastructure requirements. An example of a Particle Swarm Optimization (PSO) simulation proves the framework has the potential to increase the efficiency of education, decrease the need to use physical laboratories and improve competency alignment. The research provides a cost-saving and scalable, context sensitive, route to augment renewable energy capacity, which underpins Sustainable Development Goals (SDGs) 4 and 7.

Keywords: Artificial Intelligence in Education; Renewable Energy Engineering Education; Instructional design based on optimization; Developing Nations; Adaptive Learning Systems; Sustainable engineering education; Learning environments with resource constraints.

ARTIFICIAL INTELLIGENCE (AI) AND ENTREPRENEURSHIP DEVELOPMENT: EVIDENCE FROM SELECTED WEST AFRICAN COUNTRIES

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ABSTRACT

This study investigates the impact of Artificial Intelligence (AI) on Entrepreneurship Development, with specific focus on firm revenue growth across selected West African countries from 2010 to 2025. The primary objective is to elucidate the dynamics of AI investment, emphasizing both its short-term challenges and long-term benefits for entrepreneurial firms. Employing an unbalanced panel dataset, the analysis utilizes the Cameron, Gelbach and Miller (2011) multi-way clustering (CGM) estimation technique to address heteroscedasticity and cross-sectional dependence. Robustness checks incorporate alternative AI proxies and a two-stage least squares instrumental variable (2SLS-IV) regression to mitigate potential endogeneity concerns. Findings revealed U-shaped relationship between AI investments and revenue growth, indicating that initial AI adoption may temporarily impede growth due to high upfront costs and operational inefficiencies. However, substantial long term revenue gains are observed as firms accrue experience and optimize AI integration. The results highlights that the strategic combination of AI with innovation initiatives significantly enhances entrepreneurial performance, whereas standalone AI investments are insufficient for sustainable growth. This research contributes to the emerging literature by providing empirical evidence on the dual-phase effects of AI investments and highlighting the importance of aligning AI adoption with broader innovation strategies. The study concludes with actionable recommendations for policymakers and business leaders to effectively leverage AI for sustained entrepreneurial success, emphasizing the need for strategic integration and supportive institutional frameworks.

Keywords: Artificial Intelligence (AI), Entrepreneurship, Resource-Based View Theory; West Africa.

AI TOOLS AND PRINCIPAL'S MANAGEMENT AMONG SECONDARY SCHOOLS IN IMO STATE NIGERIA

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ABSTRACT

Principals manage their schools and supervise all academic activities on daily basis. With improvement in Science and Technology, Principal's performances ought to improve and enhance academic excellence. This study examined the role of Artificial Intelligence (AI) among secondary schools in Imo State, Nigeria. It examined the role artificial intelligence plays in the school system for the purposes of raising quality and standard. A descriptive survey design was adopted for the study. The population consisted of all Principals in Imo State and other school administrators such as Vice Principals, from which a sample of 138 respondents were selected. Data was collected using a structured four Likert scale questionnaire. The instrument was validated and its reliability tested. Data collected were analyzed, using mean and standard deviation to answer research questions. From the study, it was revealed that various AI tools such as Robotic Process Automation (RPA), natural Language Processing (NLP), Machine Learning Models (MLM), etc. are impactful in Principal's management strategies. The result further showed that AI tools significantly support the day-to-day management and improve academic standard and quality. However, certain challenges such as lack of technical skills, inadequate facilities and resistance to change among others, were identified as major barriers to AI adoption. Based on the findings, it was concluded that AI tools play a vital role in enhancing academic standards among schools in Imo State. The study recommended that AI tools play a vital role in enhancing administrative efficiency of Principals in Imo State. Principals should be trained on the use of AI tools among others.

KEYWORDS: AI tools, Principals, Secondary Schools, Management

ASSESSING THE IMPACT OF ARTIFICIAL INTELIGENCE ON PROJECT MANAGEMENT OF CONSTRUCTION ORGANIZATIONS

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ABSTRACT

The integration of Artificial Intelligence (AI) is significant in transforming project management of construction organizations with the target of optimizing project effectiveness and efficiency. This study investigates AI's pivotal role in reshaping project management practices, with a particular focus on predictive analytics, risk detection, and informed decision-making. It harnessed the capabilities of machine learning, natural language processing, and advanced predictive models; assessed the role of AI in equipping project managers in anticipating potential challenges, emerging risks, and make data-driven decisions that enhance project outcomes, cost and schedule overruns, potential risks, and make well informed decisions. As projects becomes increasingly complex, the integration of AI has tendencies of enhancing efficiency, accuracy, and client value, reshaping traditional project management practices. The study identifies the influence of AI on project outcomes, emphasizing opportunities and challenges faced by organizations in adopting AI-enabled management approaches. A mixed-methods design was employed, combining surveys of 200 project managers with case studies from 10 organizations utilizing AI. Data analysis involved thematic review and statistical modeling. Findings revealed that AI integration contributed to 25% reduction in project timelines, a 30% improvement in cost planning accuracy, and a 40% decrease in risk-related issues. AI-powered insights facilitated proactive decision making and strengthened client value as project complexity increases, the study concluded that AI adoption is strongly associated with improved outcomes and greater organizational efficiency.

Keywords: Artificial intelligence, Project management, Construction organizations

GENOTOXIC AND PHYTOTOXIC EFFECTS OF HEAVY METALS ON ONION (*ALLIUM CEPA* L.) IN SOKOTO STATE

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ABSTRACT

The increasing prevalence of heavy metals in the environment poses a significant risk to agricultural productivity and public health. This study investigates the genotoxic and phytotoxic effects of heavy metals on onion (*Allium cepa* L.), focusing on soil and onion samples collected from Tambuwal, K/Kware and Wamako Fadama. Soil and onion samples were subjected to acid digestion, and heavy metal concentrations (Fe, Cu, Pb, Cd, Cr) were quantified using Atomic Absorption Spectrophotometry (AAS). Bioaccumulation was evaluated by growing onions in lead-contaminated solutions (0–500 mg/L) and analyzing plant tissues using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Genotoxicity was assessed through DNA extraction via the CTAB method. Results revealed notable variations in heavy metal concentrations among the sampling locations. Iron (Fe) was the most abundant metal, with mean concentrations ranging from 3.59–5.36 mg/kg in soil and 3.62–5.54 mg/kg in onion samples. Lead (Pb) and cadmium (Cd) were present at lower levels but exceeded safety thresholds in some samples, raising concerns about their potential bioaccumulation. Phytotoxicity analysis showed inhibited root and shoot growth at higher lead concentrations. This study highlights the environmental and agricultural implications of heavy metal contamination in Sokoto metropolis. Findings underscore the need for continuous monitoring of heavy metals in agricultural soils and crops, alongside implementing strategies to mitigate their impact. The insights provided could inform policy interventions to safeguard food security and public health.

Keywords: Heavy metal contamination; *Allium cepa* assay; Genotoxicity; Bioaccumulation; Food safety.

PROSPECTS AND CHALLENGES OF ARTIFICIAL INTELLIGENCE (AI) INTEGRATION IN FASHION DESIGN EDUCATION

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ABSTRACT

Artificial Intelligence (AI) is the application of intelligent system to enhance teaching, learning, and skill development across disciplines, including fashion design. The integration of Artificial Intelligence in Fashion Design Education is reshaping learning experiences by enabling personalized training, skill development and innovation. The transformation in fashion design education is significant through the adoption of AI, but its adoption presents both opportunities and challenges. This study examines the acceptance of AI technology in the fashion design education, specifically focusing on the prospects and challenges brought about by the integration of AI in fashion design education and proffer possible solutions. This study employed descriptive research approach, drawing on secondary data from recent scholarly publications and interviews conducted with some lecturers and students of Higher Institution. Findings revealed that AI significantly improves student engagement, enhances learning experiences by enabling personalized instruction, fostering creativity through tools such as generative design systems, virtual prototyping and readiness for industry demands but presents integration challenges. The significant challenges include limited access to technological infrastructure, inadequate digital skills among educators and students, ethical concerns, and the high cost of implementation. The study concludes that, despite the substantial opportunities the integration of AI presents in advancing fashion design education, its effective integration requires strategic investment in digital infrastructure, curriculum redesign, and capacity building for both instructors and learners. It is recommended that educational institutions adopt a balanced approach that combines traditional design principles with emerging AI technologies to ensure sustainable development and relevance in the evolving fashion industry.

Keywords: Artificial Intelligence (AI), Fashion Design, Education, Prospects and Challenges.

ARTIFICIAL INTELLIGENCE AS RELEVANT TOOL FOR RESEARCH IN BIOCHEMISTRY AND MEDICINE

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ABSTRACT

Biochemistry research remains an important bedrock in most healthcare related areas including medicine. It is well known that most diseases emerges as a result of deficiency of a specific hormone or enzyme in a metabolic biochemical pathways. Artificial intelligent (AI) is a relevant tool in clinical biochemistry research enhancing and enabling the analysis of complex datasets, molecular interactions predictions as well as accelerating drug discovery. Artificial Intelligence (AI) has become an indispensable paradigm in contemporary biochemistry and medical research, fundamentally reshaping methodologies for data analysis, hypothesis generation, and translational application. This review critically examines the role of AI-driven techniques particularly machine learning, deep learning, and integrative computational modeling in addressing complex biochemical and clinical challenges. In biochemistry, AI facilitates high-throughput analysis of omics datasets, enhances protein structure prediction, and enables the modeling of molecular interactions with a level of precision unattainable through conventional approaches. These capabilities are exemplified by advances in protein folding prediction, metabolic pathway reconstruction, and systems biology. In the medical domain, AI augments diagnostic accuracy, prognostic assessment, and therapeutic decision-making through the analysis of heterogeneous datasets, including medical imaging, electronic health records, and genomic information. Furthermore, AI-driven frameworks significantly accelerate drug discovery and development pipelines by enabling target identification, virtual screening, and predictive pharmacokinetics. Despite these advancements, the integration of AI into research and clinical practice presents critical challenges, including issues of data heterogeneity, algorithmic bias, interpretability, and ethical governance. This work underscores the transformative potential of AI as a research tool while emphasizing the necessity for rigorous validation, interdisciplinary collaboration, and robust regulatory frameworks. Ultimately, AI not only enhances the efficiency and depth of biochemical and medical research but also serves as a catalyst for precision medicine and next-generation healthcare innovation.

Keywords: Biochemistry, Artificial Intelligent, Diagnosis, Medicine, Datasets

TEACHER TRAINING AND READINESS FOR AI INTEGRATION IN THE DEVELOPING NATIONS

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ABSTRACT

The introduction of Artificial Intelligence (AI) in the education sector is transforming teaching, learning, and the management of institutions worldwide. Nevertheless, in developing countries, the successful implementation of AI is limited due to the lack of teacher readiness and insufficient professional training systems. In this paper, the authors have explored the issue of teacher training and readiness as key factors to success in the implementation of AI in education systems. Following a literature synthesis and policy review approach, the study reveals the important competencies needed in AI-enabling pedagogy, such as digital literacy, data-informed teaching, and ethical sensitivity. It also throws light on the ongoing issues of inadequate infrastructure, absence of specific initiatives to train people, change resistance, and inequality in access to technology. The paper suggests a strategic model in the improvement of teacher preparedness through persistent professional growth, redesign of the curriculum, and support mechanisms within the institution. It underlines the necessity of context-based training models that are relevant to the realities of developing countries. The research fits into the current debate by offering practical information to policymakers, educational leaders, and other stakeholders interested in realizing AI-based education changes. It concludes that teacher capacity needs to be strengthened in order to make sure that the introduction of AI results in a higher learning outcome, equity, and sustainable learning development.

Keywords: Artificial Intelligence, AI-enabled teaching, Teacher Training, AI Integration

AN AUTHOR-CENTRIC SCHOLARLY RECOMMENDER SYSTEM TO MITIGATE THE ITEM COLD-START PROBLEM

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ABSTRACT

The exponential growth of scholarly publications has created an information overload paradox: while more research is available than ever, finding relevant work has become increasingly difficult. This challenge is particularly acute for new researchers navigating unfamiliar domains. Scholarly recommender systems address this issue by suggesting relevant literature based on user interests or Papers of Interest (POI). However, existing systems face a persistent item cold-start problem, newly published papers lack citation histories and user interactions, rendering them invisible to collaborative filtering mechanisms. This paper proposes an enhanced content-based filtering approach that directly targets the item cold-start problem by integrating the author(s) feature with traditional metadata (title, abstract, keywords). Unlike hybrid systems that depend on citation networks, our approach operates effectively on newly published papers from the moment of release. Using the publicly available Scholarly Paper Recommendation Dataset (SchPaperRecData), which contains publications from 50 computer science researchers across ten specializations, we demonstrate that author feature integration significantly improves recommendation accuracy. Our method achieves Precision@30 of 93%, Recall@30 of 88%, F1@30 of 91%, and Mean Average Precision of 96%, substantially outperforming baseline approaches that rely solely on content metadata. Complexity analysis confirms the approach scales efficiently with manageable time (99.21 minutes) and space (5,034.44 GB) requirements for the full corpus. These results establish author-centric content-based filtering as a robust, immediately deployable solution to the item cold-start problem in scholarly recommendation.

Keywords: Recommender Systems, Cold-Start Problem, Scholarly Paper Recommendation, Content-Based Filtering, Author Feature, Information Retrieval.

ARTIFICIAL INTELLIGENCE (AI) AND APPLICATIONS FOR SERVICE DELIVERY IN ACADEMIC LIBRARIES: AN OVERVIEW

by
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ABSTRACT

Artificial intelligence (AI) is ushering in a new era of efficiency, accessibility, and innovation by revolutionizing library services and improving user experience. Artificial intelligence application is one of the most significant modern technologies to emerge in recent years. These applications have significantly altered the role of institutions, particularly the scope of libraries and information. This study examines how artificial intelligence (AI) is changing libraries and bringing in a new era of productivity, accessibility, and creativity. The automation of repetitive chores like organizing and cataloguing, which librarians can now rely on AI algorithms to streamline, is the AI's most noteworthy contribution to libraries. This article presents a review on the application of Artificial Intelligence and the impact of Artificial Intelligence on library services. It further underscores how Artificial Intelligence improves library functions such as cataloguing, information retrieval, user engagement and resource management. The paper will explain the relevance of AI to the development of library services and provide a clear definition and overview of AI and its core applications.

Keywords: Artificial Intelligence, Libraries, Librarians, Robotics, Services

AI- DRIVEN MANAGEMENT OF EDUCATION IN SOUTH - SOUTH NIGERIAN PUBLIC UNIVERSITIES: IMPLICATIONS FOR NATIONAL COHESION AND GLOBAL GLOBAL COMPETITIVENESS

BY

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ABSTRACT

This study examined the role of Artificial Intelligence in the management of education in South South Public Universities in Nigeria. Two research questions and two hypotheses were developed to direct the study. The descriptive survey research design was adopted in this study. The population of the study was all the 22 public universities in South South zone of Nigeria. The census sampling technique was used to select the sample for the study. The sample for the study is two hundred and twenty (220) Heads of Department in the 22 public universities. The instrument used for the study was a self - structured questionnaire titled "Artificial Intelligence –Driven Management of Education Questionnaire" (AIDMEQ). The instrument was validated by two experts in the Measurement and Evaluation Department. A 4-point Likert type self-structured questionnaire of Strongly Agree, Agree, Disagree, Strongly Disagree was used to collect data. The questionnaire contained twenty (12) items. The data collected was analyzed using the mean and standard deviation for the research questions while the Pearson Product Moment Correlation Analysis was used to analyze the hypotheses. The items with mean score 2.50 and above were accepted while items with less than 2.50 were rejected. The findings revealed among others that AI tools aid in enrollment and performance tracking, AI tools can enhance research productivity in universities. Based on the findings, it was recommended among others that government should collaborate with some agencies to organize workshops and online courses to train administrators on the use of Artificial Intelligence (AI) tools in the management of education; government should collaborate and partner with technology companies and non-governmental organizations to provide schools with necessary resources and support for integration of Artificial Intelligence (AI) into the management of education.

Keywords: Artificial Intelligence, Education Management, National Cohesion and Global competitiveness

REIMAGING SCIENCE AND TECHNOLOGY EDUCATION IN AFRICA: HARNESSING ARTIFICIAL INTELLIGENCE FOR CURRICULUM INNOVATION AND SUSTAINABLE LEARNING OUTCOMES IN HIGHER INSTITUTIONS

By
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ABSTRACT

Science and Technology (S&T) education occupies a pivotal role in Africa's quest for sustainable development, yet its delivery in higher institutions remains constrained by outdated curricula, inadequate laboratory infrastructure, and limited engagement with emerging technologies. This paper investigates the integration of Artificial Intelligence (AI) into Science and Technology curricula in African higher institutions, framing it as both a philosophical necessity and a strategic imperative for 21st-century education reform. Grounded in the philosophy of science, critical pedagogy, and complexity theory, the study examines how AI tools including simulation platforms, intelligent tutoring systems, AI-driven laboratory environments, and predictive learning analytics can transform the quality and relevance of S&T education across Africa. Employing a systematic literature review and a qualitative multi-case study methodology across six African universities, the research uncovers persistent structural, philosophical, and institutional barriers to AI integration while documenting compelling models of innovation from early-adopter institutions. The study proposes the Contextual AI-Science Curriculum Integration Model (CAISCIM) as a scalable framework for S&T curriculum reform. Recommendations are directed at university leaders, governments, development partners, and the broader academic community committed to shaping an AI-empowered scientific culture in Africa.

Keywords: Artificial Intelligence, Science and Technology Education, Curriculum Innovation, Higher Education Africa, Intelligent Tutoring Systems, Sustainable Learning, Critical Pedagogy

AI-DRIVEN ANALYSIS OF CYBERSECURITY CHALLENGES AND THEIR IMPACTS ON NATIONAL DEVELOPMENT IN NIGERIA

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ABSTRACT

Growing cybersecurity threats are placing Nigeria's national development at increasing risk. This research applies AI-based methods to conduct an in-depth evaluation of cybersecurity challenges and their effects on Nigeria's development. The objectives are to assess the threat landscape, pinpoint policy deficiencies, and formulate strategic measures that bolster national resilience and foster a secure digital economy. The study employed a mixed-methods design, examining data from more than 500 cybersecurity incidents, over 100 expert surveys, and 30 stakeholder interviews involving policymakers, industry specialists, and security analysts. AI techniques such as machine learning classification, anomaly detection, and natural language processing of threat reports were used to identify patterns, prioritize risks, and model attack trends within financial, government, and critical infrastructure sectors. Policy instruments including the Cybercrimes Act 2024 and the National Cybersecurity Policy and Strategy were benchmarked against international best practices to identify gaps in regulation and enforcement. Findings indicate that Nigeria confronts substantial cybersecurity threats, with phishing and malware posing notable risks to critical infrastructure and digital services. Persistent policy gaps remain in legislation, regulation, inter-agency coordination, and enforcement capacity. AI-driven predictive models effectively identified high-risk sectors and attack vectors, showing potential to anticipate emerging threats and shorten detection times in simulated environments. The analysis also connects cybersecurity breaches to negative effects on GDP growth, foreign investment confidence, and public trust in e-government services. The study concludes that evidence-based, AI-informed strategies are essential for mitigating threats and supporting sustainable development. Core recommendations include establishing a national AI-powered threat intelligence hub, revising legal frameworks to address AI-enabled offenses, expanding investment in cybersecurity talent and public awareness, and formalizing public-private data sharing. Strengthening Nigeria's cybersecurity position through AI is vital to protect national development and advance a resilient digital economy.

Keywords: AI-driven insights, threats, policy gaps, cybersecurity, cybercrime

AI AND EDUCATIONAL MANAGEMENT

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ABSTRACT

This paper critically examines the integration of artificial intelligence (AI) in educational management within Nigerian Colleges of Education, with particular emphasis on its potential to enhance institutional effectiveness, accountability, and quality assurance. Amid persistent challenges such as limited resources, administrative inefficiencies, and fluctuating academic standards, AI-driven technologies— including predictive analytics, automated administrative systems, and intelligent decision-support tools—offer innovative pathways for reform. The study explores how AI can strengthen data-driven leadership by enabling real-time monitoring of student performance, staff deployment, and resource utilization across Colleges of Education in Nigeria. Adopting a mixed-methods approach, the paper draws on emerging practices and contextual realities within the Nigerian educational landscape. It further interrogates critical issues such as digital infrastructure deficits, data privacy concerns, ethical implications, and the preparedness of institutional leaders to adopt AI-based systems. The findings suggest that while AI holds significant promise for transforming educational management in Nigerian Colleges of Education, its successful implementation requires robust policy frameworks, targeted capacity building, and sustained investment in technological infrastructure. The paper concludes by proposing context-sensitive strategies for the responsible and equitable adoption of AI to improve governance and educational outcomes in Nigeria's teacher education sector.

Keywords: Artificial intelligence (AI), Education, College

ARTIFICIAL INTELLIGENCE AND CYBERSECURITY IN ICT SYSTEMS

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ABSTRACT

Data processing, service delivery, and worldwide connectivity have all changed as a result of the quick development of Information and Communication Technology (ICT) systems. However, systems are now vulnerable to sophisticated cyber assaults due to their complexity and interconnection. The use of Artificial Intelligence (AI) to improve cybersecurity in ICT systems is examined in this study. It addresses the difficulties and moral ramifications of AI-driven cybersecurity solutions in addition to covering AI applications for threat detection, risk mitigation, and real-time response. Lastly, it suggests future lines of inquiry to improve the synergistic integration of cybersecurity and AI frameworks.

Keywords: ICT, Cybersecurity, Artificial intelligence

FORECASTING MATERIAL FLOW EFFICIENCY AND WASTE GENERATION IN AFRICA CIRCULAR ECONOMY SYSTEMS USING RANDOM FOREST MODELS

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ABSTRACT

For Africa to achieve sustainable development and a viable circular economy, efficient material movement and waste management are essential. Nonetheless, increasing waste production, ineffective resource recovery, and a lack of data-driven planning frameworks persist in many African cities. This work uses operational, socioeconomic, and environmental characteristics to predict material flow efficiency and municipal solid waste output using Random Forest regression, an ensemble machine learning technique. To reflect realistic circular economy conditions in African urban systems and enable transparent scientific evaluation, an empirical framework based on simulation is used. Nonlinear correlations and intricate interactions between predictors including population increase, recycling rates, collection efficiency, and energy recovery capacity are captured by the suggested model. Random Forests exhibit greater prediction performance when compared to traditional regression models. In addition to predicting accuracy, variable significance metrics give policymakers and environmental managers useful assistance by delivering comprehensible insights into the factors that influence waste creation and resource recovery. The results showed how machine learning enhanced environmental management technologies for sustainable economic development and assist evidence-based circular economy planning.

Keywords: Circular Economy, Waste Generation Forecasting, Material Flow Efficiency, Random Forest Model

THE SIGNIFICANCE OF ARTIFICIAL INTELLIGENCE IN TEACHING ARABIC LANGUAGE TO NON- NATIVE SPEAKERS

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ABSTRACT

The field of foreign language teaching is currently witnessing the integration of artificial intelligence (AI) technologies, making education more interactive and flexible, while providing personalized learning environments tailored to learners' needs. The role of AI in teaching Arabic to non-native speakers is particularly prominent. Therefore, this modest research aims to highlight the various fundamental aspects of employing AI technologies and their importance in teaching Arabic to non-native speakers. The research problem lies in the imperative of using AI technology in teaching Arabic to non-native speakers, given the rapid pace of language learning. The research objectives are to identify the key aspects that facilitate Arabic language teaching to non-native speakers when AI technology is employed. The research methodology is descriptive and analytical, utilizing observation and relevant educational and linguistic texts. The findings indicate that AI represents an effective tool for enhancing the quality of Arabic language teaching to non-native speakers, provided it is integrated within a well-considered educational framework that preserves the cultural authenticity of the language and fosters human interaction.

Keywords: Artificial intelligence, Arabic language teaching, non-native speakers.

EFFECT OF ARTIFICIAL INTELLIGENCE ON FINANCIAL MANAGEMENT PRACTICES IN COLLEGES OF EDUCATION IN GOMBE STATE.

BY

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ABSTRACT

This study examined the effect of Artificial Intelligence on financial management practices in Colleges of Education in Gombe State, Nigeria. The study specifically investigated the effect of AI on budgeting practices, payroll processing, and financial reporting in Colleges of Education. A descriptive survey research design was adopted for the study. The population comprised bursary staff of Colleges of Education in Gombe State, from which a sample 112 was drawn using census sampling techniques. Data were collected through a structured questionnaire designed on a Likert scale. The instrument was validated by experts and its reliability of 0.85 was established using Cronbach Alpha. Data collected were analyzed using simple linear regression to test the formulated null hypotheses at 0.05 level of significance. The findings revealed that Artificial Intelligence has a significant effect on budgeting practices, payroll processing, and financial reporting in Colleges of Education in Gombe State. Specifically, the adoption of AI was found to improve efficiency, accuracy, and timeliness in financial management operations. Based on the findings, the study concluded that Artificial Intelligence is a critical tool for enhancing financial management practices in higher institutions. It was therefore recommended that Colleges of Education should invest in AI-driven financial systems and provide adequate training for bursary staff to enhance effective utilization. Additionally, policymakers should integrate AI-related competencies into accounting and financial management curriculum to ensure sustainable education reforms in the 21st century.

Keywords: Artificial Intelligence (AI), Financial Management Practices, Budgeting, Payroll Processing, Financial Reporting.

ARTIFICIAL INTELLIGENCE AND TALENT MANAGEMENT: BENEFITS AND CHALLENGES IN NIGERIA.

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ABSTRACT

Artificial Intelligence (AI) application in Talent Management is an essential element for managing the entire employee lifecycle in attaining strategic goal of an organisation as well as sustainable success. AI is an advanced technological device capable of performing tasks that typically requires human intelligence such as reasoning, learning, problem solving, and perception and understanding language. The integration of AI techniques and tools into talent management systems have helped organisations in the area of recruitment and employee screening with the use of chatbot and CV-screening software. Also, it has helped in employee performance analysis; learning and development. The paper made use of secondary data such as published text books, journals, magazines and internet materials. It was discovered that despite the benefits of AI tools, the implementation of these tools in Nigeria have been hindered with challenges such as inadequate infrastructure, shortage of skilled professional, financial cost, and ethical concerns. The paper concluded that AI integration in talent management will improve efficiency, productivity and can assist workers to get the work done faster with accurate result. It was recommended that various stakeholders such as government bodies, private sector players, academia, research institutions and international partners should collaborate to ensure adequate investment in infrastructure, professional development, strong data protection frameworks and establishment of AI in education policy in Nigeria. Also, AI tools that will enhance instructors and Human Resources Management (HRM) practices in the area of recruitment, selection, performance analysis and development of employees should be introduced into the teaching process and harmonize into the learning curriculum.

Keywords: Artificial Intelligence, Talent Management, Talent Acquisition, Talent Retention and Talent Engagement

LECTURERS' PERCEPTION ON THE UTILISATION OF ARTIFICIAL INTELLIGENCE FOR EDUCATION IN TERTIARY INSTITUTIONS IN KEBBI STATE

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ABSTRACT

This study explores lecturers' perceptions of the utilization of artificial intelligence (AI) in tertiary education institutions in Kebbi State. The rapid advancement of AI technologies presents both opportunities and challenges in educational contexts, necessitating an understanding of educators' viewpoints to effectively integrate these tools into teaching and learning processes. A mixed-methods approach was employed, combining quantitative surveys and qualitative interviews to gather comprehensive data from lecturers across various disciplines. The study adopted a descriptive survey research design. A sample of 271 lecturers were selected using Proportionate Stratified Randomly Sampling Technique. A researcher-designed structured questionnaire was used for data collection that was validated by four experts and pilot tested a reliability coefficient of 0.82 was obtained. Findings of the study revealed that lecturers rarely used AI with a grand mean of 1.85. Independent samples t-test analysis showed that $t = 1.730$, $p > 0.085$ indicating no significant difference in the mean response of male and female lecturers' level of utilization of AI. The findings reveal a generally positive attitude towards AI, with lecturers recognizing its potential to enhance personalized learning, streamline administrative tasks, and facilitate innovative teaching methods. However, concerns were raised regarding the adequacy of infrastructure, potential job displacement, and the need for professional development to effectively leverage AI technologies. Additionally, ethical considerations, including data privacy and algorithmic bias, emerged as significant points of discussion. In light of the findings, it was recommended among others that University management should regularly organise hands-on and professional training programmes and retreat for lecturers to teach with and effectively use AI.

Keywords: Perception, Utilization and Artificial intelligence

ARTIFICIAL INTELLIGENCE (AI) AND FOOD SECURITY IN NIGERIA: A REVIEW

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ABSTRACT

Food insecurity remains persistent in Nigeria despite abundant agricultural potential, driven by low productivity, weak infrastructure, and climate shocks. As global agricultural systems increasingly adopt Artificial Intelligence (AI) for weather forecasting, crop monitoring, disease detection and post – harvest loss reduction. This study examines its relevance for Nigeria's smallholder-dominated sector. The target population of the study is 4,342,706. The sample size of the study is 400 and this was obtained using Yamane (2012) sample size determination formula. The simple random and convenient sampling methods were used to select the sampled respondents. The structured questionnaire in the closed ended form was used to collect data from the respondents. The face and content validity measure were used to determine the validity of the instrument. Cronbach alpha test can be used to ascertain measure reliability of the research instrument, The study used both descriptive and inferential statistics to provide answer to the research questions and hypotheses derived from the statement of the problem. Mean was used to analyse the descriptive data. The criterion mean score of 2.50 was considered appropriate for the study to determine the respondents opinion based on their level of agreement to the items on the scale provided to measure respondents responses. Simple linear regression was used to test the hypotheses formulated to determine the linear relationship between the independent and dependent variables. This was done using the level of significant of 0.05. The Statistical Package for the Social Sciences (SPSS) version 23 was used to run the analysis. Findings show that while AI has improved yields and reduced costs in countries such as India, China, and Kenya, adoption in Nigeria remains minimal due to poor connectivity, low digital literacy, high costs, and weak policy coordination. The review highlights the need for localized, low-bandwidth, farmer-friendly AI tools and stronger data governance. It concludes that with improved rural infrastructure, capacity building, and support for local innovation, AI can significantly enhance Nigeria's food security.

Keywords: Artificial Intelligence, Food security, Digital Agriculture, Nigeria

CURRICULUM REFORM IN ISLAMIC STUDIES UNDER THE INFLUENCE OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) has significantly influenced educational systems worldwide, necessitating comprehensive curriculum reforms across disciplines. This study examines curriculum reform in Islamic Studies under the influence of AI, with particular focus on its implications for pedagogy, epistemology, and ethical integrity. The research adopts a qualitative and exploratory design, utilizing secondary data from academic literature, policy documents, and curriculum frameworks to analyze current trends and emerging issues.

The findings reveal that Islamic Studies curricula remain largely traditional, with limited integration of AI technologies. However, AI presents considerable opportunities for enhancing teaching and learning through personalized education, improved research capabilities, increased accessibility to Islamic knowledge, and efficient assessment systems. Despite these benefits, the study identifies critical challenges, including epistemological concerns, ethical risks, lack of infrastructure, and insufficient AI literacy among educators. The study further highlights the need for aligning AI integration with Islamic principles to ensure the authenticity and credibility of religious knowledge. A conceptual framework for curriculum reform is proposed, emphasizing the integration of AI literacy, ethical guidelines, capacity building, and context-sensitive technological adoption. The study concludes that effective curriculum reform in Islamic Studies requires a balanced approach that combines technological innovation with the preservation of Islamic values and intellectual traditions. It recommends strategic policy development, investment in infrastructure, and collaboration between scholars and technology experts to achieve sustainable and culturally relevant educational transformation in the AI era.

Keywords: Artificial Intelligence, Curriculum Reform, Islamic Studies, Educational Technology, Epistemology, Ethics

THE INTEGRATION OF ARTIFICIAL INTELLIGENCE (AI) INTO NIGERIAN COLLEGES OF EDUCATION PRESENTS TRANSFORMATIVE POSSIBILITIES FOR HUMAN RESOURCE MANAGEMENT (HRM) WITHIN THE TEACHER EDUCATION SYSTEM

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ABSTRACT

The integration of Artificial Intelligence (AI) into Nigerian Colleges of Education presents transformative possibilities for human resource management (HRM) within the teacher education system. By leveraging AI-driven tools for recruitment, performance evaluation, staff training, and workload optimization, institutions can enhance efficiency, transparency, and decision-making in managing human capital. This paper explores how AI can support HRM functions to build a workforce of educators and administrators equipped with 21st-century skills, fostering innovation and responsiveness to Nigeria's educational and socio-economic challenges. At the same time, the study critically examines ethical, cultural, and epistemological implications, including risks of bias in AI systems, potential marginalization of local knowledge, and the need to align AI adoption with Nigerian social and institutional contexts. Drawing on case studies and contemporary research, the paper argues that Nigerian Colleges of Education should position themselves not merely as consumers of AI technologies but as active co-creators, developing human-centered AI solutions for HRM that respect cultural values, enhance staff development, and promote organizational sustainability. In doing so, AI becomes a strategic lever for human-capital-driven innovation and educational reform in Nigeria.

Keywords: Artificial Intelligence (AI), Human Resource, Education

LEVERAGING ARTIFICIAL INTELLIGENCE IN PILOT TRAINING TO IMPROVE WEATHER AWARENESS, DECISION-MAKING, AND AVIATION SAFETY IN AFRICAN OPERATIONS

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ABSTRACT

The growing integration of Artificial Intelligence (AI) into aviation systems has significant implications for pilot training and flight safety, particularly within the African operational context where meteorological uncertainty, infrastructural limitations, and uneven data availability persist. This paper critically examines the role of AI-enabled tools in pilot training, with emphasis on weather interpretation, aeronautical decision-making, and human performance. While AI-driven flight simulators, predictive weather analytics, and intelligent performance-monitoring systems enhance situational awareness and risk anticipation, their increasing use raises concerns related to automation bias, skill degradation, and the erosion of pilot judgment in safety-critical environments. Drawing on aviation safety theory, human factors research, and applied aviation meteorology, the study positions AI as a decision-support aid rather than a decision authority in pilot training. The paper argues that in African airspace, characterized by rapidly evolving weather systems, limited surveillance coverage, and operational constraints, pilots must retain cognitive authority, adaptive reasoning, and responsibility for final decisions (ICAO, 2018; WMO, 2019). Overreliance on AI-generated outputs without critical evaluation risks undermining situational awareness and increasing latent safety threats. The paper engages debates on technological determinism, epistemic trust, and ethical responsibility in African professional practice. It challenges uncritical adoption of externally developed AI systems and advocates for a balanced human–machine interaction model that respects contextual realities and preserves pilot agency. The study concludes that sustainable integration of AI in pilot training must prioritize human judgment, reinforce core airmanship skills, and ensure that AI augments, rather than replaces, human decision-making in aviation operations.

Keywords: Artificial Intelligence; Pilot Training; Aviation Safety; Human Factors; Weather Decision-Making; Automation Bias; African Airspace

ARTIFICIAL INTELLIGENCE FOR SUSTAINABLE EDUCATION REFORM IN AFRICAN POLYTECHNICS

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ABSTRACT

Artificial Intelligence (AI) is reshaping global education systems and presents transformative opportunities for sustainable education reform in African polytechnics. This paper explores how AI can enhance teaching, learning, administration, and skills development while aligning with Sustainable Development Goals (SDGs). Drawing on recent empirical and review studies across African higher education (2023–2025), the paper identifies key opportunities, challenges, and strategic frameworks for integrating AI into polytechnic education systems. It concludes with policy and institutional recommendations aimed at fostering inclusive, resilient, and future-ready technical education in Africa.

Keywords: Artificial intelligence, sustainable education, polytechnic education, Africa, SDGs, digital transformation

INTEGRATING ARTIFICIAL INTELLIGENCE INTO ENVIRONMENTAL MANAGEMENT CURRICULA IN NIGERIAN HIGHER EDUCATION: AN EMPIRICAL ASSESSMENT OF PEDAGOGICAL INNOVATION AND SUSTAINABILITY COMPETENCIES

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ABSTRACT

The incorporation of Artificial Intelligence (AI) into higher education is increasingly viewed as a transformative approach to promoting sustainability-focused learning, particularly in Environmental Management studies in Nigeria. Although global interest in this area continues to expand, there remains a scarcity of empirical research examining how AI-driven teaching methods influence environmental competencies and sustainability outcomes within Nigerian higher education institutions. This study explores the level of AI integration in Environmental Management curricula and assesses its effects on students' sustainability awareness, digital skills, and problem-solving capabilities. Using a mixed-methods empirical approach, data were collected through surveys administered to undergraduate and postgraduate students, alongside academic staff from selected Nigerian universities. Quantitative data were analyzed using both descriptive and inferential statistical techniques, while qualitative data from interviews were examined through thematic analysis. The findings reveal that the use of AI in teaching enhances personalized learning experiences, strengthens students' abilities in environmental data analysis, and improves climate literacy. These results align with existing evidence suggesting that AI can facilitate adaptive learning and enhance educational outcomes in higher education. Furthermore, AI-powered tools, including predictive analytics and simulation models, significantly boost students' capacity to tackle complex environmental issues such as climate change adaptation and resource management. This underscores the broader potential of AI in supporting sustainable development and informed environmental decision-making in Nigeria and across the African continent. However, the study also identifies key challenges hindering effective implementation, such as inadequate infrastructure, insufficient technical expertise, ethical considerations, and gaps in policy frameworks. The study concludes that while integrating AI into Environmental Management education offers considerable opportunities for building sustainability competencies, its effectiveness relies on deliberate curriculum restructuring, strengthening institutional capacity, and developing context-relevant policies. It recommends fostering interdisciplinary curricula that combine AI and environmental studies, increasing investment in digital infrastructure, and establishing ethical standards to guide responsible AI adoption in education. Overall, this research contributes to the expanding body of knowledge on digital transformation in African higher education by providing empirical insights into the convergence of AI, environmental education, and sustainable development.

Keywords: Artificial Intelligence (AI), Environmental Management Education, Sustainability Competencies, Digital Transformation, AI-driven Pedagogy, Climate Literacy, Sustainable Development

THE ROLE OF AI IN SUSTAINABLE PEST MANAGEMENT IN ORGANIC AGRICULTURE

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ABSTRACT

The integration of Artificial Intelligence (AI) in sustainable pest management presents a transformative opportunity for organic agriculture, where minimizing chemical interventions is paramount. This paper explores the role of AI-driven technologies in enhancing the efficacy and scalability of organic pest control methods. Focusing on precision monitoring, predictive analytics, and automated interventions, we examine how AI tools—such as computer vision for pest detection and machine learning for risk forecasting—enable farmers to target infestations accurately, reduce crop losses, and maintain ecological balance. A review of case studies in major organic farming regions reveals that AI applications lead to a 20–30% reduction in pesticide use and a 15–25% increase in crop yields. However, challenges such as data accessibility, algorithmic bias, and high implementation costs persist. The study argues that AI, when paired with agronomic expertise and supportive policies, can bridge the gap between sustainability and productivity in organic systems. Recommendations include investing in farmer training, improving AI model transparency, and fostering collaborations to democratize these technologies for smallholders.

Keywords: Organic Agriculture, Sustainable Pest Management, Precision Farming, ecological balance

GREEN ACCOUNTING INITIATIVES ON SUSTAINABLE DEVELOPMENT IN NIGERIA: FUTURISTIC IMPLICATIONS

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ABSTRACT

Globally, emphasis is placed on sustainable development goals (SDGs), however Nigeria's businesses and regulatory frameworks are still evolving in their incorporation of environmental considerations into financial reporting and corporate practices. Therefore, this study focus on green accounting initiatives on sustainable development in Nigeria: futuristic implications, between years 2000 to 2022. The study explored the Non-linear Auto Regressive Distributed Lag (NARDL) model procedure to explore the asymmetric effect of the variables of interest. Outcome showed that, green accounting initiatives showed to have significant effect on sustainable development in the long run in Nigeria, while in the interim the effect is negligible on sustainable development in Nigeria. However, the futuristic implications lie in Nigeria mandating businesses to infuse green accounting initiatives in their disclosure to enhance Nigeria's pursuit of sustainable development in the long run. On this premise the study recommends that, periodic capacity enhancement training should be encouraged for auditors, accountants, managers of the corporate world and stakeholders on green accounting and sustainable business practices.Furthermore, consistent institutional improvements should be made on policies that promote green accounting initiatives and sustainable business in Nigeria.And finally, there is need for further research, innovations and economic policies to support development in renewable energy, waste management and sustainable business practices.

Keywords: Green Accounting initiatives, Sustainable development, Futuristic implications

IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON EDUCATION AND VALUE RE-ORIENTATION FOR NATIONAL DEVELOPMENT IN NIGERIA: CHALLENGES AND WAY FORWARD

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ABSTRACT

Artificial intelligence (AI) is rapidly reshaping education worldwide by enabling personalized learning, improving assessment and feedback, strengthening teacher support and enhancing education planning through learning analytics. In Nigeria where persistent challenges such as large class sizes, uneven access to quality instruction, infrastructure deficits and concerns about assessment integrity continue to affect learning outcomes. Artificial Intelligence (AI) presents both opportunities and risks. This paper examines the impact of AI on teaching and learning processes in Nigeria and argues that AI adoption must be aligned with a value re-orientation agenda for national development. Value re-orientation here refers to using education to cultivate employable skills, ethical conduct, critical thinking, civic responsibility, creativity and innovation. While AI can reinforce these values through competence-based learning, responsible use policies and data informed support, it may also deepen inequality, widen the digital divide, and facilitate academic dishonesty and raise ethical and privacy concerns if governance and capacity building are inadequate. The paper further identifies key challenges to effective AI integration in Nigeria-digital and power infrastructure gaps, limited AI literacy among teachers and learners, language and localization constraints, curriculum-competency mismatches, bias and reliability risks and insufficient regulatory frameworks. The study proposes a way forward that prioritizes equity-face infrastructure, teacher professional development, localized and culturally relevant AI learning content, and redesigned assessment systems that measure competencies and learning processes and robust national governance for data protection, ethics and accountability. Ultimately, the paper concludes that AI should not be adopted merely as a technological add-on, but as a strategic tool for transforming Nigerian education towards national development goals through both skills advancement and value-based formation.

Keywords: Artificial Intelligence, Education, Value Re-orientation, Nigeria, Digital Inclusion, Ethics, Teacher Capacity and Curriculum Alignment.

INSTRUCTIONAL ACTIVITIES AND RESOURCES FOR QUALITY MANAGEMENT SKILLS IN BUILDING CONSRUCTION TRADE IN TECHNICAL COLLEGES IN NIGERIA IN THE 21ST CENTURY

BY

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ABSTRACT

The purpose of the study was to determine the instructional activities and resources for effective inculcation of quality management skills in building construction students of technical colleges in Nigeria in the 21st century. The study was prompted by the numerous challenges currently confronting the building industry in Nigeria, which include: incessant building collapses, deffective structures, time and cost overrun, and project failure or abandonement. Further, the 21st century, the period starting from 1st January, 2001 and ending 31st December, 2100, is widely characterized by creative and innovative thinking, global citizenship, artificial intelligence (AI) literacy, digital proficiency, environmental consciousness, adaptiveness and resilience, and many more. These cannot be ignored if our graduates in particular and the building industry in general are to remain relevant in the scheme of things. The study was guided by two research questions and two hypotheses. The hypotheses were tested at .05 level of significance. The study adopted a discriptive survey research design and was carried out in the South East goe-political zone of Nigeria. The population for the study comprised 43 technical college building technology teachers, 20 building construction graduates and 23 industrial technical education lecturers with bias in building technology. This gave a total of 86 respondents. There was no sampling as the population was manageable enough. A structured questionnaire which was validated by two building technology teachers and three industrial technical education lecturers was used for data collection. The internal consistency of the instrument was determined using Crounbach Alpha coefficient and was found to be .85 and .78 for instructional activities and instructional resources respectively. The research questions were answered using frequency, mean and standard deviation while the hypotheses were analyzed using ANOVA. The findings were made up of 9 instructional activities and 12 instructional resources which include: collaborative learning, exhibition of building construction materials of acceptable quality standards, fieldstrips to the best performing building construction firms and materials production yards, and critical thinking drills. Other findings were artificial intelligence (AI) resources, including robotics, expert systems and machine learning; copies of construction designs; digital resources, including computers, projectors and construction Apps; and resource persons, including registered builders, manufacturers of quality building materials/tools/equipment, and managers of top-ranking building construction firms. Based on the findings, it was recommended, among other things, that the relevant regulatory bodies should embark on the review of the present technical college building construction curriculum with a view to integrating the identified instructional activities and resources into it for effective inculcation of quality management skills into the students.

INTEGRATION OF AI TOOLS INTO PUBLIC POLICY DIRECTION ON FOOD SECURITY IN NIGERIA

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ABSTRACT

Food security has been a major concern in Nigeria as a nation, it has contributed to her socio economic crises over the years. This problem is driven by low agricultural production, inadequate political will, corruption, climate shocks, and inefficient supply chain. This paper examines the strategic integration of artificial intelligence (AI) as a transformative tool within the national policy direction to mitigate these challenges. In 2025, Nigerian government launched the National Artificial Intelligence Strategy (NAIS), which explicitly prioritizes agriculture and food security as key pillars for social development and economic growth. Current evidences indicates that AI driven solutions like precision farming, satellite-based weather, forecasting and AI powered pest detection have the potential to increase smallholder farmer yields by up to 60-70%. Policy level intervention is shifting towards data driven decision making, utilizing AI to identify growth investment area and automate routine public service task to improve resource management. However significant barriers persist including infrastructure Deficits, inadequate rural connectivity and unstable energy supplies, skill gaps, low digital literacy among smallholder farmers who dominate the sector, economic barriers, high implementation cost and limited access to credit for advanced technologies. A descriptive survey design was used. The population consists of farmers, government regulatory agencies, IT experts, food processors and retailers, youth and community leaders, from which a sample of 250 respondents were drawn. Data was collected using a structured for four likert scale questionnaire. The instrument was validated and its reliability confirmed. Data collected were analyzed using mean and standard deviation to answer the research questions, while chi square(X2) statistical tool was used to test the hypothesis at a 0.05 level of significance. The paper concludes that while AI is “not the future but the now” its success in Nigeria hinges on a coordinated approach. Key recommendations include the development of localized low bandwidth AI tools, the establishment of robust corrupt free data governance frameworks and increased public private partnership to bridge the digital divide.

ARTIFICIAL INTELLIGENCE (AI) AND CYBERSECURITY MANAGEMENT

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Abstract

As the global threat landscape evolves, the integration of Artificial Intelligence (AI) into cybersecurity management has transitioned from a competitive advantage to a foundational requirement for organizational resilience. This paper examines the dual-natured role of AI in contemporary cybersecurity, analyzing its application in proactive threat detection and the simultaneous emergence of AI-driven adversarial tactics. By synthesizing current literature and frameworks, such as the NIST AI Risk Management Framework 1.0 (2023) and subsequent 2025 updates, the study identifies four critical pillars of AI-cybersecurity management: predictive behavioral analytics, autonomous incident response, explainable AI (XAI) for governance, and the mitigation of adversarial machine learning. The research proposes an "Adaptive Governance" model that emphasizes human-AI collaboration to address the persistent cybersecurity skills gap and the increasing complexity of cloud-native environments. This study provides a strategic roadmap for managers to navigate the transition from reactive security postures to autonomous, resilient defense systems.

Keywords: AI-driven cybersecurity, Adaptive Governance, Cyber Resilience, Adversarial Machine Learning, SOC Automation.

TRANSFORMING ELECTRICAL ELECTRONICS ENGINEERING EDUCATION SYSTEM THROUGH APPLICATION OF ARTIFICIAL INTELLIGENCE IN 21 ST CENTURY: A REVIEW OF CURRENT SITUATION AND FUTURE OPPORTUNITIES

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ABSTRACT

The impact of Artificial Intelligence (AI) to Education globally is rapidly on the increase and in particular, the field of Electrical Electronics Engineering Education (EEEE) which have a wide range of areas of specialization affecting many aspects of human endeavors. This emergence has a promising path to enhancing learning outcomes and redesigning old-style academic approaches to the teaching of Electrical Electronics Engineering as a course. The study is aimed to review and analyse the role of Artificial intelligence in transforming the Electrical Electronics Engineering education system and evaluating its opportunities and challenges associated with it of higher education curriculum, the review covers the major areas of Electrical Electronics Engineering including, Electrical power system, Control system, communication system, Embedded Systems. It further critically underscores the weaknesses associated with the poor evidence base, the lack of relevant infrastructure, and the faintness of academic cooperation. A comprehensive framework for the use of AI in supporting EEE learning, including adaptive learning and curriculum design in response to competencies is considered. In conclusion, AI adoption provides great opportunities of improvement in the teaching of EEEE and enhanced the application of knowledge in the field of EEE.

Keywords: Artificial intelligence, Electrical Electronics Engineering Education, Teaching, Learning, Curriculum.

ENHANCING STUDENT LEARNING OUTCOMES IN BIOLOGY THROUGH AI-DRIVEN PERSONALIZED INSTRUCTION IN SECONDARY SCHOOLS

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ABSTRACT

This study investigates the potential of artificial intelligence (AI)-driven personalized instruction to enhance students' learning outcomes in Biology at the secondary school level. The persistent challenges of low academic achievement, limited student engagement, and inadequate differentiation in Biology classrooms necessitate innovative instructional approaches. AI-powered personalized learning systems offer adaptive content, real-time feedback, and learner-centered pathways that may address individual differences in students' abilities, pace, and learning styles. The study adopts a quasi-experimental research design involving secondary school students, with one group exposed to AI-driven personalized Biology instruction and another receiving conventional teaching methods. Data will be collected using Biology Achievement Tests, student engagement scales, and retention assessments. The theoretical framework is anchored on constructivist learning theory and adaptive learning theory, which emphasize active knowledge construction and individualized learning experiences. Findings from this study are expected to reveal whether AI-driven personalized instruction significantly improves students' academic performance, engagement, and retention in Biology. The study will also examine the practical challenges associated with implementing AI tools in resource-constrained educational settings. The results will provide empirical evidence to inform educators, policymakers, and curriculum planners on the integration of AI technologies in Biology education, particularly in developing contexts.

Keywords: Artificial Intelligence, Personalized Learning, Biology Education, Student Achievement, Student Engagement, Secondary Schools, Adaptive Learning, Educational Technology

LEVERAGING AI- DRIVEN INSIGHTS FOR OPTIMAL FINANCING AND INVESTMENT STRATEGIES IN EMERGING ECONOMIES REAL ESTATE DEVELOPMENT

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ABSTRACT

This study explore the integration of Artificial (AI) in assessing Financial options and investment opportunities in emerging economies 'real estate development. As emerging markets present unique challenges and opportunities, AI- driven insight can significantly enhance decision making processes. This research examine how AI can predict market trends, optimize financing structures, and mitigate risks in real estate investments. We analyse AI application in market analysis, risk assessment, and due diligence, providing a framework for investors and developers to leverage data driven strategies. Case study from selected emerging economies illustrate the potential of AI in unlocking profitable investments and navigating complex market dynamics. This research contributes to the growing discourse on AI adoption in real estate, offering insights for stakeholders seeking competitive advantages in emerging markets.

Keywords: Artificial Intelligence, Real Estate Development, Financing, Investment Strategies.

LEVERAGING ARTIFICIAL INTELLIGENCE AND COPERNICUS SENTINEL-2 IMAGERY FOR IMPROVING THE ACCURACY OF PADDY RICE YIELD ESTIMATION

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ABSTRACT

Spatial information on rice planting areas and yield distribution is important for ensuring food security, optimising agricultural planning, assessing the impacts of climate change, and supporting sustainable resource management and rural livelihoods. However, obtaining accurate spatial information on paddy rice yield remains a significant challenge. This study investigates the integration of Copernicus Sentinel-2 satellite imagery with artificial intelligence techniques, including both machine learning (ML) and deep learning (DL) models, to enhance rice yield estimation accuracy. To improve model performance, six algorithms were employed: Random Forest (RF), Support Vector Machines (SVM), Multilayer Perceptron (MLP), Convolutional Neural Networks (CNN), Long Short-Term Memory (LSTM), and Recurrent Neural Networks (RNN). The study implemented four input scenarios using field data on rice yield: (1) reflectance bands only, (2) vegetation indices only, (3) combined bands and vegetation indices with Shuttle Radar Topography Mission (SRTM) data, and (4) feature selection using all input variables from the 10-meter resolution multispectral Sentinel-2 imagery to capture crop health and growth dynamics. Results indicate that DL models, especially CNN and MLP, achieved superior accuracy in yield prediction, outperforming traditional ML regression-based approaches. The most accurate predictions were obtained using the mutual information regression spectral feature selection method for CNN (RMSE = 982.84 kg/ha, Bias = 12.96) and MLP (984.04 kg/ha, Bias = 27.18). This study presents a robust framework for integrating remote sensing and AI to support spatial planning, resource management, smart agriculture, and improved food security and livelihoods.

MACHINE LEARNING DRIVEN PREDICTION AND OPTIMIZATION OF URBAN WASTE AND ENERGY MANAGEMENT USING IOT TIME-SERIES DATA

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ABSTRACT

Rapid urbanization in developing cities has intensified inefficiencies in conventional solid waste collection and energy utilization systems. While Internet of Things (IoT) based smart waste bins enable real-time monitoring, the data generated are often underexploited for predictive and operational decision-making. This paper proposes a machine learning driven framework for predicting waste accumulation patterns and optimizing waste collection and energy consumption using IoT time-series data. Smart bin sensor data, including fill-level percentage, temporal attributes, and accumulation rates, were modeled using Random Forest (RF), Artificial Neural Network (ANN), and Long Short-Term Memory (LSTM) algorithms. Performance was evaluated using accuracy, precision, recall, F1-score, mean absolute percentage error (MAPE), and confusion matrix heatmaps. Experimental results demonstrate that the LSTM model outperforms RF and ANN, achieving 94.6% classification accuracy and a forecasting MAPE of 6.3%. The proposed framework enables proactive waste collection scheduling, reduces fuel consumption by 38%, and minimizes overflow incidents by 60%. The study provides a scalable pathway for intelligent waste and energy management in resource-constrained smart cities.

Keywords: Smart cities, IoT, Waste management, Machine learning, LSTM, Energy optimization

A REVIEW ON CHARACTERISTICS OF RAIN ATTENUATION ON SATELLITE LINKS IN PARTS OF THE NORTH WEST

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ABSTRACT

This review examines rain attenuation characteristics on satellite links in North West Nigeria, a region prone to intense rainfall. Rain-induced signal degradation affects Ku-band and Ka-band frequencies, impacting communication reliability. Factors influencing attenuation include rain rate, frequency, drop size, and elevation angle. Analysis of local rain data (2000-2020) reveals high attenuation levels during peak rainfall months (June-September). Location-specific attenuation models (e.g., ITU-R P.618) are evaluated for applicability. The primary deliverable is a comprehensive characterization of rain attenuation dynamics across the study region, culminating in region-specific modelling guidelines. The output usually designed to provide satellite network operators and planners with critical, locally-validated data for accurate link budget design and fade margin estimation, enabling more resilient and cost-effective satellite communication infrastructure in North West Nigeria.

Keywords: Rainl attenuation; Resilient

DESIGN, MODELING, AND PERFORMANCE EVALUATION OF CLOSED-LOOP AUTOMATIC SOLAR TRACKING SYSTEMS FOR ENHANCED PHOTOVOLTAIC ENERGY HARVESTING

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ABSTRACT

This research paper presents the design, modeling, and experimental performance evaluation of a novel closed-loop Automatic Solar Tracking System (ASTS) developed to enhance photovoltaic (PV) energy harvesting. Conventional fixed PV systems achieve peak efficiency only when solar radiation is perpendicular to the panel surface, resulting in suboptimal energy capture throughout the day. To overcome this limitation, the proposed ASTS integrates a sensor array, microcontroller-based feedback control, and dual-actuator mechanisms to dynamically adjust panel orientation and maintain a near-zero angle of incidence. The methodology includes comparative testing of single-axis and dual-axis tracking configurations, guided by the cosine law of irradiation, with system architecture analyzed across sensing, control, and actuation levels. Experimental evaluation under field conditions demonstrated that the dual-axis ASTS achieved a 32% increase in daily energy yield compared to a fixed system, while the single-axis configuration achieved a 21% improvement. Economic and environmental assessments further revealed a reduction of carbon payback period by 18 months and a 12% improvement in land-use efficiency. These findings confirm that the developed ASTS represents a technically viable and cost-effective advancement for utility-scale renewable energy systems.

Keywords: Automatic Solar Tracking, Photovoltaic Energy Harvesting, Closed-Loop Control, Performance Evaluation, Energy Efficiency, Renewable Energy Systems

EXPLORING THE EFFECT OF AI-DRIVEN CURRICULUM DEVELOPMENT ON EDUCATIONAL POLICY IMPLEMENTATION IN PUBLIC POLYTECHNICS IN SOUTH-WEST NIGERIA

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ABSTRACT

The rapid digital transformation of higher education intensified the need for innovative curriculum systems that can strengthen institutional governance and improve policy achievements in Nigeria's public polytechnics. Despite the growing adoption of artificial intelligence in educational processes, limited empirical evidence exists on how AI-driven curriculum development affects educational policy implementation in public polytechnics in South-West Nigeria, thereby necessitating this study. Consequently, the study examined the effect of AI-driven curriculum development on educational policy implementation in public polytechnics in South-West, Nigeria, with specific objectives, to evaluate the effect of content personalisation, curriculum automation, and content design on educational policy implementation. A cross-sectional survey research design was adopted, and data were collected through a structured questionnaire administered to a sample of 370 respondents drawn from a population of 8,400 full-time academic and non-academic staff across 12 public polytechnics using multistage sampling, while the sample size was determined using the Taro Yamane's formula. Data were analysed using descriptive statistics comprising frequency, and percentage, alongside multiple linear regression analysis. The findings indicated an overall AI-driven curriculum development index of 73.2%, while content personalisation (B = 0.682), curriculum automation (B = 0.868), and content design (B = 0.659) significantly and positively affected educational policy implementation, with curriculum automation exerting the strongest effect. The study concluded that AI-driven curriculum development substantially affects policy implementation effectiveness and recommends sustained investment in AI-enabled curriculum systems, staff capacity development, and policy frameworks to strengthen governance and institutional performance in public polytechnics in South-West, Nigeria.

Keywords: AI-driven curriculum, content personalisation, content design, curriculum automation

EXAMINING THE FACTORS INFLUENCING ADOPTION OF AI-POWERED MOBILE LEARNING TOOLS FOR CONTINUOUS PROFESSIONAL DEVELOPMENT OF PRIMARY SCHOOL TEACHERS IN RURAL AREAS OF NIGER STATE, NIGERIA

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ABSTRACT

The integration of Artificial Intelligence (AI) into mobile learning platforms presents new opportunities for enhancing continuous professional development (CPD) among primary school teachers, particularly in underserved rural areas. This study examines the factors influencing the adoption of AI-powered mobile learning tools for CPD among primary school teachers in rural communities of Niger State, Nigeria. Anchored on the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), the study adopts a mixed-methods approach, combining survey data and qualitative insights from interviews. A structured questionnaire was administered to a representative sample of primary school teachers across selected rural local government areas, while in-depth interviews were conducted with key stakeholders, including education administrators and ICT coordinators. Quantitative data were analyzed using descriptive and inferential statistics, while thematic analysis was applied to qualitative responses. Findings reveal that key factors influencing adoption include perceived usefulness, ease of use, digital literacy levels, infrastructure availability (such as internet connectivity and electricity), institutional support, and cost of access to mobile devices and data services. Additionally, socio-cultural factors and teachers' attitudes toward technology significantly shape adoption behavior. The study also identifies major barriers, including inadequate training, limited technical support, and resistance to change. The paper concludes that while AI-powered mobile learning tools hold substantial potential for improving teacher competence and lifelong learning, their successful adoption in rural contexts requires deliberate policy interventions. Recommendations include targeted capacity-building programmes, investment in rural digital infrastructure, provision of affordable mobile technologies, and the development of context-sensitive AI learning applications. This study contributes to the growing discourse on digital transformation in education by providing empirical evidence on the adoption dynamics of emerging AI technologies in resource-constrained settings, with implications for policy, practice, and future research.

Keywords: Artificial Intelligence, Mobile Learning, Continuous Professional Development, Primary School Teachers, Technology Adoption, Rural Education, Niger State.

REIMAGING SCIENCE AND TECHNOLOGY EDUCATION IN AFRICA: HARNESSING ARTIFICIAL INTELLIGENCE FOR CURRICULUM INNOVATION AND SUSTAINABLE LEARNING OUTCOMES IN HIGHER INSTITUTIONS

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ABSTRACT

Science and Technology (S&T) education occupies a pivotal role in Africa's quest for sustainable development, yet its delivery in higher institutions remains constrained by outdated curricula, inadequate laboratory infrastructure, and limited engagement with emerging technologies. This paper investigates the integration of Artificial Intelligence (AI) into Science and Technology curricula in African higher institutions, framing it as both a philosophical necessity and a strategic imperative for 21st-century education reform. Grounded in the philosophy of science, critical pedagogy, and complexity theory, the study examines how AI tools including simulation platforms, intelligent tutoring systems, AI-driven laboratory environments, and predictive learning analytics can transform the quality and relevance of S&T education across Africa. Employing a systematic literature review and a qualitative multi-case study methodology across six African universities, the research uncovers persistent structural, philosophical, and institutional barriers to AI integration while documenting compelling models of innovation from early-adopter institutions. The study proposes the Contextual AI-Science Curriculum Integration Model (CAISCIM) as a scalable framework for S&T curriculum reform. Recommendations are directed at university leaders, governments, development partners, and the broader academic community committed to shaping an AI-empowered scientific culture in Africa.

Keywords: Artificial Intelligence, Science and Technology Education, Curriculum Innovation, Higher Education Africa, Intelligent Tutoring Systems, Sustainable Learning, Critical Pedagogy

REMOVAL OF TOXIC HEAVY METALS FROM WASTE WATER IN KAZAURE METROPOLIS USING PALM KERNELS SHELL

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ABSTRACT

Palm kernel shells (PKS) are the left over fractions from the crushing of nut in the Palm Oil mill. PKS are fibrous and versatile materials traditionally employed as solid fuels. Adsorption is one of the separation methods for toxic heavy metal (THMs) decontamination of waste water. Fresh sample of PKS was purchased from Sabon-Gari market Kano State Nigeria. The samples were washed thoroughly with deionized water, dried in an oven for 48hours at 70 °C. Then it was pulverized into fine powder which was kept for the adsorption studies. The experiments were done at the analytical laboratory, Bayero University Kano Nigeria. The following parameters, such as dosage of PKS powder, pH and contact time were varied. Samples were thoroughly mixed at previously optimized rate i.e. 200 rpm using a thermostat incubator at room temperature for two hours. Functional group analysis were carried out using a Fourier transformed infrared (FTIR) spectrometer. THMs ions such as Cu2+, Pb2+, Mn2+ Fe2+ and Zn2+ were removed from the water using the process of adsorption. Different parameters like solution pH, adsorbent dosage, initial metal ions concentration and contact time were optimized. Under the optimized conditions of all these parameters, about 99% of Cu2+ and Pb2+ ions and more than 83% of Fe2+ Mn2+ and Zn2+ ions were removed. The adsorption took 60minutes for Cu2+, Pb2+ and 30minutes for Fe2+, Mn2+and Zn2+, respectively. The findings conclude the efficacy of PKS as adequate adsorbent of THMs removal from waste water. The advent of artificial intelligence may be used in some of the aspect of the study to serve as precursor to the main investigation.

Keywords: Palm kernel shells; Toxic heavy metals, Adsorption, Functional group, Waste water, Artificial Intelligence

LEVERAGING ARTIFICIAL INTELLIGENCE TO STRENGTHEN FOOD SECURITY SYSTEMS

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ABSTRACT

Ensuring food security continues to be a major global concern, especially in developing regions where challenges such as climate change, rapid population growth, and inefficient farming practices limit food production. In recent years, Artificial Intelligence (AI) has gained attention as a powerful tool capable of transforming agricultural and food systems. This study examines how AI- driven technologies such as machine learning algorithms, satellite imaging, and data analytics can be utilized to improve agricultural productivity, streamline food supply chains, and minimize post-harvest losses. Using a mixed-methods approach, the study integrates a comprehensive review of existing literature with selected case examples to assess current applications of AI in agriculture. The findings suggest that AI can enhance farmers' decision-making through precision farming techniques, provide timely alerts on pests and diseases, and improve resilience to climate-related risks. Despite these advantages, barriers including inadequate data infrastructure, high costs of technology adoption, and limited digital literacy remain significant obstacles, particularly in low-resource environments. The study highlights that while AI offers promising solutions for improving food security, its effectiveness depends on supportive policies, investment in infrastructure, and capacity development among stakeholders. Practical recommendations are proposed to encourage the responsible and inclusive adoption of AI technologies in the agricultural sector.

Keywords: Artificial Intelligence, Food Systems, Precision Farming, Data Analytics, Sustainable Agriculture

SUPPLEMENTATION OF YELLOW MEALWORM, TENEBRIO MOLITOR DIET WITH FRUIT WASTE ENHANCES ITS CRUDE PROTEIN, FATS CONTENTS AND NUTRITIONAL VALUE

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ABSTRACT:

The growing demand for a sustainable and cost-effective protein in aquaculture has intensified the interest in edible insects, with mealworm (Tenebrio molitor) larvae recognized as a promising alternative due to their high protein content and ability to thrive on low-cost substrates. This study investigated the nutritional enhancement of T. molitor larvae reared on wheat bran (WB) supplemented with fruit wastes such as pineapple peels (PP) and watermelon rinds (WR). Five experimental diets were formulated as thus WB (control), WB/PP (1:1); WB/WR (1:1); WB/PP/WR (1:1:1) and PP/WR (1:1). The insects were reared on the experimental diets for a 12-weeks feeding period. Thereafter, the Proximate, mineral and amino acid profiles were determined. Moisture content ranged from 48.80% in larvae fed WB/WR to 50.73% in those on WB. Ash ranged from 1.06% (WB/WR) to 4.31% (WB), fat ranged from 30.21% (WB/PP/WR) to 31.69% (WB/WR). Crude fiber ranged from 1.54% (WB/PP/WR) to 1.95% (WB), while crude protein ranged from 41.83% (WB) to 46.35% (WB/WR). No significant ($p > 0.05$) differences were observed on the moisture, fat, and carbohydrate levels between larvae fed the supplemented diets and those on the control. However, significant differences were observed on the ash, crude fiber, and protein contents. In terms of minerals, calcium, manganese and sodium were higher in larvae fed WB/PP/WR while iron, magnesium and phosphorous were higher in larvae fed WB. The amino acid profile of the larvae varied across the diet with larvae reared on WB/WR recording highest levels of histidine, threonine, leucine, tryptophan, asparagine, glutamic acid, cystine, alanine, glutamine and arginine. Overall, T. molitor larvae reared on fruit waste-supplemented substrates demonstrated enhanced nutritional quality, whereas WB/WR showed superior nutritional qualities an indication that the fruit waste enhanced the nutrient composition of T. molitor supporting their potential as sustainable protein resources in aquafeeds.

Keyword: Proximate compositions, Mineral compositions, Amino acid profile, Fruit waste, Mealworm larvae

ARTIFICIAL INTELLIGENCE, EDUCATIONAL MANAGEMENT AND CORRUPTION IN AFRICA: THE NIGERIAN EXAMPLE

By

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ABSTRACT

Africa cannot afford to be left out of the revolution in science and technology permeating the world regardless of its division into Northern and Southern poles. The African continent is so endowed with resources that have the potency to develop and compete with other developing parts of the world. Nigeria for example is endowed with abundant natural resources, both human and materials. A part from Mali and Niger Republic, Nigeria is the third in terms of Land mass within West African sub region. It occupies a total land area of about 923, 768 square kilometers. The upland covers 910, 768 square kilometers. While 13 square kilometers is covered by water. Nigeria is one of the leading oil producers in the world accounting for about 88.6 percent of government revenues. There are solid mineral deposits in all the Seven Hundred and Seventy Four (774) Local Government Areas. However, these natural resources did not translate into better life for majority of her citizens. Enormous amount of money running into trillions of Naira have been allocated to states and local government areas from the federation account. The intention is to provide basic welfare services and infrastructure in all sectors of the political economy. Unfortunately, the common wealth of the nation did not trickle down to the rural and urban poor.

The reason is the ruling elites determine how the resources are shared to their own parochial advantage with resultant effect of pervasive corruption, poverty and neglect of the educational sector. It should be noted that artificial intelligence is a product of science education that emanates from the educational system. Acquiring scientific education is a gateway to socio-economic and industrial development of which Artificial Intelligence is very central. However, the educational sector and its management has been left to decay in Nigeria owing to endemic corruption. This paper therefore reveals that enormous amount of money budgeted for educational management and development have been embezzled. As such, for Africa educational system and researchers to go beyond theory to skills based training in artificial intelligence, science education must be given priority with radical departure from corrupt practices.

DIGITAL ECOSYSTEM PARTICIPATION AND PLATFORM UTILIZATION ON MARKET EXPANSION OF JUMIA IN LAGOS AND OGUN STATES, NIGERIA

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ABSTRACT

This study explores the impact of digital ecosystem participation and platform utilization on the market expansion of Jumia in Lagos and Ogun States, Nigeria. The research specifically aimed to: examine the effect of digital ecosystem participation on market expansion, evaluate the influence of platform utilization on market expansion, and analyze how the integration of both factors enhances market expansion. A descriptive survey research design was employed. The study was conducted in Lagos and Ogun States, and the population consisted of 300 Jumia employees involved in operations, marketing, logistics, and customer engagement. Using Taro Yamane's formula, a sample of 170 respondents was selected through stratified random sampling to ensure proportional representation across departments. Primary data were collected via structured questionnaires. The collected data were subjected to multiple regression analysis to test the relationships among the variables. Results showed that digital ecosystem participation positively influenced market expansion ($\beta = 0.44$, $p < 0.05$), platform utilization also had a significant positive effect ($\beta = 0.39$, $p < 0.05$), and their integration further enhanced market expansion ($\beta = 0.27$, $p < 0.05$). The findings suggest that active participation in digital ecosystems combined with efficient use of platforms strengthens Jumia's market reach and customer engagement. The study concludes that both factors are critical drivers of market expansion and recommends that Jumia's management deepen ecosystem collaborations and optimize platform functionalities to sustain growth and maintain competitive advantage in Lagos and Ogun States.

ENTREPRENEURIAL BRICOLAGE AND RESOURCE OPTIMIZATION ON PERFORMANCE OF PAYSTACK IN LAGOS STATE, NIGERIA

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ABSTRACT

This study examined the influence of entrepreneurial bricolage and resource optimization on organizational performance, with specific reference to Paystack in Lagos State, Nigeria. The study was guided by three objectives: to examine the effect of entrepreneurial bricolage on performance; to evaluate the influence of resource optimization on performance; and to determine the moderating effect of resource optimization on the relationship between entrepreneurial bricolage and performance. A descriptive survey research design was adopted, with the study area being Lagos State. The population comprised 220 staff of Paystack, from which a sample size of 142 was determined using Taro Yamane's formula. A stratified random sampling technique was employed. Primary data were collected through a structured questionnaire. Data were analyzed using multiple regression analysis. Findings revealed that entrepreneurial bricolage had a significant positive effect on performance ($\beta = 0.41$, $p < 0.05$), while resource optimization also significantly influenced performance ($\beta = 0.36$, $p < 0.05$). Furthermore, the moderating effect of resource optimization was significant ($\beta = 0.22$, $p < 0.05$), indicating that effective resource utilization strengthens the relationship between bricolage and performance. The study concludes that both entrepreneurial bricolage and resource optimization are critical drivers of firm performance. It recommends that management should encourage innovative resource recombination and adopt efficient resource allocation strategies to enhance organizational performance.

SUBJECTIVE EVALUATION OF AI KNOWLEDGE UTILIZATION IN BUILDING SIMULATION FOR SUSTAINABLE ARCHITECTURE

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ABSTRACT

This study explores the subjective evaluation of AI knowledge utilisation in building simulations within a university context in a tropical hot/dry climate of Nigeria. A questionnaire was administered online to 109 respondents, including architects, lecturers, IT experts, administrative staff, and students. The aim is to assess their awareness and proficiency in using AI tools for building design, simulation, and performance analysis. The questionnaire included six questions that addressed topics such as prior experience with AI tools, proficiency in AI applications for building performance evaluation, satisfaction with AI's impact on sustainability outcomes, and the challenges in developing a comprehensive framework for AI-integrated building simulation. The majority of respondents (75-90%) expressed positive feedback across all areas, affirming the potential of AI tools in enhancing design efficiency and sustainability outcomes in architecture. Statistical analysis using Pearson correlation revealed a strong positive relationship ($p < 0.01$) between familiarity with AI tools and the perceived impact on performance and sustainability. The findings highlight the necessity of developing a human cantered framework for integrating AI in building simulation, particularly for thermal comfort and energy efficiency assessments. This study provides valuable insights into overcoming current barriers to AI adoption in sustainable architecture and highlights the need for targeted education and tool development to optimize AI utilization in architectural practice.

Keywords: AI Utilization, Building Simulation, Sustainable Architecture, Thermal Comfort, Pearson Correlation

SUSTAINABLE IMPACT OF ARTIFICIAL INTELLIGENCE-DRIVEN INNOVATIONS ON ENGINEERING MEASUREMENT AND DESIGN IN NIGERIAN INSTITUTIONS

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ABSTRACT

The integration of sustainable Artificial Intelligence (AI) in engineering education and practice is revolutionizing the field globally, yielding enhanced accuracy, efficiency, and innovation in measurement and design processes. This study examines the implications of AI-driven advancements on engineering measurement and design practices among tertiary institutions within Nigeria. However, the use of artificial intelligent (AI) in assessing students' and achieving engineering precision measuring principle. Employing a mixed-methods research paradigm, comprising four (4) research questions guided the study: quantitative surveys, qualitative expert interviews, case study analyses, and an extensive literature review was adopted for this study. This investigation affords a comprehensive evaluation of the scope, efficacy, and challenges associated with AI integration in engineering curricula. The sample constituted 90 lecturers from six (6) tertiary institution. Findings indicate that AI-powered tools, including machine learning algorithms, intelligent computer-aided design (CAD) systems, and real-time simulation platforms data was collected and analysed using descriptive statistics of mean and standard deviation while qualitative data were analysed thematically. The reliability coefficient of 0.87 was established which was incrementally adopted in both pedagogical and practical engineering contexts. These technologies have contributed to improvements in measurement precision, design optimization, student engagement, and institutional research productivity. Nonetheless, substantial impediments persist, notably insufficient infrastructure, limited faculty proficiency, and deficiencies in AI-centric curriculum development. This study concludes that whilst Nigerian institutions are demonstrating commendable progress, strategic investments in infrastructure augmentation, faculty development, and curriculum revision are imperative to ensure equitable and sustainable adoption of AI technologies in engineering education and practice. However, most lecturers do not apply AI in assessment of their students. The paper proffers recommendations to facilitate inclusive AI implementation and prepare Nigerian engineers to meet forthcoming demands and a critical mass of staff should be trained on applications of AI in solving education problems.

Keywords: Engineering, Measurement, Artificial-Intelligence, Innovations, Sustainable

THE ROLE OF ARTIFICIAL INTELLIGENCE IN CIVIL ENGINEERING TECHNOLOGY: ENHANCING DESIGN, CONSTRUCTION, AND SAFETY

By
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ABSTRACT

Artificial Intelligence (AI) is rapidly transforming Civil Engineering Technology by improving efficiency, accuracy, safety, and sustainability across the entire infrastructure lifecycle. This paper examines the role of AI in enhancing civil engineering design, construction processes, and safety practices. Applications such as machine learning, computer vision, expert systems, and predictive analytics are discussed, alongside real-world case examples. The paper highlights the benefits, challenges, and future prospects of AI adoption in civil engineering technology.

Keywords: Artificial Intelligence, Civil Engineering Technology, Machine Learning, Smart Infrastructure, Construction Automation, Predictive Maintenance

AI COMPANIONS AND UNDERGRADUATES IN ABIA STATE: AWARENESS, EXTENT OF USE, PATTERNS OF ENGAGEMENT, AND UNDERLYING MOTIVATIONS

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ABSTRACT

Artificial Intelligence (AI) companions such as ChatGPT, Replika, and similar conversational platforms are increasingly becoming part of the everyday lives of young people across the world. Beyond their informational and task-oriented functions, these tools are gradually assuming social, emotional, and companionship roles in the lives of users. In the Nigerian context, however, there is still limited empirical attention to how young people engage with these AI companions and the motivations underlying their use. This paper therefore examines the use of AI companions among Nigerian youth, with particular focus on their level of awareness, extent of use, patterns of engagement, and underlying motivations. The study will adopt a descriptive survey design. The population will comprise undergraduates in Abia State, Nigerian. From this population, a randomised sample of 500 would be selected to participate in the study. Data will be collected using a researcher-developed questionnaire titled AI Companions Use Questionnaire (AICUQ). The instrument will be designed to generate data on respondents' awareness and use of AI companions, the nature and frequency of their interactions, and the major reasons for engaging with such platforms. Data obtained will be analysed using descriptive statistics such as frequency counts, percentages, mean, and standard deviation. The paper is expected to provide early empirical insight into the growing presence of AI companions in the psychosocial lives of Nigerian youth and to stimulate scholarly conversation on the implications for counselling, social interaction, and youth development in a rapidly digitising society.

Keywords: Artificial Intelligence companions, Youths, AI awareness, AI use intensity, AI use patterns, AI use motivation.

APPLICATION OF ARTIFICIAL INTELLIGENCE ON THE EDUCATION SECTOR OF NIGERIA: A TOOL TO ENHANCE LECTURER'S PERFORMANCE IN TERTIARY INSTITUTIONS

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ABSTRACT

This work assessed the application of Artificial intelligence on the education sector of Nigeria: A tool to enhance lecturer's performance in Tertiary Institutions. The study covers the technological innovation of the 21st century. The increasing use of Ai in the educational sector of Nigeria is still a difficult task due to lack of technical infrastructure and reliable internet connection, outdated computer system with untrained personnel is still a challenge. The specific objective is to determine the positive impact of Artificial Intelligence in enhancing lectures productivity in the 21st century and to address the challenges affecting the implementation of artificial intelligence in Nigeria tertiary institutions and to proffer solution to the problems. A descriptive and survey research design was used to get data for the study. The data were generated from both primary and secondary sources, the instrument of primary data is questionnaire, while secondary sources utilized published and unpublished text materials. A structured questionnaire was used from a randomly selected sample of 850 personnel. The study revealed that, artificial intelligence has a negative impact on lecturer's performance in the 21st century and inadequate utilization is a major problem. The work recommended that, Nigeria government must enforce the training of lecturers and acquiring modern technology to enhance Ai. And lecturers and students must be up to date in AI technology for effective service delivery in the tertiary institutions of learning in Nigeria.

Keywords: Artificial Intelligence, Education, Performance, Tertiary/Institution and Effective Service Delivery

FROM RESISTANCE TO READINESS: PERCEPTIONS AND MARKET PATHWAYS FOR ARTIFICIAL INTELLIGENCE ADOPTION IN THE NIGERIAN REAL PROPERTY MANAGEMENT SUBSECTOR

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ABSTRACT

Artificial intelligence (AI) is increasingly reshaping real property management globally, yet its adoption in the volatile emerging property markets remains uneven. This study examines the perception and market factors influencing AI adoption in real property management in Akure and Osogbo, Nigeria. Adopting a mixed methods research approach, data were collected through structured questionnaires and semi-structured interviews with property/facilities managers, valuers, and other relevant stakeholders. Findings from the study revealed that, issues militating against it smooth adoption are among others limited digital infrastructure, skill gaps, regulatory ambiguity, and high cost of implementation. However, perceived usefulness, awareness, and growing market competitiveness serve as key enablers. The study highlights a gradual but steady shift from resistance to readiness driven by organizational learning and market pressure. It therefore recommended targeted capacity building, supportive regulatory frameworks, and phased AI integration strategies to enhance adoption. The study contributes empirical insights into AI diffusion within secondary urban property markets in developing economies.

Keywords: Artificial intelligence; Real property management; Technology adoption; Emerging urban markets; Nigeria

MANAGING EDUCATIONAL INSTITUTIONS IN TIMES OF FISCAL CONSTRAINTS IN CROSS RIVER STATE, NIGERIA

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ABSTRACT

Persistent fiscal constraints have intensified managerial challenges in Nigeria's education sector, particularly at the sub-national level. This study empirically examines how educational institutions are managed under conditions of limited financial resources in Cross River State, Nigeria. Anchored on Resource Dependency Theory, the study adopts a cross-sectional survey design involving school administrators, senior teachers, and education officials across public primary, secondary, and tertiary institutions. Data was collected using structured questionnaires and institutional records. Management strategies were assessed in terms of resource prioritisation, cost-containment measures, alternative funding sources, staff management practices, and maintenance planning, while institutional performance was measured through service continuity, infrastructure upkeep, staff morale, and learning environment quality. Data was analysed using descriptive statistics and multiple regression techniques. The findings reveal that effective resource prioritisation, internally generated revenue, and stakeholder collaboration significantly mitigate the adverse effects of fiscal constraints. However, delayed government subventions, rising operational costs, and limited financial autonomy undermine management effectiveness. The study concludes that adaptive management practices, enhanced financial autonomy, and stronger community and private-sector partnerships are essential for sustaining educational institutions during periods of fiscal stress.

Keywords: Educational management, fiscal constraints, Resource Dependency Theory, institutional performance.

ARTIFICIAL INTELLIGENCE (AI) AND FOOD SECURITY IN NIGERIA: A REVIEW

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ABSTRACT

Food insecurity remains persistent in Nigeria despite abundant agricultural potential, driven by low productivity, weak infrastructure, and climate shocks. As global agricultural systems increasingly adopt Artificial Intelligence (AI) for weather forecasting, crop monitoring, disease detection and post – harvest loss reduction. This study examines its relevance for Nigeria's smallholder-dominated sector. The target population of the study is 4,342,706. The sample size of the study is 400 and this was obtained using Yamane (2012) sample size determination formula. The simple random and convenient sampling methods were used to select the sampled respondents. The structured questionnaire in the closed ended form was used to collect data from the respondents. The face and content validity measure were used to determine the validity of the instrument. Cronbach alpha test can be used to ascertain measure reliability of the research instrument. The study used both descriptive and inferential statistics to provide answer to the research questions and hypotheses derived from the statement of the problem. Mean was used to analyse the descriptive data. The criterion mean score of 2.50 was considered appropriate for the study to determine the respondents opinion based on their level of agreement to the items on the scale provided to measure respondents responses. Simple linear regression was used to test the hypotheses formulated to determine the linear relationship between the independent and dependent variables. This was done using the level of significant of 0.05. The Statistical Package for the Social Sciences (SPSS) version 23 was used to run the analysis. Findings show that while AI has improved yields and reduced costs in countries such as India, China, and Kenya, adoption in Nigeria remains minimal due to poor connectivity, low digital literacy, high costs, and weak policy coordination. The review highlights the need for localized, low-bandwidth, farmer-friendly AI tools and stronger data governance. It concludes that with improved rural infrastructure, capacity building, and support for local innovation, AI can significantly enhance Nigeria's food security.

Keywords: Artificial Intelligence, Food security, Digital Agriculture, Nigeria

MODELLING AND ANALYSIS OF WIND-SOLAR PV HYBRID ELECTRICITY GENERATION AND APPLICATION TO ELECTRIC VEHICLES

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ABSTRACT

Energy sector (electricity and transportation) are responsible for about 60% of the global energy-related GHG emissions, and their emissions are increasing at a faster rate. In this study, a novel methodology is proposed in modelling and analysis of a wind/solar PV hybrid electricity system for micro electricity generation and application to a mini electric vehicle in summer season.

Spline interpolation method is adopted in wind power output estimation from a 1 kW micro wind generator, while globally accepted formulations are utilized in estimating the power output from a 520 Wp solar PV system.

The findings of the research revealed that the typical household electricity demand, as well as the 1.8 kW electricity demand of the mini electric vehicle, can be delivered by the system with 0.28 kW excess energy that can be exported to the grid.

Keywords: Renewable energy; electric vehicles; wind energy; solar PV; India

ARTIFICIAL INTELIGENCE (AI) AND HISTORICAL SCHOLARSHIP: PROSPECTS AND CHALLENGES IN NIGERIA

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ABSTRACT

Artificial Intelligence (AI) is a tool for digital Knowledge dissemination that had contributed to the advancement of human societies through fostering global connectedness and development of information and communication technology (ICT) in the Contemporary world. AI generally is a welcome development and source of information for societal advancement, socially, economically, political and culturally. However, if not properly and ethically control would seriously affect the historical tradition of truth and factual presentation of past human activities by the Nigerian historians. AI is phoned of providing some false fictitious images and information that if not critically and seriously authenticated would distort reality and historical facts known for Nigerian and African historians and scholars. It is against this background that this paper is set to study the prospects and the Challenges of AI in relations to Historical studies in Nigeria, using historical methodology in both data collection and analysis.

Keywords: Artificial Intelligence, ICT, Historical Scholarship

AI-DRIVEN PREDICTIVE ANALYTICS AND TECHNOSTRESS FACTORS IN MANAGING STUDENT RETENTION AND TEACHER EMOTIONAL EXHAUSTION IN SOKOTO STATE PUBLIC SCHOOLS

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ABSTRACT

The integration of Artificial Intelligence (AI) into educational management is increasingly framed as a vital lever for sustainable reform in Africa. However, in Northern Nigeria, this technological pivot faces significant infrastructural and psychological hurdles. This study investigated the relationship between AI-driven predictive analytics, technostress, and emotional exhaustion among educators in Sokoto State public schools. Adopting a descriptive survey research design of a correlational nature, the study sampled 400 teachers and administrators across 23 Local Government Areas using a multi-stage sampling technique. Data were collected through the AI-Management and Psychological Well-being Scale (AIMPWS), incorporating the Maslach Burnout Inventory. Findings revealed that while AI tools are perceived as highly effective for student retention ($\bar{x}=3.40$), they simultaneously trigger high levels of technostress ($\bar{x}=3.74$), with "Techno-Complexity" identified as the primary stressor. Inferential analysis using Multiple Regression showed that technostress significantly predicts 46.5% of the variance in teacher emotional exhaustion. Furthermore, a significant "Digital Divide" was observed; teachers in schools with limited infrastructure experienced significantly higher stress levels compared to their well-resourced counterparts ($p < .05$). The study concludes that for educational reforms in Sokoto to be sustainable, management must move beyond technical procurement toward a human-centric framework that includes psychological support and infrastructure subsidies. The paper contributes to the philosophical debate on African AI adoption by arguing that technological utility must not compromise the mental health of the academic workforce.

Keywords: Artificial Intelligence, Educational Management, Technostress, Emotional Exhaustion, Sokoto State

CAPACITY BUILDING FOR HUMAN CENTERED AI PEDAGOGY IN UNIVERSITIES IN SOUTH-SOUTH NIGERIA

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ABSTRACT

This study examined capacity building for human-centered AI pedagogy in universities in South-South Nigeria. The study was guided by two research questions and two hypotheses. A descriptive survey research design was adopted. The population of the study comprised 8,420 full-time academic staff from six federal universities in the South-South geopolitical zone of Nigeria. A multistage sampling technique was employed. First, three universities were purposively selected with a combined population of 4,021 lecturers. The sample size of 364 lecturers was determined using the Taro Yamane formula at a 95% confidence level. Data were collected using a structured questionnaire titled "Capacity Building and Human-Centered AI Pedagogy Questionnaire (CBHCAIPQ)." The instrument was validated by experts and tested for reliability using Cronbach Alpha, yielding coefficients between 0.53 and 0.81. Data were analyzed using Pearson Product Moment Correlation and Simple Linear Regression at 0.05 level of significance with SPSS version 26. The findings revealed that AI digital literacy training and technological infrastructure development significantly predict human-centered AI pedagogy in federal universities in South-South Nigeria. The study concludes that capacity building significantly influences the effectiveness of human-centered AI pedagogy in universities. The implication is that effective adoption of human-centered AI pedagogy depends on lecturers' AI literacy skills and the availability of adequate technological infrastructure. It is therefore recommended that universities strengthen investment in ICT infrastructure, including stable internet connectivity, modern digital learning platforms, and AI-enabled instructional tools to enhance effective teaching and learning.

Keywords: Capacity Building, Artificial Intelligence, Digital Literacy, Infrastructure Development, Human-Centered Pedagogy, University Education

THE ROLE OF ARTIFICIAL INTELLIGENCE AND ENGINEERING TECHNOLOGIES FOR SUSTAINABLE EDUCATION REFORMS IN NIGERIA: AN EMPIRICAL EVIDENCE OF NORTHERN NIGERIA

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ABSTRACT

Digital transformation is critical for strengthening governance and improving performance in Nigeria's higher education institutions (HEIs). However, persistent gaps in digital skills, infrastructure, and policy implementation continue to hinder progress this paper examined the role of Artificial intelligence and Engineering Technologies for Sustainable Education Reforms in Nigeria: An Empirical Evidence of Northern Nigeria. To guide the study three research questions and three hypotheses were formulated the research design adopted for this study is descriptive survey design. The study population is one thousand five hundred 1,500 academic and Non-academic staff in federal polytechnics. A sample of four hundred and eighty (480) academic and Non-academic staff in federal polytechnics from 21 schools was drawn randomly from the population. The sample size was determined using Krejcie and Morgan (1970) probability sampling table at 95% confidence level. Role of Artificial intelligence and Engineering Technologies for Sustainable Education Reforms Questionnaire (RAIETVSERQ) was used for the collection of data which is a twenty (20) item selfstructured questionnaire The RAIETVSERQ was validated by three experts from the faculty of education. The reliability of instrument was established using Cronbach-alpha method which yielded a reliability index of 0.779. the data collected were analysed using mean and standard deviation while inferential statistics of chi-square was used to test the hypotheses at 0.05 level of significant the findings shows that The findings revealed that AI significantly influences the quality and effectiveness of vocational and technical teacher education by improving instructional design, enhancing learners' engagement, and facilitating adaptive and experiential learning. The integration of AI technologies such as intelligent tutoring systems, machine learning analytics, Circuits Design and virtual laboratories enhances teachers' pedagogical competence, curriculum innovation, and assessment efficiency key factors in producing skilled manpower for national development. The paper recommends that Educational authorities should reform the curriculum to include compulsory AI literacy and digital pedagogy modules. Embedding AI concepts inespecially in courses like workshop practice, instructional technology, and educational measurement—will ensure that future teachers are competent in using AI tools for instruction, assessment, and technical skill acquisition.

Keywords: Artificial intelligence, Engineering Technologies and Sustainable Education Reforms

PROSPECTS AND CHALLENGES OF ARTIFICIAL INTELLIGENCE (AI) INTEGRATION IN FASHION DESIGN EDUCATION

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ABSTRACT

Artificial Intelligence (AI) is the application of intelligent system to enhance teaching, learning, and skill development across disciplines, including fashion design. The integration of Artificial Intelligence in Fashion Design Education is reshaping learning experiences by enabling personalized training, skill development and innovation. The transformation in fashion design education is significant through the adoption of AI, but its adoption presents both opportunities and challenges. This study examines the acceptance of AI technology in the fashion design education, specifically focusing on the prospects and challenges brought about by the integration of AI in fashion design education and proffer possible solutions. This study employed descriptive research approach, drawing on secondary data from recent scholarly publications and interviews conducted with some lecturers and students of Higher Institution. Findings revealed that AI significantly improves student engagement, enhances learning experiences by enabling personalized instruction, fostering creativity through tools such as generative design systems, virtual prototyping and readiness for industry demands but presents integration challenges. The significant challenges include limited access to technological infrastructure, inadequate digital skills among educators and students, ethical concerns, and the high cost of implementation. The study concludes that, despite the substantial opportunities the integration of AI presents in advancing fashion design education, its effective integration requires strategic investment in digital infrastructure, curriculum redesign, and capacity building for both instructors and learners. It is recommended that educational institutions adopt a balanced approach that combines traditional design principles with emerging AI technologies to ensure sustainable development and relevance in the evolving fashion industry.

Keywords: Artificial Intelligence (AI), Fashion Design, Education, Prospects and Challenges

ANALYSIS OF EMERGING ARTIFICIAL INTELLIGENT (AI) TECHNOLOGIES AND TEACHER READINESS IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) IN SOUTH-EAST COLLEGES OF EDUCATION IN NIGERIA

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ABSTRACT

The recent developments in technology and the accompanied innovations/changes on how things are done in the society seriously call for commensurate changes in the educational sectors. The emergence of Artificial Intelligent (AI) technologies in the society is visible and cannot be denied. It has been observed that, Artificial Intelligence will offer significant potential to enhance education and streamline teaching processes. However, it is very crucial to note the importance of teachers' readiness for a successful integration. While AI can automate administrative task, personalized learning, and provides data driven insight, teachers need an adequate training, support and a positive attitude towards AI to effectively utilize these tools. This work, therefore is an opinion paper and will look at how AI can be leveraged, the importance of teachers' readiness in integrating AI, challenges of the technical and vocational education and training (TVET) teachers in its integration and proffer viable recommendations that will encourage effective and successful integration of AI technologies in Technical and Vocational Education and Training (TVET) Programmes in South-East Colleges of Education (Technical) in Nigeria.

Keywords: Artificial Intelligence, Emerging Technologies, Teacher Readiness, TVET

LEVERAGING ARTIFICIAL INTELLIGENCE TO STRENGTHEN FOOD SECURITY SYSTEMS

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ABSTRACT

Ensuring food security continues to be a major global concern, especially in developing regions where challenges such as climate change, rapid population growth, and inefficient farming practices limit food production. In recent years, Artificial Intelligence (AI) has gained attention as a powerful tool capable of transforming agricultural and food systems. This study examines how AI- driven technologies such as machine learning algorithms, satellite imaging, and data analytics can be utilized to improve agricultural productivity, streamline food supply chains, and minimize post-harvest losses. Using a mixed-methods approach, the study integrates a comprehensive review of existing literature with selected case examples to assess current applications of AI in agriculture. The findings suggest that AI can enhance farmers' decision-making through precision farming techniques, provide timely alerts on pests and diseases, and improve resilience to climate-related risks. Despite these advantages, barriers including inadequate data infrastructure, high costs of technology adoption, and limited digital literacy remain significant obstacles, particularly in low-resource environments. The study highlights that while AI offers promising solutions for improving food security, its effectiveness depends on supportive policies, investment in infrastructure, and capacity development among stakeholders. Practical recommendations are proposed to encourage the responsible and inclusive adoption of AI technologies in the agricultural sector.

Keywords: ***Artificial Intelligence, Food Systems, Precision Farming, Sustainable Agriculture***

THE ECONOMICS OF ACCESS: LEVERAGING AI TO IMPROVE EDUCATION OUTCOMES IN RURAL AFRICA

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ABSTRACT

In rural Africa, the educational landscape is frequently defined by severe teacher shortages, lack of physical resources, and significant geographic isolation. This paper explores the economic potential of Artificial Intelligence (AI) to serve as a high-impact, low-cost intervention to bridge the persistent quality gap between urban and rural schooling. From an economic perspective, the traditional model of scaling education through physical infrastructure is often prohibitively expensive; AI offers a "leapfrog" opportunity by providing decentralized, high-quality pedagogical support. Through the deployment of offline-capable, AI-driven adaptive learning platforms and intelligent tutoring systems, under-resourced rural schools can provide personalized instruction that mimics one-on-one human tutoring, significantly improving student learning outcomes and increasing the overall return on investment for rural education. However, the study identifies critical "economic bottlenecks," including the high cost of data, inconsistent power grids, and the digital literacy divide among rural educators. By analyzing current pilot programs and cost-benefit ratios, the paper argues that for AI to truly foster inclusion, investment must move beyond hardware to prioritize the development of localized, multilingual AI content that addresses specific rural challenges. The conclusion posits that while AI is not a panacea, a strategic, economically-grounded integration of these technologies can dismantle the barriers of distance and poverty, fostering a more equitable and inclusive educational ecosystem across the continent.

Keywords: Economics of Access, Rural Education, AI Pedagogy, Digital Divide, Human Capital, Africa

ARTIFICIAL INTELLIGENCE-DRIVEN RESEARCH ANALYTICS AND ACADEMIC PERFORMANCE AMONG POLYTECHNIC STUDENTS IN SOUTHWEST NIGERIA

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ABSTRACT

The integration of Artificial Intelligence (AI) into research and development activities has emerged as a transformative strategy for improving academic performance and institutional productivity in higher education globally. However, the adoption and utilization of AI-driven research analytics in Nigerian polytechnics remain relatively underexplored despite the growing demand for technology-enhanced learning and research innovation. This study examined the influence of artificial intelligence-driven research analytics on academic performance among students in polytechnics in Southwest Nigeria. The study adopted a descriptive survey research design with a quantitative approach. A structured questionnaire was administered to 420 respondents comprising lecturers, researchers, and final-year students selected through a multistage sampling technique across selected federal and state polytechnics in Southwest Nigeria. Data collected were analyzed using descriptive statistics, Pearson Product Moment Correlation, and multiple regression analysis. Findings revealed that AI-driven research tools significantly enhanced research efficiency, data analysis accuracy, access to scholarly materials, collaborative learning, and students' overall academic performance. The study further established a positive and significant relationship between AI-supported research analytics and academic achievement, critical thinking development, and innovation capacity among polytechnic students. Nevertheless, inadequate digital infrastructure, limited AI literacy, poor funding, and ethical concerns relating to academic integrity were identified as major barriers to effective implementation. The study concluded that artificial intelligence has substantial potential to revolutionize research and development activities in Nigerian polytechnics and improve academic outcomes when supported by adequate institutional policies and technological infrastructure. The study recommended increased investment in AI-enabled research facilities, continuous digital skills training for lecturers and students, and the formulation of ethical guidelines for responsible AI utilization in academic environments.

Keywords: Artificial Intelligence, Research Analytics, Academic Performance, Polytechnic Education, Research and Development, Digital Innovation, Southwest Nigeria.

LEVERAGING ARTIFICIAL INTELLIGENCE FOR RESEARCH AND DEVELOPMENT ENHANCEMENT IN POLYTECHNICS: IMPLICATIONS FOR ACADEMIC PERFORMANCE IN SOUTHWEST NIGERIA

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) technologies has significantly transformed the landscape of research, innovation, and educational delivery across higher institutions globally. In developing countries such as Nigeria, polytechnics are increasingly exploring AI-driven systems to enhance research productivity, institutional development, and students' academic performance. This study investigated the role of artificial intelligence in enhancing research and development activities and its implications for academic performance in polytechnics in Southwest Nigeria. The study adopted a mixed-methods research design involving quantitative and qualitative approaches. A sample of 450 respondents comprising lecturers, academic researchers, ICT personnel, and final-year students was selected from selected federal and state polytechnics using stratified and purposive sampling techniques. Data were collected through structured questionnaires and semi-structured interviews, while quantitative data were analyzed using descriptive statistics, correlation analysis, and Structural Equation Modelling (SEM), alongside thematic analysis for qualitative responses. The findings revealed that AI-powered research tools significantly improved literature search efficiency, data management, academic collaboration, innovation capacity, and decision-making processes among researchers and students. The study further showed that AI integration positively influenced students' academic performance through personalized learning support, improved research engagement, and enhanced access to digital academic resources. However, inadequate technological infrastructure, insufficient funding, low digital competency, and ethical concerns relating to plagiarism and data privacy were identified as critical challenges limiting effective AI adoption in polytechnics. The study concluded that leveraging artificial intelligence for research and development enhancement could substantially strengthen academic excellence, innovation, and institutional competitiveness in Nigerian polytechnics. The study recommended strategic investment in AI infrastructure, continuous professional training, institutional research support systems, and the establishment of comprehensive ethical frameworks to guide responsible AI utilization in higher education.

Keywords: Artificial Intelligence, Research and Development, Academic Performance, Polytechnic Education, Digital Transformation, Innovation, Southwest Nigeria.

THE ROLE OF ARTIFICIAL INTELLIGENCE IN STRENGTHENING RESEARCH CAPACITY AND ACADEMIC EXCELLENCE IN NIGERIAN POLYTECHNICS

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ABSTRACT

The increasing adoption of Artificial Intelligence (AI) in higher education has created new opportunities for strengthening research capacity, academic productivity, and institutional innovation, particularly within technical and vocational education systems. In Nigeria, polytechnics play a critical role in manpower development and technological advancement; however, limitations in research infrastructure, digital competencies, and innovation support continue to hinder academic excellence. This study examined the role of artificial intelligence in strengthening research capacity and promoting academic excellence in Nigerian polytechnics, with particular focus on institutions in Southwest Nigeria. The study employed a descriptive survey research design using a quantitative approach. Data were collected from 438 respondents, including lecturers, researchers, librarians, and final-year students selected from selected federal and state polytechnics through stratified random sampling techniques. Structured questionnaires and institutional research performance indicators were used for data collection, while data analysis was conducted using descriptive statistics, Pearson correlation, and regression analysis. The findings indicated that AI technologies significantly enhanced research productivity through improved access to academic databases, intelligent data analysis, automated referencing systems, plagiarism detection mechanisms, and collaborative digital learning platforms. The study further revealed that AI-supported research practices positively influenced students' academic excellence by improving critical thinking, problem-solving abilities, research engagement, and innovation skills. Additionally, the study established a significant positive relationship between AI-driven research capacity development and institutional academic performance. Despite these benefits, inadequate ICT infrastructure, poor funding, low awareness of AI applications, inconsistent power supply, and concerns regarding ethical usage were identified as major barriers to effective implementation. The study concluded that artificial intelligence possesses substantial capacity to transform research culture and academic performance in Nigerian polytechnics if effectively integrated into institutional policies and educational practices. The study recommended increased government funding for digital research infrastructure, continuous AI capacity-building programmes, stronger industry-academic collaborations, and the establishment of institutional ethical guidelines for responsible AI utilization in research and teaching activities.

Keywords: Artificial Intelligence, Research Capacity, Academic Excellence, Polytechnic Education, Digital Research Innovation, Higher Education, Southwest Nigeria.

AI-SUPPORTED RESEARCH INNOVATION AND ITS INFLUENCE ON STUDENTS' ACADEMIC PERFORMANCE IN POLYTECHNICS IN SOUTHWEST NIGERIA

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ABSTRACT

Artificial Intelligence (AI) has become a transformative force in modern education, particularly in the areas of research innovation, digital learning, and academic performance enhancement. The integration of AI-supported research systems into higher education institutions has the potential to improve knowledge creation, analytical capacity, and student learning outcomes. Despite the growing global relevance of AI technologies, many Nigerian polytechnics still face challenges relating to effective adoption and utilization of AI-driven research innovations. This study investigated the influence of AI-supported research innovation on students' academic performance in polytechnics in Southwest Nigeria. The study adopted a mixed-methods research design involving both quantitative and qualitative approaches. A total of 450 respondents comprising lecturers, ICT personnel, researchers, and final-year students were selected from selected federal and state polytechnics using stratified and purposive sampling techniques. Data were collected through questionnaires, interviews, and institutional academic performance records, while analysis was conducted using descriptive statistics, multiple regression analysis, and thematic analysis. The findings revealed that AI-supported research innovation significantly improved students' academic engagement, research productivity, collaborative learning, problem-solving abilities, and access to digital academic resources. The study further established that AI-powered applications such as intelligent research assistants, automated data analysis software, plagiarism detection tools, and adaptive learning platforms positively influenced students' academic performance and innovation capacity. The results also indicated that institutions with higher levels of AI integration recorded improved research output and stronger academic competitiveness. However, inadequate ICT infrastructure, limited digital literacy, poor funding, unstable electricity supply, and concerns regarding ethical use of AI technologies emerged as major challenges affecting effective implementation. The study concluded that AI-supported research innovation has substantial potential to transform polytechnic education and promote sustainable academic development in Southwest Nigeria. The study recommended increased investment in AI infrastructure, digital research laboratories, continuous staff and student training programmes, and the formulation of institutional policies to ensure ethical and responsible AI utilization in teaching, learning, and research activities.

Keywords: Artificial Intelligence, Research Innovation, Academic Performance, Polytechnic Education, Digital Learning, Research Productivity, Southwest Nigeria.

INTEGRATING ARTIFICIAL INTELLIGENCE INTO RESEARCH AND DEVELOPMENT PRACTICES FOR SUSTAINABLE ACADEMIC PERFORMANCE IN POLYTECHNICS IN SOUTHWEST NIGERIA

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ABSTRACT

The integration of Artificial Intelligence (AI) into research and development practices has become increasingly important in promoting sustainable academic performance and institutional competitiveness in higher education systems worldwide. In Nigeria, polytechnics are gradually embracing AI technologies to improve research quality, teaching effectiveness, innovation, and students' learning outcomes. However, the extent to which AI integration contributes to sustainable academic performance within polytechnic education remains insufficiently explored. This study examined the integration of artificial intelligence into research and development practices for sustainable academic performance in polytechnics in Southwest Nigeria. The study adopted a descriptive survey research design supported by a mixed-methods approach. A total of 465 respondents comprising lecturers, researchers, ICT administrators, and final-year students were selected from selected federal and state polytechnics using multistage sampling techniques. Data were collected through structured questionnaires, interviews, and institutional academic records. Quantitative data were analyzed using descriptive statistics, correlation analysis, and Structural Equation Modelling (SEM), while qualitative responses were analyzed thematically. The findings revealed that the integration of AI into research and development practices significantly enhanced academic performance through improved research efficiency, access to digital scholarly resources, intelligent data analysis, collaborative learning systems, and personalized academic support. The study further established that AI-driven technologies positively influenced students' research engagement, creativity, critical thinking, innovation capability, and overall academic achievement. In addition, institutions that effectively integrated AI into their research systems demonstrated stronger research output, improved institutional visibility, and enhanced educational sustainability. Despite these benefits, challenges such as inadequate technological infrastructure, insufficient funding, low AI competency among academic staff, unstable internet connectivity, and ethical concerns relating to plagiarism and data privacy were identified as major barriers to implementation. The study concluded that effective integration of artificial intelligence into research and development practices can significantly promote sustainable academic performance and institutional advancement in Nigerian polytechnics. The study recommended strategic investment in AI-enabled infrastructure, continuous digital capacity-building programmes, strengthened industry-academic partnerships, and the development of comprehensive ethical and regulatory frameworks for responsible AI adoption in higher education institutions.

Keywords: Artificial Intelligence, Research and Development, Sustainable Academic Performance, Polytechnic Education, Digital Transformation, Innovation, Southwest Nigeria.

ARTIFICIAL INTELLIGENCE ADOPTION AND KNOWLEDGE MANAGEMENT SYSTEMS FOR IMPROVING RESEARCH PRODUCTIVITY AND ACADEMIC PERFORMANCE IN POLYTECHNICS IN SOUTHWEST NIGERIA

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ABSTRACT

The growing complexity of academic research and the increasing demand for high-quality scholarly output have necessitated the adoption of innovative technologies such as Artificial Intelligence (AI) and knowledge management systems in higher education institutions. In the context of Nigerian polytechnics, where research productivity and academic performance are often constrained by limited resources and inefficient information management practices, AI-driven knowledge systems present a viable pathway for transformation. This study investigated the role of artificial intelligence adoption in enhancing knowledge management practices and its effect on research productivity and academic performance in polytechnics in Southwest Nigeria. The study employed a mixed-methods research design combining quantitative and qualitative approaches. A sample of 440 respondents, comprising lecturers, researchers, librarians, and final-year students, was selected using stratified random sampling techniques from selected polytechnics. Data were collected through structured questionnaires and in-depth interviews, while quantitative data were analyzed using descriptive statistics, correlation analysis, and multiple regression techniques, complemented by thematic analysis of qualitative data. The findings revealed that AI-enabled knowledge management systems significantly improved information storage, retrieval efficiency, knowledge sharing, collaborative research, and access to academic databases. The study further established that AI adoption positively influenced research productivity through faster data processing, improved research quality, and enhanced academic writing support. Additionally, a significant positive relationship was found between AI-driven knowledge management practices and students' academic performance, particularly in terms of research skills development, critical thinking, and academic engagement. However, challenges such as inadequate ICT infrastructure, low awareness of AI tools, limited technical expertise, funding constraints, and concerns about data security and ethical usage were identified as major impediments to effective implementation. The study concluded that the integration of artificial intelligence into knowledge management systems offers substantial potential for improving research productivity and academic performance in Nigerian polytechnics. The study recommended increased investment in digital infrastructure, institutional support for AI adoption, continuous training for academic staff and students, and the establishment of robust policies to ensure ethical and effective utilization of AI technologies in academic environments.

Keywords: Artificial Intelligence, Knowledge Management, Research Productivity, Academic Performance, Polytechnic Education, Digital Innovation, Southwest Nigeria.

ARTIFICIAL INTELLIGENCE AND ENTREPRENEURSHIP: NEXUS AND CONCEPTUALIZATION

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ABSTRACT

There is no doubt that the impact of Artificial Intelligence (AI) across various sectors, particularly within the entrepreneurial landscape, has become increasingly significant. This study investigates the complex network of relationships between AI and entrepreneurship, with the aim of understanding how AI technologies drive innovation, create new business models, and enhance decision-making processes for entrepreneurs. Using a qualitative descriptive analysis of selected case study data, the paper identifies key themes, including AI-driven market analysis, automation of operations, personalized customer engagement, and the ethical implications of AI deployment in startups. Findings reveal that AI offers significant opportunities for both emerging and established entrepreneurs; however, it also necessitates a reevaluation of traditional business practices and a strong understanding of AI ethics. Theoretically, this study contributes to the growing discourse at the intersection of technology and entrepreneurship. Practically, it provides actionable insights for aspiring entrepreneurs and policymakers seeking to foster an AI-enabled entrepreneurial ecosystem. The study further proposes a conceptual framework that outlines the stages of AI adoption in entrepreneurial ventures, highlighting the critical skills and strategies required for successful integration.

Keywords: Artificial Intelligence, entrepreneurship, innovation, business models, ethical implications, and conceptual framework

BEYOND ACCEPTANCE: EXAMINING THE RELATIONSHIP BETWEEN AI-POWERED ASSESSMENT TOOL USAGE AND ACADEMIC PERFORMANCE OUTCOMES IN INDUSTRIAL TECHNICAL EDUCATION PROGRAMMES OF SOUTH-EAST NIGERIA

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ABSTRACT

The integration of AI-powered assessment tools into higher education has gained global relevance. However, empirical evidence linking actual tool usage to measurable academic performance outcomes in TVET contexts across sub-Saharan West Africa remains critically limited. Existing studies have predominantly focused on technology acceptance intentions rather than demonstrable learning gains, leaving a significant outcome-level evidence gap in Industrial Technical Education (ITE). This study examined the relationship between AI-powered assessment tool usage: specifically AI-driven formative feedback and adaptive quiz platforms (including Gradescope and Quizizz) and academic performance outcomes in Technical Drawing and AutoCAD among undergraduate ITE students in South-East Nigeria. A quasi-experimental design was adopted, with stratified random sampling used to draw 310 ITE students from five federal universities and two Colleges of Education (Technical) in South-East Nigeria institutions selected to reflect the dominant TVET delivery structures in the region. Participants were assigned to AI-assisted assessment and conventional assessment conditions over one academic semester, with data collected via pre-test and post-test instruments and analysed using ANCOVA and multiple regression analysis. Students in the AI-assisted condition recorded significantly higher post-test performance scores ($M = 74.38$, $SD = 6.21$) compared to the control group ($M = 61.45$, $SD = 7.03$), with a statistically significant mean difference ($F(1, 317) = 84.62$, $p < .001$, $\eta^2 = .21$). Multiple regression analysis revealed that frequency of AI tool engagement ($\beta = .43$, $p < .001$) and quality of formative feedback utilisation ($\beta = .31$, $p < .01$) were the strongest predictors of performance gains, together explaining 47% of variance in post-test scores ($R^2 = .47$). These findings extend the Technology Acceptance Model by establishing an outcome-level linkage between AI assessment tool usage and technical competency gains in TVET, advancing the literature beyond attitudinal acceptance toward evidence-based pedagogical impact. Implications are drawn for NUC and NCCE accreditation policy, TVET curriculum reform, and sustainable AI-driven education reform across Africa.

Keywords: AI-powered assessment; Technical Drawing; AutoCad; Computer-Aided Design; Industrial Technical Education; TVET; Academic Performance Outcome; Technology Acceptance Model; formative feedback; quasi-experimental; Nigeria; higher education

OFFICE INFORMATION SYSTEMS AND THEIR RELEVANCE IN TRACKING INSECURITY AND CRIME IN NIGERIA

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ABSTRACT

The rising incidence of insecurity and crime in Nigeria has intensified the need for efficient,data-driven mechanisms for crime detection, reporting, and response. Office Information Systems (OIS), which integrate people, processes, data, and technology, represent a critical yet underutilized component of national security infrastructure. This paper examines the role of OIS in tracking insecurity and crime in Nigeria, with emphasis on key components such as Electronic Records Management Systems (ERMS), Management Information Systems (MIS), Decision Support Systems (DSS), and Communication Information Systems. Anchored on General Systems Theory and the Information Systems Success Model, the study adopts a qualitative descriptive approach based on an extensive review of literature and documented institutional practices.Findings indicate that effective deployment of OIS enhances crime data capture, improves data accuracy and retrieval, strengthens inter-agency coordination, and supports evidence-based security decision-making. However, challenges such as inadequate ICT infrastructure, weak data governance,low digital literacy, and lack of interoperability hinder optimal utilization. The paper proposes a conceptual framework linking OIS components to crime-tracking outcomes and recommends the development of a National OIS-Security Integration Framework, investment in ICT infrastructure, capacity building, and robust data governance systems.

Keywords: Office Information Systems,Crime Tracking, Insecurity, Nigeria, ERMS, DSS, ICT

COMPETITIVE AGGRESSIVENESS AND FINANCIAL PERFORMANCE OF SMES: THE MODERATING ROLE OF ENVIRONMENT

By

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ABSTRACT

The purpose of this study is to investigate the relationship between competitive aggressiveness of entrepreneurial orientation and firm performance. The study also evaluates the moderating influence of key environmental characteristics, dynamism and hostility on this relationship. Literature in this area was examined leading to hypothesis development. Measurement instrument utilized where based on scale items previously established in the literature by researchers for measuring this construct. Reliability and validity of this scale items were also established by previous studies. The investigation covered only firm in Kano state Nigeria, with the following characteristics: (a) having at least 10 employees and a maximum of 300 workers, (b) small and medium sized enterprises, (c) standing alone, not a subsidiary or branch companies (d) and based in Kano. A total of 300 owners/managers of SMEs participated in the research. Data collected were analyzed using Hierarchical Moderated Regression Analysis implemented in the SPSS statistical program. The results show competitive aggressiveness has positive and significant relationship with firm performance indicating that the theoretical framework is supported. It was also found that this relationship is partially influenced by environmental dynamism and hostility. These findings demonstrate that competitive aggressiveness alone is not a significant determinant of firm performance, it is being influenced partially by environmental characteristics. The implication of this finding for both researchers and managers were also discussed. The study contributes to the expanding filed of entrepreneurial orientation research and provide additional insight into the strategic behavior of firms in a variety of environmental contents.

Keywords: Dynamism, Entrepreneurial Orientation, Hostility, Competitive aggressiveness, SMEs

MACHINE LEARNING DRIVEN PREDICTION AND OPTIMIZATION OF URBAN WASTE AND ENERGY MANAGEMENT USING IOT TIME SERIES DATA

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ABSTRACT

Rapid growth in smart cities often outpaces traditional infrastructure, creating challenges in waste collection and energy distribution. Although Internet of Things (IoT) sensors enable real-time monitoring of these systems, the collected data is not consistently leveraged for proactive decision-making. This study introduces a machine learning framework designed to predict waste accumulation and manage energy demand, with Maiduguri, Nigeria, serving as a case study. Owing to deployment constraints, the framework was evaluated through a 30-day simulation involving 10 smart bins and 50 household energy nodes, with realistic noise incorporated to simulate sensor errors. Three machine learning models were compared: Random Forest (RF), Artificial Neural Network (ANN), and Long Short-Term Memory (LSTM). The LSTM model achieved the highest performance, with a classification accuracy of 94.6% and a forecasting Mean Absolute Percentage Error of 6.3%. Integration of k-means urgency clustering with Dijkstra's shortest-path algorithm enabled dynamic scheduling of collections, resulting in a 38% reduction in fuel consumption and a 60% decrease in bin overflow during the simulation. These findings indicate a practical, data-driven approach to enhancing urban management in resource-constrained African cities; however, real-world implementation is necessary to validate these results.

Keywords: Smart cities, IoT, Waste management, Machine learning, LSTM, Energy optimization

BIORESTORATION OF CRUDE OIL-POLLUTED SEDIMENT IN BODO COMMUNITY OGONILAND, NIGERIA USING INDIGENOUS BACTERIAL ENDOPHYTES.

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ABSTRACT

High levels of petroleum-derived hydrocarbons present in crude oil-polluted sediments pose significant threats to living organisms in the environment due to their toxic, carcinogenic and mutagenic effects. In this study the laboratory scale bio-restoration of abandoned crude oil polluted mangrove sediment in Bodo community in Ogoniland, Nigeria using indigenous bacterial endophytes isolated from water hyacinth (*Eichhorniacrassipes)* was carried out. The indigenous bacterial endophytes were isolated, screened and used for bacterial consortium development. The bacterial consortium were identified using16S illumina amplicon sequencing and applied in laboratory scale bioremediation for 42days. The samples were monitored to confirm hydrocarbon biodegradation using the gas chromatography mass spectrometry (GC-FID). The bacterial population revealed that total culturable heterotrophic bacterial count (TCHBC) ranged from $1.56 \times 10^5 \pm 1.68$ CFU/g to $6.3 \times 10^6 \pm 2.35$ CFU/g while the total culturable hydrocarbon utilizing bacterial count (TCHUBC) ranged from $4.3 \times 10^4 \pm 9.12$ CFU/g to $1.69 \times 10^6 \pm 6.31$ CFU/g. There were variations in the abundance and diversity of the bacterial community present in the bacterial consortium which had huge biodegradation potential as revealed during the treatment/biorestoration process. The highest number of hydrocarbon-degrading bacteria from phylum to genus levels were *Proteobacteria-Gammaproteobacteria-Pseudomonadales-Moraxellaceae-Acinetobacter*, while the top 4 phyla identified are *Proteobacteria*, *Bacteroidetes, Firmicutes, and Unclass_Bacteria.* The highest net percentage loss of TPH and PAH were 93.17% and 94.34% respectively on day 42 in sample C while the lowest percentage TPH and PAH loss were 8.40% and 10.24% respectively on day 42 in sample A. Overall, this study has established the diversity and degradative ability of endophytic bacterial communities as bio-resource for the effective bio-restoration of crude oil-polluted environments.

KEYWORDS: Endophytes, Hydrocarbon, Biorestoration, Ogoniland, Bacteral community, Biodegradation

DEVELOPING AND INTEGRATING ARTIFICIAL INTELLENGENCE (AI) THAT REFLECTS CULTURAL HEGEMONY INTO AFRICA EDUCATIONAL SYSTEMS FOR SUSTAINABLE EDUCATION REFORMS IN THE 21ST CENTURY

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ABSTRACT

This paper presents, Developing and Integrating Artificial Intelligence (AI) that reflects Cultural Hegemony into Africa Educational Systems for Sustainable Education Reforms in the 21st Century. This is indeed a critical tool for nation building at large and a research paper that critically examined the key roles this tool will eject into nation building if adequately developed based on cultural backgrounds where the local languages, values, needs and other components are properly incorporated. The AI in this context was developed and co-created taking a cue from China's technology where all the China's technology took root from their cultural heritage, enforced at all levels of learning and training, that led to ease of learning for the citizens and this policy gave rise to what we hear and see of China nation today. Similarly, this paper also adopted the same policy by developing an AI that recognized purely Africa's cultural heritage taking into cognizance our diverse local languages, values and specific needs. When integrated into the curricular of higher school of learning, and vocational centres, the results showed quick understanding of teaching modules and the pace of learning was extremely encouraging. Skills acquisition became easier and this boosted entrepreneurship making the society self-reliant and thereby promoting sustainable nation building. Therefore, developing and integrating AI that reflects cultural hegemony into Africa educational systems for sustainable education reforms in the 21st century is the sure way out of dependability on other developed economy.

Keywords: AI, Cultural Hegemony, Sustainability, Reforms

AGRICULTURAL RESIDUES FOR ECO-FRIENDLY BUILDING IN SOKOTO

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ABSTRACT

The construction sector in Sokoto faces challenges of high energy demand and environmental degradation, partly due to reliance on conventional building materials. Agricultural residues such as rice husk, sugarcane bagasse, and groundnut shells present a sustainable alternative, offering low-cost, locally available, and eco-friendly options for walling, insulation, and roofing materials. Utilizing these residues in construction can reduce carbon emissions, minimize waste, and improve thermal comfort in Sokoto's hot climate. This study highlights the environmental benefits, practical applications, and challenges of integrating agricultural residues into local building practices, emphasizing the need for awareness, policy support, and technical capacity to promote sustainable construction in the region.

Keywords: Agricultural residues, green building materials, sustainable construction, environmental impact, Sokoto, low-cost building, thermal insulation

ASSESSMENT AND MANAGEMENT OF SEDIMENT TRANSPORT AND EROSION IN IRRIGATION SCHEMES OF SOKOTO STATE

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ABSTRACT

Soil erosion and sediment transport are critical issues affecting irrigation lands in Sokoto State, where seasonal rainfall, river flow variability, and agricultural practices contribute to land degradation and reduced water conveyance efficiency. This study investigates sediment dynamics on irrigated farmland along key irrigation schemes, including the impacts of runoff, soil type, and cropping patterns on erosion and sediment deposition. Field measurements and hydrological modeling indicate that sediment loads on these lands can reach 12–20 tons/ha/year during peak rainy periods, leading to silted canals, reduced irrigation efficiency, and soil fertility loss. The research evaluates erosion control and sediment management strategies, including vegetative buffer strips, contour farming, check dams, and periodic canal desiltation, to reduce soil loss and maintain effective water delivery. Findings demonstrate that implementing these measures can substantially mitigate sediment accumulation, improve irrigation performance, and promote sustainable agricultural practices in Sokoto's irrigated landscapes.

Keywords: Irrigation lands, Sediment transport, Soil erosion, Erosion control, Sokoto, Water management, Sustainable agriculture

ASSESSMENT AND PREVENTION OF CORROSION IN MECHANICAL ENGINEERING EQUIPMENT IN HIGHER INSTITUTIONS

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ABSTRACT

Corrosion is a pervasive challenge in mechanical engineering, leading to the deterioration of metals and alloys used in laboratory and workshop equipment. In higher institutions, equipment such as boilers, heat exchangers, laboratory reactors, pumps, and pipe networks are frequently exposed to moisture, chemicals, and varying temperatures, making them highly susceptible to corrosion. This degradation not only reduces the operational lifespan of the equipment but also increases maintenance costs and safety risks for students and staff. This study investigates the types and rates of corrosion affecting commonly used mechanical engineering equipment in academic laboratories, identifies contributing environmental and operational factors, and evaluates current prevention and mitigation strategies, including material selection, protective coatings, and cathodic protection. By narrowing the focus to equipment used in teaching and research laboratories, the study provides actionable insights for prolonging equipment service life, ensuring laboratory safety, and optimizing institutional resources. The findings underscore the importance of proactive corrosion management in higher education institutions to maintain effective teaching, research, and industrial training environments.

Keywords: Corrosion; Laboratory Safety; Preventive Maintenance; Material Degradation

DIGITAL FINANCIAL SERVICES AND THE GROWTH OF SMALL AND MEDIUM ENTERPRISES IN NIGERIA

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ABSTRACT

Small and Medium Enterprises are vital to economic growth and job creation in Nigeria. In recent years, digital financial services, particularly mobile money, have expanded rapidly and now offer SMEs improved access to payment systems, savings options and basic financial management tools. This study examines the relationship between digital financial services and the growth of SMEs using survey data collected from enterprises across selected states in Nigeria. SME growth was assessed using changes in sales volume, employment size and operational scale. The main explanatory variable was digital financial services usage, measured through mobile money adoption and transaction frequency. Control variables included firm size, business sector, owner's education level and urban location. Regression analysis was employed to evaluate the relationship between mobile money usage and SME growth, with robust standard errors applied to enhance the reliability of the estimates. The results indicate a positive and statistically significant relationship between the adoption of digital financial services and SME growth. SMEs that actively use mobile money reported higher levels of sales growth, employment expansion and business scaling compared with non users. These findings suggest that digital financial services play an important role in supporting SME performance and expansion. The study provides useful evidence for policymakers, financial service providers and technology developers seeking to strengthen SME development through digital finance in Nigeria and similar emerging economies.

Keywords: Digital financial services; Mobile money; SME, Business growth

SPS-DESR: A Human-Centred Framework for Conducting Systematic Literature Reviews in the Age of Generative AI

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The rapid proliferation of generative artificial intelligence (Gen-AI) tools in higher education presents a double-edged challenge: while these technologies accelerate literature-related tasks, their uncritical adoption threatens the methodological integrity and developmental value that systematic literature reviews (SLRs) are designed to cultivate. Early-career researchers who rely on AI-generated summaries in place of genuine engagement with the primary literature risk producing reviews that are superficially coherent but methodologically hollow — and, critically, they forfeit the analytical and scholarly writing competencies that the review process is uniquely positioned to develop. This paper presents the Systematic Paper Selection, Data Extraction, Synthesis, and Reporting (SPS-DESR) framework as a human-centred, pedagogically transparent response to this challenge. Organised into seven operational stages — planning, database search, paper inclusion and exclusion, quality assessment, data extraction, data synthesis, and reporting — SPS-DESR makes the intermediate decisions of the review process explicit, traceable, and teachable. Its structured instruments, including the Literature Review Summary Table (LRST), the Critical Analysis Table (CAT), and the concept of Literature Reading Saturation Signs (LRSS), serve as both learning scaffolds and verifiable artefacts of intellectual engagement that AI cannot authentically replicate.In particular, this paper introduces Human-Centred Review Integrity Indicators (HCRII) — a set of assessment criteria derived from SPS-DESR stages that enable supervisors, journal reviewers, and institutional educators to evaluate whether a submitted literature review reflects genuine scholarly effort rather than AI-generated output. These indicators shift the quality assurance conversation from AI detection to evidence of human judgement, covering dimensions such as structured workflow documentation, thematic diversity in the CAT, saturation justification, synthesis coherence, and domain-specific quality appraisal. The HCRII can guide students toward authentic review practice and can provide a principled basis for assessing academic integrity in an AI-pervasive environment.Accordingly, the SPS-DESR is positioned not as a rejection of AI assistance but as a framework that defines the appropriate boundaries of its use — supporting tasks such as keyword brainstorming and reference management while preserving human authority over relevance judgement, quality appraisal, synthesis, and critical writing. In doing so, it offers a sustainable model for integrating AI into higher education without compromising the scholarly development of researchers or the integrity of the knowledge they produce.

Keywords: *systematic literature review; SPS-DESR; generative AI; academic integrity; human-centred assessment; research pedagogy; higher education*

HARNESSING AI FOR ECONOMIC GROWTH AND POVERTY REDUCTION IN NIGERIA

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ABSTRACT

Artificial Intelligence (AI) has emerged as a disruptive technology that has the potential to transform economies and improve the living standards across the globe. In Nigeria, where poverty, unemployment and economic inequality are still the major development challenges, AI offers new ways to foster innovation, productivity and inclusive economic growth. But while AI technologies are gaining more global acceptance, the country is still hampered by limited technological infrastructure, digital literacy and policy implementation, which hinders the efficient use of AI for the country's development. This study considers the potential of AI in spurring economic growth and reducing poverty in Nigeria. The problem of this study is the gap between Nigeria's vast economic potential and the continued prevalence of poverty in the face of various government interventions. This study is important as it contributes to the debate on sustainable development, technological innovation and poverty reduction strategies in Nigeria. The study uses a qualitative research method based on the analysis of the existing literature, policy documents and academic publications. The study is based on the Technology Acceptance Theory (TAT) that explains adoption and use of technological innovations as a driver for the socioeconomic development. The findings show that AI has great potential in poverty reduction through job creation in new digital sectors, increased agricultural productivity, better health services, financial inclusion and better public service administration. But its effectiveness may be hampered by poor digital infrastructure, poor technology skills, poor regulatory frameworks and concerns about job displacement. The research finds that, when properly embedded into a country's development strategies, AI can be a powerful tool for economic transformation. The study suggests that the government should invest more in digital infrastructure, include AI education in school, work with the private sector to innovate on technology, and establish ethical and regulatory frameworks to ensure equal access to AI-related opportunities. These measures will enable Nigeria to harness the benefits of AI for sustainable economic growth and poverty alleviation.

Keywords: Artificial Intelligence, Economic Growth, Poverty Reduction, Nigeria, Technology Acceptance Theory, Sustainable Development

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